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**Stockholm
Environment
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The Role of Businesses in Climate Adaptation

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1. Worsening climate for business

The world has seen the impacts of climate change rapidly intensify in recent years as the climate system has become increasingly energized. This has been evidenced by more severe, frequent and unpredictable extreme weather events that are wreaking havoc on economies and communities all over the globe. In today's economy, private enterprises of different sizes and sectors are more exposed to impacts of climate change that manifest far afield from their headquarters or main corporate operations. This is partly due to businesses' high reliance on global value chains and supply chain networks that frequently stretch into climate vulnerable regions and countries. In addition, these supply chains have become increasingly streamlined in recent decades to enable greater efficiency gains at the expense of redundancies, which in the past played an important role as buffers against external shocks and disruptions. As a result, today's global supply chain networks are less resilient and more vulnerable to disruptions from both climatic and non-climate risks, as has become evident from the Covid-19 pandemic, the Suez Canal blockage, the Russian war of aggression in Ukraine and severe summer droughts, all of which have culminated in the current cost-of-living crises. Not surprisingly, apprehension among businesses over physical climate risks has recently reached an entirely new level. In a recent Deloitte survey, 80% of corporate executives reported concerns over climate change, with most citing disruptions to business models and supply chain networks worldwide from climate-related events as the main concern (1).

2. The importance of business-led climate adaptation

The private sector has taken on a more active role in the global response to climate change over the last decade. A growing number of businesses have adopted net-zero pledges and science-based targets, in efforts to curb greenhouse gas emissions and global temperature increase in line with the Paris Agreement. While these mitigation actions are essential to safeguard a viable climate and ecosystems for future generations, businesses of different sizes and sectors will need to go beyond mitigation alone to address the consequences of climate change that can no longer be avoided. A recent study from the Climate Policy Institute revealed that climate mitigation accounted for more than 90% of all climate finance in 2019–20, with the public sector providing the lion's share of finance for climate adaptation (2). Nevertheless, the last few years have been a rude awakening for businesses and wider industry actors around the world, which have been stuck in firefighting mode due to the cross-border crises mentioned above. And many businesses have begun to acknowledge that they will not only need to anticipate but pre-empt “the next crisis”, as businesses are all but certain to see more frequent and disruptive crises on the horizon in a changing climate. Against this backdrop, businesses have begun to take a hard look at the physical climate risks that will confront them in the years ahead, whilst keeping eyes out for climate adaptation measures.

2.1 Key considerations for business-led adaptation

The implementation of appropriate adaptation measures is therefore of paramount importance for businesses to safeguard businesses continuity. Climate-driven weather extremes can cause damage to physical assets that businesses either own themselves or rely on across their value chain, including real-estate, production equipment, transport and grid infrastructure. These assets could also see a deterioration in value or incur higher insurance costs if deemed to be in high-risk locations, which in turn could ultimately force early retirement, divestment or premature writing-off of these assets. In some cases, the physical consequences of climate change will erode market demand for goods and services in countries and regions that are affected by extreme weather events, causing purchasing power to decrease alongside lowering imports – particularly of non-essential goods. For these reasons, it is imperative for businesses to expand their focus beyond the impacts they have on climate change, to also account for the impacts of climate change on the businesses themselves. In the context of business enterprise, climate adaptation means embedding climate change considerations into the core business strategy by integrating climate risk across existing corporate structures, production processes, procurements, logistical infrastructure and broader industry practices. Such integration is key to ensuring that businesses can cope with the effects of a warming climate and the associated changes in market conditions, as well as other non-climate risks.

Businesses, however, need to be cognizant of the interplay between business assets, operations and logistical networks that underpin their corporate value chain, and the local communities and ecosystems in which they operate. The global supply chain networks of businesses often rely on workers and infrastructure in countries and regions that are more prone to severe and extreme weather events. In this context, misguided adaptation actions could inflict even greater harm on communities that are already vulnerable to climate change impacts by compromising livelihoods, exacerbating conflicts and causing supply chain disruptions. Therefore, business-led adaptation solutions should always enable mutually reinforcing climate resilience for the businesses themselves and the communities in which they operate (see Box 1 for further information).

Box 1: Just adaptation at the forefront

The impacts of climate change are certain to affect people all around the world, irrespective of country, class and culture. Yet, it will be people in low-income and lower-middle-income countries – who contributed least to climate change – who will bear the brunt of the consequences from a warming and more volatile climate. This background has underpinned the current political and public discourse around “just transition” to a net-zero economy. Climate adaptation also needs to be considered within the context of broader development and socioeconomic needs. Businesses that rely on international supply chains have therefore both the capacity and the responsibility to provide social protection and safeguard the livelihoods of supply chain providers who reside beyond their direct workforce (3). The climate risk management strategies of businesses should therefore integrate justice and inequality aspects into

the design of adaptation measures to enable mutual resilience and wider social gains. Businesses that pursue adaptation measures in a just and equitable manner could see reputational benefits materialize, could earn and protect their social license to operate, and could contribute to the local and even global resilience of the communities, markets and economies in which they operate (4). Businesses that implement climate adaptation at the expense of the communities where they work could face additional risks from customer boycotts, investor pressure – and even employee activism. Fortunately, there are already private sector initiatives such as Business for Social Responsibility (5), who are working with more than 300 businesses around the world to ensure that their climate adaptation solutions are co-created with affected communities and implemented in ways that equitably distribute burdens and benefits.

2.2 Early movers on business-led climate adaptation

Although private sector-led climate adaptation remains at a stage of infancy, a growing number of businesses have started their journey to climate-proof their operations and value chains, and invest in adaptation solutions, to safeguard business continuity. In many cases, these business-led adaptation actions are integrating social justice, equity and environment issues, and are developed in dialogue with local communities. For instance, a broad business coalition led by Danone, Hermès, SAP, Schneider Electric, Crédit Agricole S.A. and Voyageurs du Monde launched the Livelihood Carbon Funds (LCF) that sets out to invest in the restoration of natural ecosystems, agroforestry and regenerative agriculture in lower-income countries (6). Launched in 2011, LCF has over the last few years also focused on improving food security for rural communities and increasing farmers’ revenues through community-based solutions. The Dutch multinational chemical corporation Royal DSM has also been working in a partnership (Africa for Improved Foods) with the Government in Rwanda, and other organisations, where climate adaptation and sustainability is incorporated in their efforts to improve farmer livelihoods and to support local and regional development by building a resilient food system that enables self-sufficiency via local production (7). Similarly, Nestlé announced last year its plans to work with the company’s more than 500,000 farmers and 150,000 suppliers to accelerate the shift towards a regenerative food system. The initiative strives to improve the livelihoods of farmers and wellbeing of farming communities whilst protecting and restoring the environment (8). Another case of business-led climate adaptation in practice is the Sri Lankan family tea company Dilmah, which in 2017 established the Dilmah Conservation Centre for Climate Change Research & Adaptation, dedicated to research on the local impacts

of climate change and to providing guidance to farmers on building resilience to extreme weather conditions. The research facility is open to scientists from universities and other research institutions to conduct research that will help to strengthen climate resilience in agriculture and food production (9).

Although smaller and medium-sized businesses may have less organizational capacity and financial resources to spearhead impactful climate adaptation efforts on their own, some of these businesses are demonstrating leadership on climate adaptation through broader private sector partnerships. As an example, the Swedish coffee company Ljöberg is one of the partners of the Coffee & Climate initiative – a public–private partnership between coffee companies and development agencies that provides support to smallholder coffee farming families and their communities to access practical tools and knowledge to increase their resilience and adapt to climate change (10). Many of these schemes are designed to improve supply chain resilience through climate adaptation, as well as to contribute to broader corporate social responsibility activities.

As the window for action on climate adaptation narrows, the success of the private sector in preparing for and responding to the physical impacts of climate change will largely depend on collaboration and transparency. While many of the early movers in the business community are forging constructive and mutually beneficial partnerships with local governments and communities (as noted above), businesses should also show willingness to share their risk data, as well as information on expected impacts and successful (and unsuccessful) strategies.

3. Opportunities for businesses around climate adaptation

Opportunities are also beginning to emerge for businesses to advance the development and deployment of adaptation solutions to strengthen the climate resilience of business and society at large. As governments and businesses become more aware of the global economy's exposure to climate change, public and private sector organizations are certain to bolster investments into climate adaptation in the coming years, thus driving a greater demand for climate solutions. Businesses are well positioned to deliver innovative products and services that can help business communities around the world better manage their exposure to climate change. According to an estimate from Bank of America, the market for climate change adaptation solutions will double within the next five years to US\$2 trillion (11). There are already a wide range of businesses providing cost-effective and essential solutions to enhance climate resilience, in areas such as weather forecasting, flood control, irrigation strategies, infrastructure design and refitting services (12).

3.1 Bringing innovative adaptation solutions to the market

The business case and market demand for adaptation solutions has never been greater than today, given the scale of the physical consequences from climate change that the world is up against; they will only grow stronger in the coming years. As such, there are already businesses that have designed their entire business models and value propositions around facilitating the application of critical adaptation technologies and other innovative solutions to strengthen climate resilience across sectors and communities (13). Some businesses focus their business offerings on climate diagnostic solutions that harness climate and weather data to aid governments and businesses in decision-making processes and daily operations. As an example, the US-based Advanced Environmental Monitoring has developed a range of technology solutions to enable greater preparedness against the risks from a different types of extreme weather events across different industry sectors, such as weather-visualization tools, multi-weather sensors and early detection systems for wildfire management (14). Other businesses set out to deliver goods and services that enable climate adaptation in response to a worsening climate and increasing instances of extreme weather events. In the agricultural sector, for instance, businesses are increasingly leveraging innovative genetic engineering technology to enable climate adaptation through a resilient and secure food production system. Among these is the British company Tropic Bioscience, which develops high-performing varieties of tropical crops using gene-editing technologies, tailored to deliver greater harvest and resilience against crop diseases brought on by climate change (15).

Yet another group of businesses have begun to offer solutions to enhance the resilience of both governments and businesses by facilitating financial recovery and compensation from physical climate impacts. In this space, the global insurance giant Swiss Re has made inroads into market segments that were considered challenging in the past, by using data- and technology-driven tools. Swiss Re has been working with governments in climate-vulnerable regions around the world to design better risk tools for resilience planning, and to provide need-driven insurance solutions that strengthen the resilience of local communities against droughts and flooding as well as facilitate recovery after natural disasters (16). Market opportunities for innovative technologies and business solutions will continue to grow – and new ones will emerge – with increased realization and anticipation of the physical effects of a heating climate.

4. On the barriers for business-led adaptation and the role of enabling environment

Despite the growing number of businesses that have begun to act on climate adaptation, current adaptation action does not come close to solving the problem. In addition, most businesses are currently failing to conduct risk assessments for physical climate risks and invest sufficiently in climate-proofing their assets and operations. Some businesses are reluctant to take proactive actions in this area, as they may see it as requiring new layers of corporate structure, strategy and measures over existing efforts in anticipation of regulatory and market changes from the net-zero transition. This holds particularly true for small and medium-sized enterprises, which often lack organizational capacity and financial resources to conduct complex and resource-intensive climate risk assessments – let alone implement climate adaptation measures.

Other businesses might struggle as risk assessments for physical climate impacts, such as climate scenarios and macro-economic modelling, are riddled with uncertainties and suffer from the absence of clear metrics and evidence-based targets for adaptation, as well as less-developed business cases and financial models (17). Many businesses, however, simply lack sufficient understanding of climate risks and access to relevant information. And although the benefits of investing today in climate adaptation for businesses' long-term financial stability are clear, many businesses continue to prioritize short-term revenue generation and investments. In light of these barriers, it is critical that public and private sector organizations work in tandem to create an enabling environment, leveraging both policies and economic incentives to help business-led climate adaptation properly take off. The role of governments and the financial markets will be critical to move the needle in this space.

4.1 The role of governments and international agreements

Governments around the world could work collectively to strengthen global resilience to climate-related disasters through various multilateral frameworks and policy levers, such as trade agreements and trade policies. At present, the most prominent such example has been the role of international trade frameworks in disaster risk management when customs and other potential trade barriers are removed in the context of disaster response. Trade policy levers could, however, also contribute to greater resilience by increasing the availability of and access to multi-hazard early warning systems and disaster risk information and assessments, and by embedding risk reduction measures into codes and standards for buildings and physical infrastructures (18). Climate adaptation is also one of the stated environmental objectives of the European Union's Taxonomy for Sustainable Activities (19), and thus the classification system could be leveraged to encourage greater disclosure of European businesses' exposure to physical climate risk, as well as establish clear guidelines for effective adaptation measures and promote increased investment among European businesses into climate adaptation solutions.

Under the United Nations Framework Convention on Climate Change (UNFCCC), businesses and other non-state actors are encouraged to take initiative on both mitigation and adaptation, and to raise the ambition of their contributions to climate action. Any business pledge or commitment, however, is not binding under the UNFCCC, as it is a country-driven policy process. Moreover, guidance on business opportunities, especially to engage in or support adaptation action, remains limited.

4.2 The role of the financial sector

The financial sector stands to gain from greater focus and investment in climate resilience across the business sector. Banks are certain to see a substantial increase in their exposure to physical risks from climate change – for example through deterioration in asset price and increases in insurance premiums. Financial institutions are beginning to play an important role in incentivizing and supporting adaptation in the private sector by shaping the information and risk disclosure landscape. Since the launch of the Task Force on Climate-Related Financial Disclosures (TCFD) that established an early framework for the disclosure of climate-related financial risk information, a growing number of financial regulators across the world have announced plans to climate stress test their respective financial systems, to better understand the nature and magnitude of their climate risks (20). Some are considering the adoption of the TCFD framework in national corporate reporting regulations. These regulatory pressures, alongside increasing calls from investors and customers, will propel banks around the world to establish their own climate risk assessment processes for internal operations, business and client investments, as well as to develop financial products that incentivize and support climate adaptation.

The insurance industry also has the expertise, the capital and the motivation to facilitate climate adaptation efforts across the private sector. According to Munich Re, one of the world's largest insurance providers, the cost of climate-related natural disasters was \$280 billion in 2021, of which \$120 billion was insured assets – up from \$82 billion in insured losses in 2020 and \$57 billion in 2019 (21). Insurance companies have to date largely relied on risk transfer as a de-risking mechanism against natural hazard risks. However, pooling different assets and geographical regions to spread risks will be a less effective insurance strategy in a future where multiple climate change impacts are likely to occur more frequently and simultaneously. As such, the insurance industry has begun to adopt a more proactive approach of working closely with businesses and other end customers on risk engineering (managing and avoiding risk) and climate adaptation (22). The insurance sector also holds a vast amount of risk information that could be made available to businesses to support their climate risk assessments. While insurance companies could also adjust climate-related risk premiums and introduce rebates to strengthen the businesses case for adaptation investments, such measures would need to be designed in collaboration with national governments and local authorities to avoid adding financial burden to economically disadvantaged businesses and other stakeholders.

5. Key messages

The role of businesses, and the private sector at large, in strengthening resilience and supporting global adaptation efforts is more important today than ever before, as the world faces more severe and frequent extreme weather events, at an enormous economic toll.

In a global economy that is underpinned by international supply chain networks that often stretch into climate-vulnerable regions of the world, businesses need to properly assess the implications of physical climate change impacts for their corporate operations and value chains.

Adaptation measures adopted by businesses need to embed justice and equity considerations to ensure that such corporate-led measures deliver broader climate resilience for the workers, communities and natural ecosystems that these businesses rely on across their value chains.

Public and private sector investments have begun unlocking new and rapidly growing markets for innovative technologies and solutions for climate adaptation, which will prove critical to climate-proof our economy and wider society in the years ahead.

Governments and private sector actors need to work together and create an enabling environment to further accelerate business-led climate adaptation, through the use of policies, international agreements and economic incentives.

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