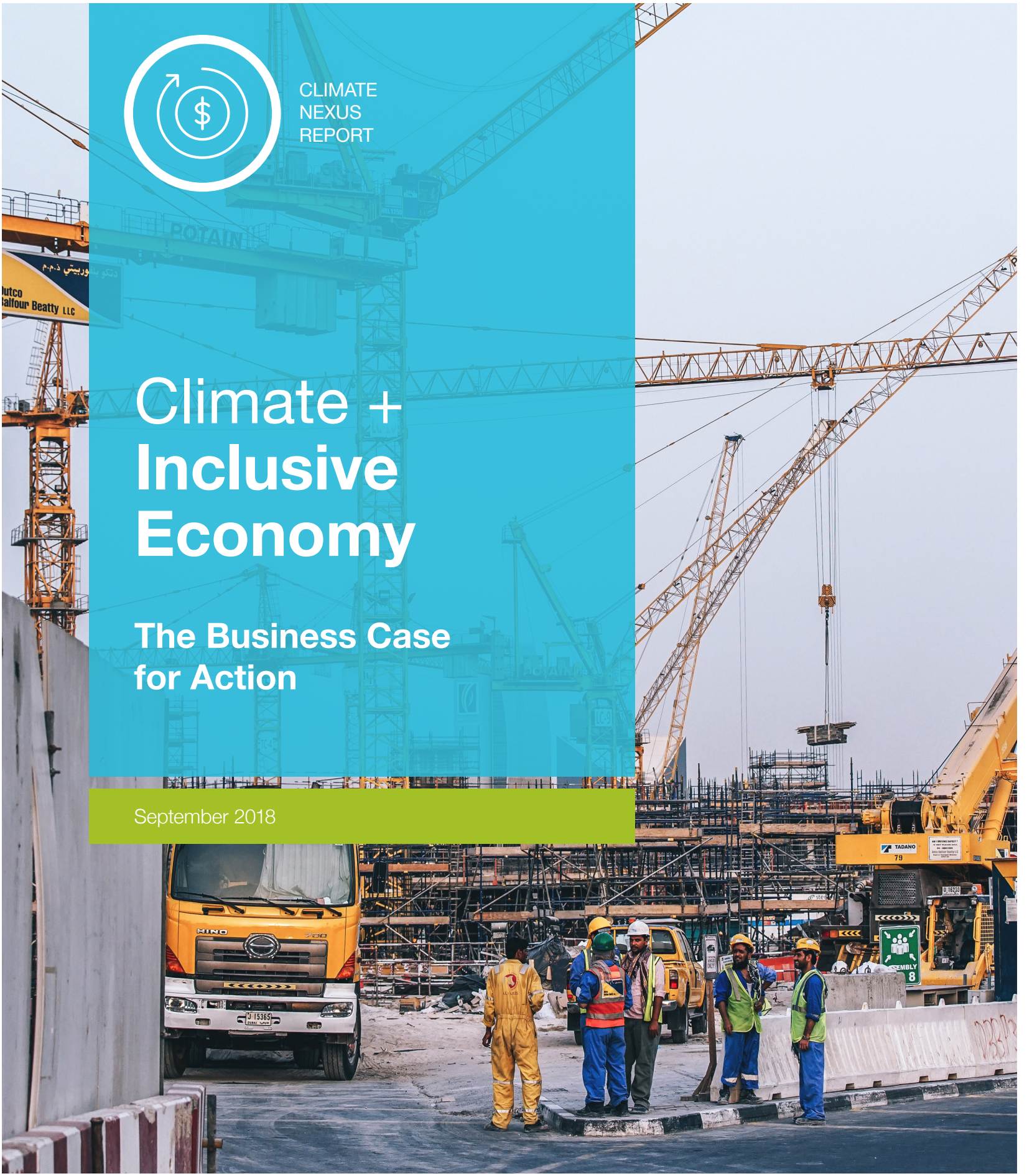


CLIMATE
NEXUS
REPORT

Climate + **Inclusive Economy**

The Business Case for Action

September 2018

WE MEAN BUSINESS

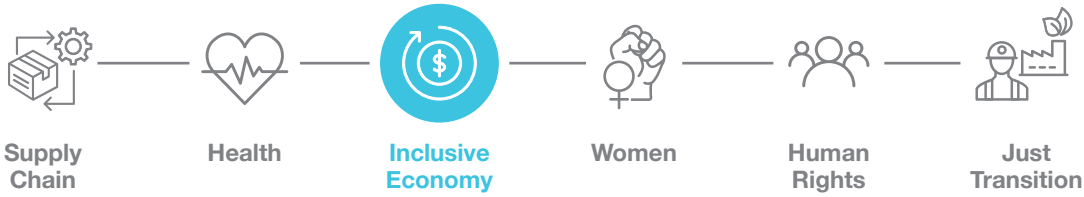
BSR®

Contents

About this Report

Climate change affects each and every human around the globe, with profound and potentially lasting implications for an inclusive economy. This paper uses data and case studies to highlight the impacts of climate change on an inclusive economy and help companies across sectors understand the resulting consequences for business. The report demonstrates why and how business can take action, including how companies can establish a deeper understanding of the nexus of an inclusive economy and climate throughout their businesses; how to articulate the risks and opportunities for companies across various sectors; how to secure buy-in from senior leadership; and how to identify, assess, prevent, mitigate, and remedy the adverse effects of climate change.

This report is part of a series of six **climate nexus reports** that cover:



Climate and economy are intimately linked. An economy characterized by layers of exclusion and structural discrimination amplifies climate risk by exacerbating the social, economic, cultural, and political vulnerability of marginalized individuals and communities. Conversely, an inclusive economy with improved employment practices, job quality, and job access; increased affordability and access to critical products and services; and enhanced community and government engagement can boost our capacity to anticipate, absorb, accommodate, or recover from the effects of climate change. In essence, when a company learns to work at the nexus between climate and inclusion, it learns to become a resilient business in a resilient world.

This report is part of a series of six climate nexus reports that cover human rights, inclusive economy, women's empowerment, supply chain, just transition, and health. All papers in this series are aimed at business to drive resilience inside their company, across supply chains, and within vulnerable communities. The reports address issues that are material to business, vital in the current political environment, and key to building resilience.

The principal audience for this report is sustainability professionals working within BSR member companies. It is intended to support their efforts to build a robust case for sustainability initiatives with co-benefits for climate action and inclusive economy. The paper also seeks to unify discourse among practitioners in the fields of inclusive economy and climate to help both communities understand each other's frameworks and terminology and perhaps even create a shared vocabulary for corporate action.

This report was prepared using a mix of written sources and interviews. The research draws upon a significant volume of sources, including literature covering climate science, literature covering the economic consequences of climate change, company materials, and media coverage. The report benefited from the results of semi-structured interviews conducted with dozens of company professionals during the development of the BSR "Framework for Climate Resilience."[1]

This report was written by Edward Cameron, Martin Lemos, and Susan Winterberg, with additional guidance from Samantha Harris and David Wei. Please direct comments or questions to David Wei at dwei@bsr.org.

Acknowledgments

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Disclaimer

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Climate + Inclusive Economy

The Nexus

Climate and economy are intimately linked. An economy characterized by layers of exclusion and structural discrimination amplifies climate risk by exacerbating the vulnerability of marginalized individuals and communities. Conversely, an inclusive economy can boost our capacity to anticipate, absorb, accommodate, or recover from the effects of climate change.

According to the World Health Organization and UNICEF,

> 1 billion people,

or 18% of the world's population, already suffer from

water stress.*

An estimated 2°C temperature rise will expose between

2 billion and 3 billion people to water shortages as glaciers melt, droughts become more common, and sea-water seeps into freshwater supplies.

The Business Case

When a company learns to work at the nexus between climate and inclusion, it learns to become a resilient business in a resilient world.

RISKS

Global workers face a precarious labor situation

as the decline in economic security and standards of living in advanced economies combines with looming uncertainty caused by increased automation and widening inequality —this creates unpredictability and risk for business.

Demographic upheavals caused by population growth, migration, aging, and urbanization are straining social safety nets, as well as notions of cultural and national identity.

OPPORTUNITIES

Businesses make choices about the pricing, design, and distribution of their products that have the opportunity to directly impact economic inclusion:

ensuring their most critical goods and services (healthcare, food, financial services, housing, transport, utilities, and technology platforms that connect to basic needs) **are affordable and accessible to all members of a population**

making these critical products available and accessible to the world's poorest in developing countries and those lacking transportation or facing other barriers, such as lack of access to nearby grocery stores or pharmacies

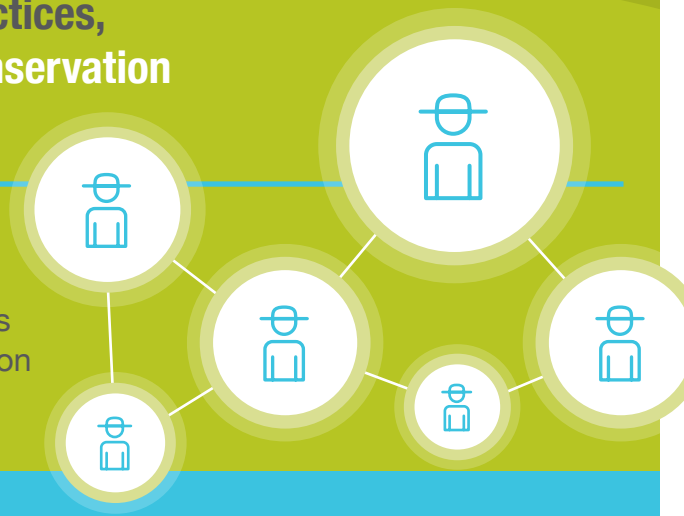
creating services such as ride-sharing or other digital apps **accessible to those with disabilities in situations where the law does not mandate it**

Woolworths Farming for the Future Initiative:

Noting a **decrease in crop yield and quality** from farm suppliers, Woolworths developed an initiative aimed at providing additional assistance to farmers challenged by increasingly difficult growing conditions.

The initiative provides guidance to producers on agricultural best practices, with a heightened focus on water conservation for South African producers.

The initiative also helps organize farm partners toward **collective action** and engagement with the broader ecosystems of partners needed to preserve the function of their community water resources.



Recommendations

BSR has identified three ways companies can act at the nexus of climate change and inclusive economy

ACT

Companies can take action within their own zone of operations.

Improve enterprise risk-management systems by integrating climate risk and resilience investments; improve employment practices through enhanced job quality and access.

ENABLE

Companies can take a broader approach and work to enable resilience across complex supply chains.

Increase affordability and access to products and services.

INFLUENCE

Companies can choose to influence the political, social, cultural, and economic conditions that can either exacerbate vulnerability or enhance resilience.

Enhance community and government engagement.

* http://www.who.int/water_sanitation_health/monitoring/jmp2005/en/

Executive **Summary**

The threat of climate change to business is clear, and so is the evidence that climate change undermines the global economy. Climate change also further compounds injustice as it exacerbates the social, cultural, economic, political, and legal exclusionary forces that perpetuate structural discrimination. As global temperatures warm, increasing the likelihood of climate-related events such as extreme weather, flooding, drought, and sea-level rise—all of which impact the world's poor the most—efforts to eradicate poverty and inequality will become more difficult.

The Climate Change and Inclusive Economy Nexus

The impacts of climate change have worsened in the past decades, and thus the impacts on the global economy also have grown. Impacts could stall and then reverse human development through reduced agricultural productivity, increased water insecurity and exposure to extreme weather events, collapsed ecosystems, and increased malnutrition and health risk caused by water- and vector-borne diseases.

Climate change can exacerbate intersecting inequalities related to income and assets; gender, age, race, and ethnicity; religion and culture; unequal access to basic services (such as health and education); and unequal opportunities for political participation and people's ability to exercise a voice in policy decision-making. All of this means that marginalized groups are more exposed to and heavily impacted by climate hazards, and they possess less of a capacity to cope and recover when those hazards occur. Furthermore, government policies play a central role in building economies that are inclusive or exclusive.

These layers of exclusion compound to lock the most vulnerable in society into a chronic state of lower access to opportunities and poorer long-term outcomes in wealth, education, and health.

The Business Case

Climate change presents a material risk to many aspects of business, including finance, operations, strategy, human resources, marketing, sales, compliance, and legal. And while business has been addressing climate change for years now, much of the work done thus far has consisted of steps to mitigate climate change by increasing energy efficiency and reducing greenhouse gas (GHG) emissions. There remains a critical need for business to support society in adapting to climate risk and do so in a way that addresses inequality and structural inclusion.

BSR has identified three ways companies can act at the nexus of climate change and inclusive economy.

01

ACT

Companies can take action within their own zone of operations.

- Improve enterprise risk-management systems by investing in six capital assets. Companies should invest in the human, social, natural, physical, political, and financial assets that enhance resilience to climate change inside their own business, across complex supply chains, and within frontline communities.
- Improve employment practices through enhanced job quality and access. Companies should give equal access to stable employment and good jobs. Companies play a critical role in helping overcome inequality by providing employees, contractors, and supply chain workers with good jobs with safe working conditions that provide good material living standards and improve personal well-being.

02

ENABLE

Companies can take a broader approach and work to enable resilience across complex supply chains.

- Increase affordability and access to products and services. In a world with a changing climate, companies can play a vital role in providing accessible and affordable products that are critical for communities' health, well-being, and prosperity. They can do this even as they continue to spur profits and growth. Companies can develop new products and pricing models that lower costs and improve access to the products and services needed for adaptation.

03

INFLUENCE

Companies can choose to influence the political, social, cultural, and economic conditions that can either exacerbate vulnerability or enhance resilience.

- Enhance community and government engagement. Companies can surpass social obligations through advocacy and engagement to foster an environment that enables a climate-resilient and inclusive economy. Companies can develop place-based strategies for inclusion and resilience, and they can amplify the voice of civil society in advocating for essential social-protection systems, including social safety nets, social insurance, labor-market reforms, and social care.

The **Nexus**

The Paris Agreement and Sustainable Development Goals (SDGs) define a shared global ambition for immediate action to address climate change and eradicate poverty. These aspirations seek to tackle challenges that are deeply and intrinsically linked—and that arise from the historic circumstances of a global economic system that has insufficiently managed the environmental and social impacts of production. Connecting climate change and inclusive economic growth serves to broaden and deepen the understanding of these global challenges.

Climate Risk and **Structural Discrimination**

Climate change represents a material and cascading risk to communities, undermining human rights, livelihoods, homes, health, and security. It also compounds injustice as it exacerbates the social, cultural, economic, political, and legal exclusionary forces that perpetuate structural discrimination. The United Nations Development Programme (UNDP) has determined that climate change could stall and then reverse human development through reduced agricultural productivity, increased water insecurity, increased exposure to extreme weather events, collapsed ecosystems, increased health risk caused by water- and vector-borne diseases, and increased vulnerability caused by malnutrition.[2]

An estimated 2°C temperature rise will expose between 2 billion and 3 billion people to water shortages as glaciers melt, droughts become more common, and seawater seeps into freshwater supplies. According to the World Health Organization (WHO) and UNICEF, more than 1 billion people, or 18 percent of the world's population, already suffer from water stress.[3] In a warming world, those who already lack adequate supplies of water will grow thirstier. The UN Food and Agriculture Organization (FAO) 2006 *State of Food Insecurity Report* estimated that 854 million people suffer from hunger and malnutrition, including 820 million in developing countries.[4] The poorest countries will be hit the hardest. They will suffer severe loses in crop production, increasing the number of undernourished people and severely hindering progress in combating poverty. Those who already suffer hunger will find it harder to grow food.

The cumulative effects of climate change will make it increasingly difficult for the poorest 40 percent of the world's population, about 2.6 billion people, to build a better life for themselves and their children. These effects also will reinforce the vast disparities and inequalities in our societies. Climate change is therefore best understood as an additional stress on an already stressed system, pushing those already living on the margins closer to the edge.

The Intergovernmental Panel on Climate Change (IPCC) defines climate risk as the interaction of three things: hazard, exposure, and vulnerability.

- **HAZARD** refers to the possible, future occurrence of natural- or human-induced physical events that may have adverse effects. Hazards include extreme weather events such as hurricanes and cyclones; extreme temperatures and heatwaves; floods, storm surges, and sea swells; drought; forest fires; and the spread of water-, vector-, and airborne diseases.
- **EXPOSURE** is conditioned by the inventory of elements in an area in which hazard events may occur. It is the presence of people; livelihoods; environmental services and resources; infrastructure; or economic, social, or cultural assets that turn a hazard into a risk.
- **VULNERABILITY** refers to the propensity of certain elements—including people, ecosystems, biodiversity, economic sectors, complex supply chains, or individual companies—to suffer adverse effects when exposed to climate-related physical hazards. Vulnerability refers to the underlying and intersecting weaknesses that exacerbate exposure to a hazard.

Structural discrimination is the key component of vulnerability. Individuals and communities disadvantaged by layers of exclusion are locked in a vicious cycle. Intersecting inequalities—including those related to income and assets; gender, age, race, and ethnicity; religion and culture; unequal access to basic services (such as health and education); and unequal opportunities for political participation and exercising a voice in policy decision-making—mean that marginalized groups are more exposed to and heavily impacted by climate hazards, and they possess less of a capacity to cope and recover when those hazards occur.[5]

Where a person lives, goes to school, works, or spends leisure time will contribute to exposure. Locations with greater health threats include urban areas, areas where airborne allergens and other air pollutants occur at levels that aggravate respiratory illnesses, communities that are experiencing depleted water supplies or vulnerable energy and transportation infrastructure, coastal and other flood-prone areas, and locations that are affected by drought and wildfire.[6]

Certain occupations also present a greater risk of exposure to climate impacts. It is riskier for people working outdoors or performing duties that expose them to extreme weather. These people include emergency responders, utility repair crews, farm workers, construction workers, and other outdoor laborers.[7]

Poverty also determines how people perceive the risks to which they are exposed. Low-income populations are generally less likely to evacuate in response to a climate hazard, and their ability to evacuate or relocate to a less risk-prone location may be hampered by disruption to transportation, utilities, medical, or communications infrastructure.[8]

Evidence suggests communities of color experience intersecting inequalities that exacerbate risk. They are likely to have limited adaptive capacity due to a lack of adequately insulated housing, inability to afford or to use air-conditioning, inadequate access to public shelters such as cooling centers, and inadequate access to both routine and emergency healthcare. These social, economic, and health risk factors give rise to the observed increase in deaths and disease from extreme heat. After Hurricane Katrina and Superstorm Sandy, both low-income communities and communities of color experienced a higher rate of illness or injury, death, or displacement due to poor-quality housing, lack of access to emergency communications, lack of access to transportation, inadequate access to healthcare services and medications, limited post-disaster employment, and limited or no health and property insurance.[9] Research conducted by the Brookings Institution revealed that African-Americans living in poverty constituted the majority of the residents of vulnerable low-lying sections of New Orleans. Economic and political factors,

including discriminatory practices, produced this spatial distribution of the population. As a result, people in areas damaged by the hurricane were twice as likely to be African-American.[10]

Marginalized groups often rely on small-scale rain-fed farming systems and agricultural labor as their major sources of food. These groups often derive up to two thirds of their income directly from climate-affected natural resources. They also lack the assets that would enable them to cope with climate-related crises and adapt to climate change, and they are most exposed to the health risks arising from pollution, poor sanitation, and unclean water. They have few options for diversifying their income sources and often lack access to insurance and financial markets. As a result, they are forced to channel the bulk of their savings into single assets that can be entirely lost during a climate event. For example, the savings of low-income urban dwellers tend to take the form of housing stock, which is vulnerable to floods.[11] Similarly, low-income people in rural areas often keep their savings in the form of livestock, which are susceptible to droughts.[12] In periods of stress, they may be forced to sell off physical assets such as land, fishing boats, livestock, or market stalls, thereby undermining the sustainability of their livelihoods over the longer term.[13]

Government policies play a central role in building economies that are inclusive or exclusive. Tax and transfer policies can favor distribution of income toward higher or lower tax rates to income earners or between those who earn their income from labor (working) and those who earn income from capital (investments).

Government policies can also skew access to critical public services. For example, in the U.S., local zoning regulations mandate minimum housing unit sizes, which restricts the development of housing types that allow lower-income residents to live in a community. In turn, local jurisdictions pay property taxes to fund schools, sanitation, and police services. Sometimes infrastructure policies that favor car ownership and limit public transportation services in low-income areas also restrict mobility. Residents' lack of mobility leads to a decrease in their employment opportunities, healthcare, and access to grocery stores. Since 2000, nearly two thirds of new U.S. health facilities were located in middle- to high-income suburban communities—most without public transport access from low-income communities.[14] Countries with higher levels of inequality have been shown to have poorer health outcomes and higher levels of violence.[15] Unsurprisingly, individuals living in countries with higher levels of inequality also report, on average, lower levels of perceived happiness and well-being.[16]

Many of these marginalizing forces also exist in emerging economies, where there are even more forces driving inequalities.[17] Some countries lack the basic foundations for inclusive economic growth, such as stable governments and rule of law. Others lack the stable macroeconomic conditions and inflationary controls that encourage people to save and invest. Social mobility can be even more limited in certain countries due to a lack of anti-discrimination protection in employment and wages based on gender, age, ethnicity, or religion. A lack of legal title and collateral means many people cannot afford basic financial services to grow small businesses or buy property. As a result, the poorest in emerging economies are often unable to access secure and safe housing, and they must build on lands where they do not hold a legal title or where legal construction is prohibited. Unsurprisingly, these lands frequently include those near environmental hazards, like landfills and industrial pollution, and those prone to natural disasters, like floods, mudslides, and earthquakes.[18]

These layers of exclusion compound to lock the most vulnerable in society into a chronic state of lower access to opportunities and poorer long-term outcomes in wealth, education, and health.

Climate Resilience and **Inclusive Economies**

Climate resilience is defined as "the ability of a system and its component parts to anticipate, absorb, accommodate, or recover from the effects of a hazardous event in a timely and efficient manner."[19]

A resilient business must demonstrate these abilities within its own operations, cooperate to enable these abilities throughout the value chain, and work to enable these abilities within the frontline communities that provide both the workers and consumers vital to corporate success. A complex, global, and interconnected business cannot be resilient if it focuses exclusively on efforts within its own four walls. It needs to reach out to moderate harm to socio-ecological systems and enable people, the economy, and natural systems to rebound quickly in the face of adversity. The most effective and comprehensive means for the private sector to build resilience is by investing in six capital assets.20 These assets, described in detail below, are interdependent capacities that together address the underlying causes of vulnerability, such as poverty, inequality, and environmental degradation.

Six Capital Assets to Build Climate Resilience

Human Capital

refers to the skills and knowledge of available human resources, particularly in the workforce.

Political Capital

refers to access to decision making to shape policy environments that enable resilience.

Financial Capital

refers to the volume of available financial resources and access to financial goods and services.

Physical Capital

refers to infrastructure and equipment, including those related to manufacturing facilities, transport, logistics and communications.

Social Capital

refers to the strong relationships, collaborations, and bonds of mutual support and cooperation that are essential for addressing a systemic global challenge such as climate change.

Natural Capital

refers to the full range of services provided by biodiversity and ecosystems, including land and water.

HUMAN CAPITAL refers to the skills and knowledge of available human resources, particularly in the workforce. A company might enhance human capital by investing in skills and training for the workforce to cultivate agents of broader household and community resilience. They might lead on technology development, transfer, and diffusion; conduct hazard- and vulnerability-mapping focused on their workforce; work with government to produce early-warning and response systems for their communities; and undertake participatory scenario development to prepare workers for climate impacts. Similarly, businesses set standards for their contingent workforce and workers in the global supply chains. Businesses also decide who has access to their jobs through their diversity and inclusion programs that seek to bring marginalized groups such as refugees, the homeless, or the formerly incarcerated into the workplace. Businesses also decide who has access to employment with them by the choice of whether to locate their facilities near public transportation or in regions of a country with high unemployment.

SOCIAL CAPITAL refers to strong relationships, collaborations, and bonds of mutual support and cooperation that are essential for addressing a systematic global challenge such as climate change. When reciprocal claims for support can be made within communities in times of stress, this adds considerably to adaptive capacity. Activities and businesses that strengthen social bonds and aid the spread of ideas and resources are considered extremely important elements of social capital. A company might enhance social capital by establishing planning boards designed to evaluate risk and create strategies for resilience. These boards should include worker representatives. Social media and technology companies might work to enhance virtual social networks that can provide support in times of crisis.

NATURAL CAPITAL refers to the full range of services provided by biodiversity and ecosystem services, including land and water. For example, wetlands are vital to climate resilience because they protect upland areas, including valuable residential and commercial property, from flooding due to sea-level rise and storms. They further prevent coastline erosion due to their ability to absorb the energy created by ocean currents. Companies might work to enhance natural capital by maintaining wetlands and urban green spaces; reducing other stressors on ecosystems and habitat fragmentation; diversifying water resources and improving integrated water management; changing cropping, livestock, and aquaculture practices; and investing in green infrastructure.

PHYSICAL CAPITAL refers to the infrastructure, equipment, facilities, logistics, communications, utilities, and even genetic agricultural resources. Physical capital is vital in securing communities against extreme weather events that are increasing in intensity and frequency. Flood defenses are increasingly common in low-lying states and coastal regions. Climate-proofing of infrastructure is recommended in locations experiencing stronger storms. And investments in roads, bridges, and stronger protections for utility services are vital for ensuring continued links across supply chains and between workers, employers, and consumers in the aftermath of climate-related events.

POLITICAL CAPITAL refers to the access to decision-making to shape policy environments to enable resilience. Just as climate change undermines the realization of human rights, the strengthening of human rights is arguably the most important intervention to enhance resilience. Access to information helps vulnerable populations anticipate climate-related events and take preventative action. Being more considered in decision-making enables marginalized communities to help shape public policy in a manner that accounts for their specific vulnerabilities. And access to justice enables communities to hold both the public and private sector accountable for failures to build resilience in a manner that is proportional. Political capital is also critical to addressing the social, cultural, and economic inequalities that exacerbate risk to climate change. These inequalities include the differentiated vulnerability faced by women, indigenous peoples, and the urban poor. Companies can enhance political

capital by advocating for several things: reduced gender inequality and marginalization in all its forms; the extension of social safety nets and protection to women; and improved access to information, decision-making, justice, education, health, energy, and housing. Businesses exert great influence over the public policy environment on issues that affect inclusion. In the U.S., trade associations frequently engage in lobbying actions on issues such as minimum wage, overtime, unions, and affordability of health insurance and prescription drugs—all of which affect outcomes in inequality in income, wealth, and health. Similarly, company choices around tax-payment practices also affect the degree to which governments can provide basic services like health, schools, and infrastructure.

FINANCIAL CAPITAL refers to the volume of available financial resources and access to financial goods and services. Financial capital concerns both the mobilization of increased financial flows in support of resilience and the critical expansion of financial services to frontline sectors, companies, and communities. Companies can enhance financial capital through the provision of insurance schemes; income, asset, and livelihood diversification; the provision of catastrophe bonds; the development of microfinance products; and the facilitation of cash transfers to frontline communities. Improved employment practices can also enhance financial capital, as business can set the wage and working conditions for individuals impacted by climate change. Companies make strategic choices around whether to pay a living wage to their frontline workers, as well as whether these workers will receive the same benefits in insurance, paid leaves, and predictable and flexible working hours that the white-collar workforce receives. This has implications for the financial resources individuals can call upon in times of exposure to climate hazards.

Businesses advance these capital assets across a range of products and services. Making these affordable and accessible is critical to resilience. Businesses make choices about the pricing, design, and distribution of their products. In particular, they make choices about whether their most critical goods and services (healthcare, food, financial services, housing, transport, utilities, and technology platforms that connect to basic needs) will be made affordable and accessible to all members of a population. This includes actions to make products available to the world's poorest in developing countries (i.e., the "bottom of pyramid markets") and whether they are accessible to those lacking transportation or facing other barriers, such as lack of access to nearby grocery stores or pharmacies. It also includes choices around whether to make services such as ride-sharing or other digital apps accessible to those with disabilities in situations where the law does not mandate it.

A successful approach to resilience will involve weighted investments in each of these capital assets, with companies prioritizing those assets best aligned with their strengths, sector, and understanding of their own risk. The private sector is already experimenting with new business models, strategies, and programs that build climate resilience for the world's most vulnerable communities. These innovations can be categorized by their focus on creating a stable employment base, developing new products and services that increase individuals' ability to manage climate risks, and engaging in public projects to advance resilience in global communities.

Several international platforms actively engage the private sector in addressing the challenges of inclusive growth and climate change. The Paris Agreement and the SDGs articulate a global and centralized platform for action on these issues and serve to guide private-sector action to mitigate climate change and support international development efforts. While the landscape of activities in building an inclusive economy remains highly fragmented, some steps have been made recently to develop a central platform.[21] In 2016, the OECD proposed the Business for Inclusive Growth[22] platform, which is seeking to organize business action and commitments around key challenges related to rising inequalities in OECD countries. This platform may ultimately become the social and economic counterpart of the climate change movement's Paris Agreement and the We Mean Business coalition.[23] Overall, however, the opportunity for business to simultaneously address inclusive economic growth and climate change must be clarified.

The **Business Case**

The private sector will encounter and must manage the disruptions of climate change and the instability forced by exclusionary economic growth. Business action is needed to develop resilience to these disruptions and to prevent the perpetuation of the structural discrimination that inhibits an inclusive economy. These issues present a clear and present risk to business and will necessitate a new, multidimensional management approach to comprehensively address global challenges.

Material Risks to Business

Climate change represents a material and cascading risk to the private sector, with profound implications across the supply chain, as well as on strategy, finances, operations, marketing, compliance, and human resources. Despite these risks, companies have the capacity to be powerful agents of climate resilience if properly equipped with a sound diagnosis of climate risk and tailored strategies for enhancing adaptive capacity. According to the World Economic Forum (WEF) 2016 *Global Risks Report*, climate change poses the "highest impact risk to business" out of 29 risks reviewed.[24]

Inclusive economic growth has likewise become an issue of fundamental importance to business, society, and governments around the world. Global workers face a precarious labor situation as the decline in economic security and standards of living in advanced economies combines with looming uncertainty caused by increased automation and widening inequality. Demographic upheavals are straining social safety nets as well as notions of cultural and national identity. Together, these forces of upheaval and insecurity are contributing to the rise of geopolitics that are hazardously exclusionary and increasingly violent.

The same WEF report has consistently ranked income disparity, high structural unemployment and underemployment, and large-scale involuntary migration as among the top five global risks of the past decade.[25]

The private sector is currently ill-equipped or failing to manage these risks. Recent research conducted by BSR and CDP revealed that 72 percent of suppliers stated that climate risks could significantly impact their business operations, revenue, or expenditure. Yet only half of those companies are currently managing this risk.[26] The International Labour Organization's (ILO) most recent *Global Wage Report* concludes that "wage inequality within enterprises, particularly the large ones, has become very substantial, as the top 1 percent in those enterprises leave others increasingly far behind."[27]

Many businesses have failed to fully comprehend the three dimensions that together comprise climate risk and economic exclusion. As a result, their approaches to resilience and inclusive economy are often incomplete. The three dimensions of hazard, exposure, and vulnerability create and multiply horizontal and vertical risks in the private sector.

Horizontal risks are experienced across every connected link in complex global supply chains, including during the extraction of raw materials, the development of discreet components for large goods and services, product manufacturing, the transport and distribution of goods and services, and the interface between retailer and end consumer.

VERTICAL RISKS ARE EXPERIENCED INSIDE INDIVIDUAL COMPANIES

- **Financial risks** include potential risks to profits, especially where future profits depend on natural resources threatened by climate impacts; reduced availability of capital as banks, investors, and insurance companies seek to reduce their own exposure to potential liabilities; and threats to existing assets and investments that may be exposed to hazards.

  According to the Task Force on Climate-related Financial Disclosures (TCFD), risks may have financial implications for companies through direct damage to assets and indirect impacts from supply chain disruption. Operational and financial performance may also be affected by several factors: reductions or disruptions in production capacity (e.g., shutdowns, transport difficulties, or supply chain interruptions); impacts to workforce management and planning (e.g., health, safety, and absenteeism); write-offs and early retirement of existing assets (e.g., damage to property and assets in "high-risk" locations); increased operating costs (e.g., inadequate water supply for hydroelectric plants or for cooling nuclear and fossil fuel plants); increased capital costs (e.g., damage to facilities); reduced revenues from lower sales/output; and increased insurance premiums and potential for reduced availability of insurance for assets in "high-risk" locations.[28]

  The U.S. National Climate Assessment concludes that climate-related extreme weather events have cost the U.S. economy more than US$1 trillion in damages since 1980.[29] The 2017 Atlantic hurricane season is likely to be the costliest on record, with a preliminary total of more than US$290 billion in damages for Harvey and Irma alone.[30] Analysis by Mercer, the world's largest human resources consulting firm, estimates that the cumulative, global cost of climate change-related impacts on the environment, health, and food security will reach between US$2 trillion and US$4 trillion by 2030.[31] More recent research published in the science journal *Nature* suggests these numbers may lean toward the lower end of the spectrum. The project team calculated the impact of climate change on the market value of global financial assets to be US$2.5 trillion but estimated that it could be as high as US$24.2 trillion under worst-case scenarios.[32]

- **Operational risks** result from damage to vital infrastructure caused by climate hazards, production shortfalls and procurement problems when the communities and resources that serve the supply chain are adversely impacted, and logistics failures when transport routes are shut down by extreme weather.

  In 2012, Superstorm Sandy carved a path through New Jersey and New York. The damage inflicted on telecommunications company Verizon has become a case study on the need to climate-proof vital infrastructure. Prior to 2012, Verizon's telephone infrastructure depended on copper-based systems to support its landlines nationally, including in New York and New Jersey. However, because copper wiring dissolves in saltwater, the combination of storm surges, sea swells, and saltwater intrusion damaged the infrastructure, leaving thousands of Verizon customers without service and costing the company approximately US$1 billion. Ultimately, Verizon decided not to replace the copper wiring, but rather to install its wireless Voice Link as a solution to fortify

both landline and wireless systems. Unlike copper-based systems, wireless systems like Voice Link are less susceptible to extreme weather events such as flooding and thus are a more reliable source of phone service. The company has also identified Verizon Fios, a system based on fiber optic cables, as another reliable alternative to copper-based systems. The system is expected to help the company ensure business continuity, safeguard its reputation, and avoid substantial losses from future extreme weather events linked to climate change.[33]

- **Human resources risks** include climate change impacts on workforce safety and liability through extreme weather events. In addition, talent recruitment and retention may be affected when companies fail to take sustainability issues such as climate change seriously. A firm's management of labor practices is a critical component in ensuring that job opportunities are available to a larger talent pool and that the company effectively manages workplace diversity. Employee compensation is a critical factor in creating an inclusive economy and ensuring workers can weather climate shocks.

  For example, the ILO calculates that, in the 40 countries for which estimates were available, approximately 190 million women work in jobs linked to the global supply chain. In sectors such as consumer products and food, the proportion of women in the labor force can be as high as 70 percent in some countries. And yet most companies fail to understand the asymmetrical impacts of climate change on women, which results from social, political, economic, and cultural norms. Consequently, they fail to develop meaningful interventions to protect their women workers, maintain productivity, and ensure business continuity.[34]

  Human resources can address issues of workplace diversity, job security, and fair compensation that are essential pillars in creating good jobs and promoting an inclusive economy. These risks are counterbalanced by significant financial benefits: Companies in the top quartile for racial and ethnic diversity are 35 percent more likely to achieve returns above national industry medians.[35]

- **Compliance and legal risks** arise when companies fail to adhere to laws and regulations designed to enhance adaptive capacity. These risks also derive from liability arising from climate- and discrimination-related lawsuits, and from a company's failure to fully disclose climate risks through mandatory reporting mechanisms.

  Climate activists are increasingly turning to the courts to drive the climate ambition they see as absent from governments and boardrooms. In recent years, a variety of laws—including those dealing with environmental damage, human rights violations, breach of fiduciary duty, or transparency—have been used to bring polluters to account for climate change. In the past 15 years, 64 such cases have been brought in countries other than America. Around 20 are being filed each year in the United States alone.[36]

- **Marketing and sales risks** result when brand value declines, customer relations deteriorate, and reputation is damaged. These issues can happen when a company is judged to have failed in core responsibilities to protect the environment or workers in the supply chain, or when companies are seen to be exacerbating vulnerability to climate change through sourcing, procurement, and operations.

  Values matter, particularly to Millennials. According to research by Morgan Stanley, Millennials purchased from a sustainable brand twice as often as the total individual investor population. Millennials were three times more likely to have sought employment with a sustainably minded company. They also invested in companies targeting social/environmental goals twice as much as the total individual investor population. This is important, as Millennials are expected to make up 75 percent of the American workforce by 2025, and 90 percent of them have expressed an interest in pursuing sustainable investments as part of their retirement savings.

Millennials also showed the greatest interest in pursuing investments supportive of climate action, with 82 percent of those surveyed expressing an interest in thematic investments designed to reduce emissions and enhance resilience.[37]

- **Strategy risks** include losing out to competitors that are better adapted to climate change and more attuned to the needs of changing demographics and reputational damage because of failure to prepare or respond to an extreme event.

Just as climate risk has a disproportionate impact on the poor and marginalized, it further results in asymmetrical impacts on specific regions, sectors, and companies.

Asia is most at risk, as it has the longest exposed coastline, the largest number of people threatened, and the highest value of assets at risk. Noted climate economist Lord Nicholas Stern estimates that around 150 million people in Asia and US$1 trillion of economic assets are directly exposed to heightened climate risk.[38] Bangladesh is a prime example of a country that is particularly vulnerable to today's climate. With a low-lying coastline, high population density, and an economy highly dependent on agriculture, the lives and livelihoods of people are threatened by frequent cyclones and the associated effects, such as saltwater intrusion, that render agricultural lands unproductive. Between 1974 and 1998, the country experienced seven major floods. In 1998, about 68 percent of the country's geographical area was flooded, affecting more than 30 million people and causing an estimated US$3.3 billion in damage, which is equivalent to 8 percent of the country's GDP.[39] This matters as global supply chains, concentrated along East Asia, are moving west from coastal China to Southeast and South Asia. According to Standard Chartered, as much as 80 percent of global trade is embedded in global supply chains, including trade in intermediate goods and services of about US$12 trillion, or about 60 percent of global trade. This means the fate of the global economy is tied to the resilience of Asia.[40]

Recent extreme climate events such as heat waves, floods, droughts, and wildfires, are combining with long-term trends, including rising temperatures and changes in precipitation patterns, with broad and deep implications for the agricultural sector. Food, beverage, and agriculture companies are already experiencing many challenges: reduced security and quality of freshwater resources; higher prices and enhanced market volatility for agricultural commodities; destruction of and/or disruption to agricultural infrastructure; shifts in production areas of food and non-food crops; reduced crop yields for staples such as wheat, maize, and rice; damage to agricultural production caused by pests; declines in labor productivity, particularly for manual labor in humid climates; and threats to livestock, especially from heat stress.[41] A 2011 UNDP study estimates that climate-related loses in 12 countries will amount to US$2.8 billion in 2020, US$3.5 billion in 2025, and US$6 billion in 2030.[42]

Business **Actions**

BSR's "Act, Enable, Influence Framework" defines three ways companies can tackle climate change: Companies can act within their own zones of operations. Companies can take a broader approach and work to enable resilience across their complex supply chains. Companies can also influence the political, social, cultural, and economic conditions that can either exacerbate vulnerability or enhance resilience.

Act

Businesses should improve enterprise risk-management systems by investing in the six capital assets. As described earlier, companies should invest in the human, social, natural, physical, political, and financial assets that enhance resilience to climate change inside their individual businesses, across complex supply chains, and within frontline communities. A resilient business must demonstrate these abilities within its own operations, cooperate to enable these abilities throughout the value chain, and work to enable these abilities within the frontline communities that provide both the workers and consumers who are vital to corporate success. A complex, global, and interconnected business cannot be resilient if it focuses exclusively on efforts within its own four walls. It needs to reach out to moderate harm to socio-ecological systems and enable people, the economy, and natural systems to rebound quickly in the face of adversity. Investing in the six capital assets represents the most effective and comprehensive means for the private sector to build resilience.[43] These are interdependent capacities that together address the underlying causes of vulnerability such as poverty, inequality, and environmental degradation.

A successful approach to resilience involves weighted investments in each of the capital assets, with companies prioritizing those assets best aligned with their strengths, sector, and understanding of their own risk.

Businesses can also build resilience by enhancing employment practices. The need for climate mitigation and resilience will enable innovative companies to hire millions of new global workers in a "green economy." And all businesses will play an equally important role in safeguarding their workers against the health and financial risks of climate change. In particular, the financial risks introduced by climate change will stress a large segment of the global population: A 2016 U.S. Federal Reserve study found that, in the U.S. alone, 46 percent of adults said they would be unable to cover a US$400 emergency expense.[44] And natural disasters exacerbated by climate change will simultaneously jeopardize business operations, while significantly impacting the hourly workforce that depends on business continuity to pay for essential goods and services.

Below are examples of businesses accounting for their vulnerable workforce when faced with climate resilience. These examples can serve as models for all business as they seek to manage the unavoidable risks of climate change. A future of increased climate risks will require companies to build inclusive risk models that not only account for the multifaceted impacts on their operations, but also their company's most vulnerable employees, contractors, and supply chain workforce.

- **The Coca-Cola Company's Typhoon Haiyan effort:** Typhoon Haiyan devastated the Philippines in early November 2013. The strongest tropical storm to ever make landfall, Haiyan was responsible for more than 6,000 deaths and more than US$4 billion in economic losses.[45] The Coca-Cola Company and its local bottling partner contributed more than US$2.5 million in cash and in-kind contributions to community rehabilitation. This included cash injections to allow small, independent customers to rebuild and reopen. During the first week of the relief efforts, the company donated 129,000 cases of water to the affected communities.[46] The company also expanded sustainability programs in the Philippines to improve water quality in the country and increase access to primary education for more than 60,000 disadvantaged children. It also has worked to economically empower women entrepreneurs through training, financial resources, and peer mentoring to revive their businesses following Typhoon Haiyan.[47]
- **Mars AdvanceMint Program:** The company enacted a sourcing program that went beyond capacity-building to improve yields to a holistic approach to community development. In addition to offering training on agricultural best practices that conserve water and natural resources, the program supported communities through literacy, education, and broader skills training to improve the well-being of the company's smallholder farm partners.[48]
- **Woolworths Farming for the Future Initiative:** Noting a decrease in crop yield and quality from farm suppliers, Woolworths developed an initiative aimed at providing additional assistance to farmers challenged by increasingly difficult growing conditions. The initiative provides guidance to producers on agricultural best practices, with a heightened focus on water conservation for South African producers. The initiative also helps organize farm partners toward collective action and engagement with the broader ecosystems of partners needed to preserve the function of their community water resources.[49]

Enable

Businesses can enable greater resilience in part by increasing the affordability of and access to products and services. For example, private-sector expertise in developing tools and strategies to de-risk investment will serve as a strong foundation toward providing individuals with products and services that achieve the same resilience at a personal level. Just as they have developed complex insurance mechanisms and begun to incorporate microfinance programs, financial institutions can develop new products that help individuals manage the risks of climate emergencies. And just as a market has emerged for climate resilience and business continuity at the corporate level, there's an equally impressive market opportunity to supply individuals with the tools, products, and services that will enable their families to weather disaster. There are multiple examples of new financial and nonfinancial products and services developed to support individuals' climate resilience. Whether these are innovations or adaptations to make existing solutions accessible to low-income communities, these products and services will play a vital role in managing the health, financial, and social risks of climate change at the individual level.

- **LafargeHolcim RumahKu climate-resilient housing:** In Indonesia, LafargeHolcim partnered with two local microfinance institutions to pilot an affordable-housing initiative called RumahKu. This program helps citizens receive greater access to climate-resilient construction, housing finance, and technical assistance for low-income communities.[50,51]
- **Sompo Holdings Weather Index Insurance:** Sompo Holdings took a significant leadership role in the insurance industry by launching its Weather Index Insurance product that helped farmers cover the revenue losses caused by extreme weather events.[52,53]

Influence

Business can seek to create an enabling environment for inclusion and resilience through stronger community and government engagements. The risk of climate disaster on business operations is nontrivial—and businesses that support climate resilience investments in their own communities strengthen the resilience of both their business and their community's inhabitants. Whether it's supporting new infrastructure that is built to handle climate volatility, or creating alert systems to minimize the impact of singular climate events, an investment in community resilience will benefit companies in the long term. Companies must be willing to engage with local and national governments to make clear that the business community needs climate-resilient infrastructure for continued growth and that climate-resilient infrastructure must be inclusive of all populations.

- **Vale Capixaba Hydrometeorological Monitoring Centre (CCMH):** Brazil-based mining company Vale implemented a short-term forecasting program in partnership with local authorities to monitor and issue weather warnings to prepare its port facility for extreme weather. The company's more than US$18.6 million investment in CCMH will enable Vale to closely monitor weather conditions, and it also will better prepare local government for extreme weather events.[54]
- **Allianz Re Remote sensing-based Information and Insurance for Crops in Emerging Economies (RIICE):** The company became a founding partner of a multistakeholder partnership that aimed to provide governments and NGOs with improved agronomic data on rice production. This partnership was intended to support new climate and food security policies in Southeast Asia, as well as support enhanced crop insurance programs.[55]

Key Questions for Building Inclusive Economies and Resilient Societies in Tandem

The authors propose that businesses should combine efforts to enhance inclusion with strategies to accelerate climate resilience and recommend a "stress test" for companies to develop more robust programs that properly incorporate climate and inclusive growth considerations.

Building a Climate-Resilient and Inclusive Business

BUSINESS STRATEGY	GUIDING QUESTIONS AND CONSIDERATIONS
Improve enterprise risk-management systems by investing in the six capital assets.	• What are company employees' exposure to financial, social, and health risks from climate disruptions? • To what extent do current enterprise risk-management systems incorporate climate resilience and inclusive economy considerations?
Improve employment practices through enhanced job quality and job access.	• Are programs accounting for climate impacts beyond direct employees, to consider challenges faced by contractors and supply chain workers? • Do business continuity plans include considerations for low-income and hourly workers? • Do company insurance plans provide benefits for vulnerable employees?
Increase affordability and access to products and services.	• Are companies accounting for climate resilience in their products and services? • Do products meet the needs of diverse populations, or do they potentially perpetuate divides in access to critical goods and services?
Enhance community and government engagement.	• To what extent do philanthropic donations to disaster areas account for the company's direct and indirect workforce? Is there an opportunity to connect philanthropic donations with efforts to increase recovery time for local operations and financial stability for local workers? • Are infrastructure development and technologies equally distributed to all communities? Do these technologies and services account for the elements of structural discrimination that may prevent low-income communities from accessing those benefits? • Has the company weighed the unintended consequences of community and government engagement on climate-resilient infrastructure? For example, does the program account for potential increases in property value and the subsequent potential relocation of communities?

Conclusion

Companies can play a critical role in building an inclusive and resilient society. Effective action mandates a thorough consideration of the varied impacts of climate change and exclusionary economic systems. There is an immediate need for companies to expand their incorporation of these considerations into everyday business practices and to build new programs, products, and services that provide co-benefits to climate resilience and an inclusive economy.

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