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Mobilizing private sector investment for climate action: enhancing ambition and scaling up implementation

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ABSTRACT

Private-sector finance has been widely seen as a step to scale up access to resources for ambitious climate action, given the limited availability of public resources. However, there is a knowledge gap about the risks, barriers, and opportunities associated with greater private investment. This paper analyses some important barriers that commonly inhibit private sector investment in climate adaptation action. The analysis draws on case studies of small and medium-sized business (SMEs), multinational companies (MNCs), B corporations and impact investors. Our analysis confirms that private sector actors are willing to invest in climate adaptation, but their investment decisions are constrained by risk profiles associated with climate adaptation projects, the lack of financially viable and bankable projects, and complete knowledge of climate risk that guide adaptation decision. A tailored approach is required to leverage private sector finance, and conducive public policy interventions will facilitate to mobilize different types of private sector actors.

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Climate change; adaptation finance; SMEs; MNCs; B corporations; business case for adaptation

1. Introduction

Climate change is the twenty-first century's main threat to achieving the sustainable development goals. The Intergovernmental Panel for Climate Change (IPCC 2018) projects that global warming from anthropogenic emissions is likely to exceed its pre-industrial average by 1.5C between 2030 and 2052. It is expected to persist for centuries to millennia and cause long-term changes in the climate system. Heavier precipitation and drought will become more frequent (IPCC 2014). Climate variability and changing temperatures will affect both developed and developing countries, disrupting the livelihoods of vulnerable populations and creating economic uncertainties in more vulnerable areas. Addressing these challenges will require an increased flow of climate finance, improved climate finance governance, as well as the transformation of global financial and energy systems (Buchner et al., 2015) and balancing economic growth and environmental quality (Gyamfi, Bein, and Bekun 2020). It is expected that the cost of climate adaptation is set to increase from $140 billion to $300 billion annually by 2030, with

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the potential increase to $500 billion by 2050 (UNEP 2016). Public climate finance alone will not be enough to meet the ambitious goals set by the Paris Agreement. As the climate finance flow is far behind the level needed to meet the target in the Paris Agreement, there is growing interest in how climate finance can be further mobilized, particularly from the private sector or private climate finance (Kawabata 2019), and in particular, private finance for adaptation. Private climate finance is significant for climate change adaptation in developing countries (Paw 2017), and in addressing the impact of climate change as it brings additional capital and innovation. However, the private sector's involvement in climate finance so far continues to be more inclined toward mitigation than adaptation (White and Wahba 2019; Echeverri 2018).

The most recent Climate Policy Initiative report (2019) demonstrated that mitigation finance accounted for 93% of total flows of climate finance in 2017–2018 while adaptation finance made up only 5%. Pauw, Klein, and Vellinga (2015) contend that the private sector is expected to increase engagement in adaptation because it is their interest to be climate resilient. But the reality is that there is limited information on the extent of contribution the private sector provides in adaptation, or what the factors are in influencing private sector investment in adaptation due to limited data or evidence. Globally, private sector engagement in climate finance is mostly driven by project developers accounting for %148 billion of finance in 2015 and $125 billion in 2016 (Buchner et al. 2017) spent within the same country (Buchner et al. 2017; Jin and Kim 2017). Most of these investments are in mitigation projects such as renewable energy and energy efficiency. To balance mitigation and adaptation climate action, it will be crucial for national governments as market regulators, and for international climate finance funding organizations, to identify business models that enable private investment at scale, and design appropriate policies and incentives that link private adaptation to private sector strategies to achieve the desired climate=resilient outcomes (Urwin & Jordan, 2008 in Buso and Stenger 2018; CPI 2019). Public and donor financial institutions are exploring ways to leverage additional capital for climate action in adaptation. But this has so far been very challenging, as there is limited understanding of what influences private sector actors to invest in adaptation action.

We ask the question: Under what conditions can private sector actors be mobilized to invest in climate adaptation? The paper presents case studies of climate finance adaptation actions of four types of private sector actors: small-medium sized enterprises (SMEs), certified B or 'Benefit' corporations, multinational companies (MNCs), and impact investors with operations in Asia, Latin America and Sub-Saharan Africa that focus on private sector climate finance in a wide range of adaptation activities, including agriculture & agribusiness, urban adaptation, water and sanitation, micro-finance, renewable energy, tourism, forestry & eco-system services, adaptation products & services, and those that demonstrate innovative methods to engage private sector support for climate adaptation. Our analysis is limited to case studies from a portfolio of projects on mobilizing private sector investment in climate adaptation, which was funded by Canada's International Development Research Centre (IDRC). Nevertheless, it provides relevant insights on the nature of private sector climate finance for adaptation. We define adaptation investment actions as activities that improve the resilience of an investment portfolio to the physical impact of climate change. These include adaptation investments on existing infrastructure, business models and assets at risk (Bender, Bridges, and Shah 2019).

2. Private sector and climate adaptation finance: theoretical insights

There has been a limited evidence base on private sector investment in climate adaptation as most research is focused on public spending rather than private investment (Pauw 2015; Agrawala et al. 2011; UNEP 2016). Literature on what constitutes private sector investment in adaptation is broad with no concrete typology defining private sector investment and contribution to adaptation. To start, the United Nations Framework Convention of Climate Change (UNFCCC) provides a general definition of *climate finance* as 'finance that aims at reducing emissions and enhancing sinks of greenhouse gases and aims at reducing vulnerability of, and maintaining and increasing the resilience of, human and ecological systems to negative climate change impacts'. It refers to public and private financing from regional, national, and international entities in support of climate change mitigation and adaptation (Kotchen and Costello 2018), which is a key feature of climate negotiations that refer to the obligations that countries have developed, including the financing of costs and actions, as well as technology transfer to address climate change (Nascimento 2016; Gyamfi et al. 2020b). Financing activities have included a broad range of financial support for capacity building, management and planning, policy, information, early warning or observing systems, and technology (Biagini et al. 2014), as well as projects that aim to reduce emissions, develop strategies for low-carbon development and energy infrastructure (Gomez-Echeverri, 2013 in Nascimento 2016). However, there is limited data available for adaptation-related private sector investments and measuring private sector adaptation responses to climate risk, which is still challenging (Buso and Stenger 2018).

There is generally more private investment in mitigation than adaptation because mitigation-related investment offers measurable climate benefits (e.g. greenhouse gas reduction) and greater financial return to investors compared to adaptation (Mostafa, Rahman, and Huq 2010; Benitez-Lazaro, Gremaud, and Benites 2018). Adaptation benefits are largely public than private (Abadie, Galarrage, and Rubberlike 2012), and are more localized (Mees, Driessen, and Runhaar 2012). In other words, many adaptation investments are essentially public goods. Given the nature of business interests, there is a need to understand under what conditions the private sector can be mobilized for adaptation action. These conditions involve the risks and barriers in the regulatory environment, as well as divergent incentives or motivations in climate change adaptation (Beermann 2010).

Risks to businesses include physical, regulatory, market or operational risk. Physical risks render business assets and the infrastructure it depends on vulnerable to meteorological, climatological, hydrological, geophysical and biological hazards if operations and locations are sensitive to temperature changes. *Regulatory risks* include the nature of how the regulatory environment functions, as well as the regulatory changes in response to climate change (i.e. subsidy reform, carbon tax, etc.). From a business perspective, a change in the regulatory environment can constitute a financial risk where climate policies increase the operating and investment costs of companies (Sakhel 2017). Market risks also shape the involvement and response of the private sector. Businesses will not invest if the market environment is risky and if there is no assurance of investment return. At the same time, market can pose risks that emerge from climate change such as shifts in consumer and financial markets, including changes in demand for products

or services because of changing consumer attitudes (Sakhel 2017). Operational risks deal with the business system, procedures, internal and fiscal policies, including human resources. Climate variability can disrupt the infrastructure of the entire business system such as the procurement of raw materials through the supply chain, as well as the production of goods and services. Any climate-related event like disasters or change in temperatures can trigger financial loss if not managed.

Given the types of risks, investment drivers, such as barriers and opportunities, can either enable or hinder businesses to consider investing in adaptation. For instance, the regulatory environment can influence investment drivers. A lack of a coherent national framework and policy environment for mainstreaming climate change adaptation can deter the private sector to invest in adaptation. This is particularly relevant if there is a lack of coordination, administration and implementation of funding at the national and sub-national level, as it serves as a guiding force for the private sector to calculate the probability of risk in making an adaptation investment.

The scope of the function, operation, model, structure and size of the business can be a barrier for private sector investment in adaptation. The private sector can be micro, small-medium-sized companies (i.e. MSMEs) operating only in domestic markets, or it could be large and multinational companies (MNCs) operating a complex network of supply chains in regional or international markets. Some investment projects may also not be suitable for the private sector because some sectors are traditionally managed by the public sector, such as assets that include national parks, roads, ports, and buildings (Micale, Tonkonogy, and Mazza 2018). The benefits of these public goods take a longer time horizon to materialize (Hallmeyer and Tonkonogy 2018) and there is some degree of uncertainty about the value or benefit that adaptation will bring to business revenue on a short-term basis, therefore, business models can create barriers to adaptation (Micale, Tonkonogy, and Mazza 2018). Another example is the nature of how a given market functions. Factors that affect the market environment include weak or strong economies, the sophistication of financial institutions, and track record of sector-specific and general investment (Hallmeyer and Tonkonogy 2018). Another barrier is the lack of climate risk information, exposure and vulnerability of the private sector. The market might not also have sufficient access to information for adaptation action taking place, and this is an opportunity for the government to provide and distribute knowledge (Mees, Driessen, and Runhaar 2012). Although the private sector is usually aware of the climate hazards and risks it faces where it has business operations, it has a very limited understanding of climate risk and vulnerability (Cameron, Harris, and Prattico 2018).

The business case for the private sector to invest in adaptation is another important consideration. There is a growing awareness among companies about opportunities such as creation of new products and technological innovations in the market where they can exploit opportunities for climate friendly products and services (Porter & Reinhardt, 2007 in Gasbarro, Iraldo, and Daddi 2017; Beermann 2010). The traditional approach of greater corporate accountability and engaging in more environmentally and socially responsible business practices is another opportunity for companies to scale up their climate action (Solomon et al. 2011). Rating agencies are increasingly working on environmental and sustainability performance in their investment decisions and financial markets are starting to incorporate climate change to determine risk premium rate for companies (Gasbarro, Iraldo, and Daddi 2017). There are also indirect

benefits to private sector companies concerned with maintaining their reputation value to increase their competitive market advantage. For instance, investing in adaptation or implementing a strategy to cope with climate change can lead a company to improve its environmental performance through sustainability reports (Beermann 2010) and reputational value, brand, and image (Gasbarro, Iraldo, and Daddi 2017). It can also improve the financial performance of the company as various stakeholders, such as consumers and investors alike, will have more confidence in the company. These are considered motivational trade-offs that companies benefit from by investing in adaptation strategies at the organizational level.

3. Methodology

3.1. Method

We used a case study research approach to describe data coming from three large research projects funded by Canada's International Development Research Centre (IDRC). The three projects were part of a portfolio of exploratory action-research projects which aimed to identify conditions that mobilize different types of private sector actors to invest or apply climate adaptation action in their business operations. The projects were carried out by three organizations, the Business for Social Responsibility (BSR), Fundación Impulsora de un Nuevo Sector en la Economía (Sistema B), and the Private Financing Advisory Network (PFAN). These organizations work with a large network of private sector partners in developed and developing regions and have an established record of building collaborative partnerships to mobilize business as a vehicle for social and environmental sustainability. The BSR initiative focused on multinational corporations (MNCs) to catalyze private sector leadership on climate resilience. The PFAN initiative focused on small-medium sized enterprises (SMEs) and impact investors. The Sistema B initiative explored the climate risks and opportunities of B corporations, mostly SMEs in Latin America that are dedicated to promoting environmental and social sustainability. Each of these projects were comprised of a research and capacity building component with different methods of data collection. The research component aimed to identify the climate risk, barriers and opportunities among different private sector actors for climate action in adaptation. The capacity building component was composed of actionable activities for participating private sector actors to address climate risks and barriers and building capacity to develop investment ready bankable ideas. The research methods per case study are described below.

3.2. Case studies

3.2.1. Case study 1: Business for Social Responsibility

The Business for Social Responsibility (BSR) is a global non-profit organization that develops sustainable business strategies and solutions through consulting, research and cross-sector collaboration. The BSR project engaged 250 multinational corporations (MNCs) such as Coca Cola and T-Mobile, that have large-scale operations and supply chains in emerging and developing countries in Asia and Sub-Saharan Africa. For a period of 2 years, BSR collected data and conducted in-depth conversations on how

companies approach and understand climate risk and resilience, including how they address risks, barriers and opportunities related to climate adaptation. The project identified dimensions of vulnerability and developed options available to participating MNCs to enhance their climate resilience. Companies were presented with a climate resilience framework with a tailored climate risk approach for participating companies to use, including guidelines on how to climate-proof their own investments and infrastructure to enable broader community and supply chain resilience. The framework helped participating MNCs understand the climate risk to their businesses and then applied actionable methods, including the provision of services and products that increase climate resilience across their supply chain and the vulnerable communities they operate in. To complement the research, BSR also conducted a national policy assessment on climate change adaptation in six countries where the participating MNCs had business operations. These assessments included Bangladesh, Thailand, Indonesia, Myanmar, South Africa and Mozambique. The country assessments examined each country's national climate risk, the underlying local socio-economic vulnerability, the specific risks to the private sector, and public policy gaps crucial to mobilizing private sector adaptation investment.

3.2.2 Case study 2: certified B corporations and Sistema B

Certified B Corporations are hybrid organizations that represent an alternative model of enterprise that bridge for-profit and not-for-profit business models and are examples of 'for profit social entrepreneurship' (Del Baldo 2019). B corporations are certified by B Lab, a non-profit founded in the U.S. that requires the shareholders of certified B companies to modify their by-laws to commit to have a positive impact on society and the environment. Sistema B is a regional organization present in 10 Latin American countries which aim to support the development of B Corporations in Latin America by evaluating the direct impact of B corporations on climate change adaptation, assess their potential to motivate larger companies to act for climate resilience, and explore ways to partner for the adoption and scaling of climate innovations. The research component focused on three stages: first, identifying the environment and climate actions of local B corporations, mostly SMEs, in Colombia, Peru, and Chile. Most of these companies develop solutions that reduce the negative impacts of climate change in vulnerable communities, as well as address the long-term sustainability of critical systems such as agriculture and energy, reducing pollutants in air and water, and restoring biodiversity. Second, the researchers engaged in meetings with business managers to implement business ideas related to climate change. Novel themes that were relevant to the countries were then developed, such as action-oriented education for sustainability (Colombia); business models for sustainability (Peru); and eco-centric practices and strategies (Chile). These insights were used to mobilize the second phase of the research which focused on a sub-set of B corps advancing an innovative approach to climate change, such as how they organize themselves and create value for climate impact. In the third stage, researchers analyzed 80 B corps in Latin America and narrowed down 30 of those with innovative approaches to climate change. The researchers interviewed these firms using an 11-question interview guide including: Company description; mission / purpose / problems the firm were seeking to solve; products / services; mitigation practices; adaptation practices; regeneration practices (if any); impact assessment (practices /

tools utilized); certifications other than B Corp; main areas of impact (e.g. desertification, water, waste, etc.); positive environmental impacts (descriptive); and positive environmental impacts (quantification) (Munoz and Correa 2019).

3.2.3. Case study 3: Private Financing Advisory Network (PFAN)

PFAN is a global network of climate clean energy financing experts than have an established record of raising private sector financing. The geographical focus of the PFAN project was concentrated on SMEs from Sub-Saharan Africa. Acting as an intermediary between SMEs (through project developers) and impact investors, PFAN sought out to explore under what conditions the private sector, particularly impact investors, can invest in adaptation-related projects. In response to the call for proposals from PFAN, a total of 477 SMEs submitted business proposals to attract equity investment with a climate adaptation angle. These business proposals were analyzed based on metrics to measure the climate impact and benefits from these adaptation projects. The analysis was informed by interviews and questionnaires using subsets of the project to understand the process project developers face in attracting finance for their adaptation-related activities. The proposals were narrowed down based on their maturity and potential to be bankable from the standpoint of investors. These projects received intensive coaching from PFAN experts to further develop their business plan. From this intense engagement, the PFAN developed a list of potential bankable adaptation projects from SMEs in a range of sectors such as agriculture and agri-business, urban adaptation, water and sanitation, micro-finance and micro-insurance, energy access, tourism, forestry and ecosystem services, adaptation products and services. Finally, this process resulted in 39 matured and well-developed adaptation projects which were presented at two different 'Investor's Forums' in Johannesburg and Nairobi to showcase to potential impact investors and international funding agencies interested in supporting adaptation projects developed by SMEs. The project is unique because it brought together SMEs and impact investors looking for equity investment for business ventures with a climate adaptation angle. Impact investors invest with the intent to create measurable social or environmental benefits in addition to a financial return (Wood, Thornley, and Grace 2013 in Reeder et al. 2015).

4. Results

This sub-section discusses the adaptation actions by the private sector actors discussed earlier and how each have addressed the climate risks, barriers and opportunities for adaptation investment, as well as the conditions which facilitate private investment on adaptation. We then offer some policy implications and practical recommendations to guide future private sector investment in climate adaptation.

4.1 Risks, opportunities and barriers for private investment in adaptation

4.1.1 Private investment and business risk in the context of climate adaptation

The review of private sector actors demonstrates that business risk from climate change depend on the types of services and goods that the businesses provide. The BSR case study revealed that MNCs had a high awareness of climate-related hazards, such as

extreme weather, that pose a physical risk to their business operations. However, MNCs, despite this awareness, do not have complete information on vulnerability and climate risks and how this will impact business operations due to limited data and information (Cameron, Harris, and Prattico 2018). The limited information is generally a result of complex company supply chains, and disaggregated risk information across industries and geographies which make it difficult for businesses to map risks and vulnerabilities. This is consistent with other studies that show that the lack of information limits businesses to address and invest in risk mitigation strategies to enable adaptation (Micale, Tonkonogy, and Mazza 2018; Druce et al., 2016 in Hallmeyer and Tonkonogy 2018). Climate risk information is central to drive private sector selection and investment on climate adaptation options. When BSR introduced the climate resilience framework to participant MNCs in the research, they gained a better understanding of how to assess climate risks across their business operations in different geographies. However, MNCs in the research mainly addressed its climate risks through a separate unit dedicated to sustainability which means that the integration of longer-term climate change adaptation strategies within its core business model, operations, or supply chain is still limited. This misses the opportunity to build climate resilience at a wider scale, in their supply chain and the communities in which they operate.

In the case of SMEs in the PFAN research, the lack of information on climate risk as well as capacity in developing bankable investment ideas were the main issues. While the risks entailed by adaptation projects among SMEs were found to be the same risks as other types of investment projects and activities not related to climate, climate-related risks were found to be generally uncertain and unpredictable (Druce et al. 2017). For example, SMEs were found to have limited resources to access information that would enable them to map their climate vulnerability and risks. This has an influence in their willingness to invest in adaptation because information is not complete. In the case of impact investors, the willingness to invest in climate adaptation is present but there is limited information regarding how adaptation projects can deliver climate benefits along with return on investment. In the case of the B corporations, they understood the importance of addressing climate risks through climate adaptation action. B corporations are unique because they deviate from climate adaptation actions articulated by traditional businesses (like the MNCs and SMEs) that mainly tackle climate impacts by minimizing negative externalities and lowering climate-related risks. Instead, B Corporations are ecologically embedded businesses that are not only committed to climate mitigation and adaptation actions to protect the interests of the business, such as addressing climate risk, but are also pioneering new ways of doing business by delivering climate-sensitive solutions that restore natural ecosystems to build resilience and improve the wellbeing of communities (Munoz and Correa 2019). As such, climate risks are addressed on a long-term basis and are more holistic.

4.1.2. Private sector investment in the context of barriers

A conducive policy and regulatory environment turned out to be crucial for private investment in adaptation and resilience. The assessments indicated that the crucial deterrent for private sector investment in adaptation is related to regulatory, operational, and market risks in their business operations. For instance, the BSR national policy

assessments conducted in Asia and Sub-Saharan Africa demonstrated that the lack of specific guidelines on private sector engagement in the adaptation space is a barrier to private investment in adaptation (Gallagher et al., 2018; Gallagher, 2018; Gallagher & Sebastio, 2018; Farnier et al., 2018; Harrison & Woods, 2018; Harrison & Lee, 2018). Most of the plans and policies of the countries analyzed in the national policy assessments had unclear guidelines, implementation, and monitoring and evaluation frameworks to enable the integration of the private sector action into country-driven climate policies, such as National Adaptation Plans (NSP) and Nationally Determined Contributions (NDC) in developing countries. The absence of sound regulatory and policy frameworks provides limited assurance to how risks related to adaptation investment can be appropriately managed.

The differences in scope of function, operation, structure and size of the business affect the private sector's ability to invest in climate adaptation. Businesses vary in size, sector, industry, human resource and structure (Agrawala et al. 2011) with a very fragmented supply chain system. As such, the scope of investment required for adaptation may differ on a contextual basis and for different types of projects/businesses. For instance, because SMEs have a smaller scope of operation and size, most struggle to access climate adaptation finance (Druce et al. 2017). In some countries (i.e. Thailand) more than 90% of the business sector is comprised of SMEs with very limited ability to climate-proof their businesses due to the high costs of insurance. Many business models of SMEs are designed to gain a quick return for their investment and adaptation may not be an initial priority. The SMEs surveyed were implementing adaptation projects partly in reaction, and not in anticipation, to the effects of climate change. The benefits of adaptation usually operate on a long-term basis and have a longer time frame to measure benefits from a business perspective (Hallmeyer and Tonkonogy 2018). As such, most businesses respond to climate change in a reactionary rather than an anticipatory manner when it comes to climate-proofing business assets. In the case of MNCs, most have been working to develop an established risk management framework that deals with the effects of climate change. In this case, it is crucial to shift adaptation benefits towards the business supply chain to scale up adaptation investment action.

The case of SMEs also highlighted that market imperfection is one of the main barriers for mobilizing private finance for adaptation (Druce et al. 2017). In an efficient and perfect market, all socially desirable (adaptation) investments would take place. However, adaptation investments are deemed insufficient for businesses because it is considered a public good that does not have a clear business outcome (profit generation), and market imperfections (barriers) compound this when adaptation projects are systematically prevented from taking place. This particular barrier emphasizes the importance of public sector incentives to enable the private sector to maximize the return of their investment in a reasonable and predictable market rate of return of investment (Druce et al. 2017). This means that the public sector needs to minimize and eliminate market imperfections to provide a conducive market environment for a private adaptation investment to take place. Overall, the context of physical, regulatory, market and operational risk, as well as the types of barriers (regulatory, market, scope and size, business model) vary for different private sector actors, and this must be taken into consideration when governments and international funding organizations design policies and mechanisms to attract the participation of the private sector in climate adaptation.

4.1.3. Private sector investment in the context of opportunities

The review of MNCs demonstrated the importance of building a business case for adaptation investment. Although there is increasing awareness, many MNCs do not fully appreciate the business case or the opportunities for climate resilience, what investing in climate adaptation can offer, or the co-extensive link between community and private sector resilience. With the right information, MNCs were able to strategically think about investing in adaptation. On the other hand, SMEs were found to be active in climate adaptation action in two different ways. First, start ups are usually aware of local environmental issues and try to adopt a business model that seeks out opportunities created by climate change. Second, they try to reduce the risks or negative effects of climate change by adding an adaptation component to their non-adaptation investment. Hence, next to adapting current business practices to deal with climate change impacts, it was found that numerous innovative business models seeking out economically profitable new opportunities as a result of climate change were created. B corporations offer a different kind of business opportunity because they do not invest in adaptation on the premise of a business case like MNCs, nor opportunities to profit like SMEs, but rather they begin a business venture driven by a purpose and mission to contribute to social wellbeing and environmental integrity. The B corps study found that these businesses operate on the recognition that the environment creates value for the business and that the business activity must be in-sync with socio-ecological systems. These businesses can become transformational agents of change that go beyond the traditional process of building a business case to engage the private sector. On the other hand, the prominent feature of investment among impact investors are the social and environmental return of investments (Reeder et al. 2015) that are also driven by an environmental mission but differ with B corps since they look for business opportunities, or 'bankable projects' which have measurable impact.

Analysis of MNCs, SMEs, B corporations, and impact investors supports emerging literature that the private sector can keep up with a changing market and is already considering the impact of climate variability on businesses. There is an opportunity for the public sector to leverage greater private sector support for adaptation by building a business case, increasing awareness of corporate and investment communities on climate risk and its devastating consequences, and engaging non-traditional businesses like B corporations and impact investors.

4.2. Capacity building and policy intervention to address barriers for private investment

4.2.1. Capacity building

The case studies revealed that there is a strong case for building capacity to develop bankable adaptation ideas to attract private investment for climate adaptation through participatory engagement, but the approach needs to be tailored to the different needs of different private sector actors as well as the different types of projects. For example, SMEs are limited to sector-specific projects that can be heavily damaged by climate change. These businesses require climate-proofing in water, agriculture, and forestry sectors (Atteridge et al. 2016). These companies may not be well-positioned to manage climate risks as they become more complex. They may need capacity-building support

in the form of grants, loans or public-private sector partnerships to address climate risks. MNCs on the other hand have great capacity and financial resources to invest in adaptation, but they need long-term policy certainty and must ensure market efficiency to manage risks. In the case of impact investors, adaptation is not well understood, and few define their activities in terms of adaptation even though climate change is a major driver of project development. The public sector is again crucial here as they can provide information on the benefits of investing in adaptation. B corporations have a different approach to investing in adaptation because all are voluntarily participating, committing and investing in business ventures that are already geared towards the public good and addressing climate change challenges.

In addition, the complexity of factors, such as business operations, size, sector, supply chain and the regulatory environments, is important to distinguish how business capacity and leadership can be established given the contextual heterogeneity of businesses. Capacity-building efforts should be a tailored approach guided by public actors. For instance, the case of MNCs differ from SMEs because the adaptation needs, and investment capacity is different. Many MNCs have an established risk management and sustainability practice within their operations and can generally afford to incorporate adaptation. The lack of investment in adaptation is because companies require a better capacity to understand climate risk mapping and how this affects company operations and its supply chain network. The study on MNCs demonstrated that a tailored framework for understanding adaptation built the capacity of established companies to understand their risks and vulnerabilities, change their behavior towards climate change and take initial steps to include adaptation in its operations. Through knowledge transfer, MNCs increased their capacity to address and build their own adaptive capacity. The multiplier effect is twofold; when companies invest in adaptation, they build their own climate resilience, and second, their supply chains and the communities where they receive production inputs, also build adaptive capacities.

The public sector and international funding organizations need to broker engagement in adaptation with different types of private actors. In the PFAN work, SME's were linked to impact investors. By providing its expertise and mentorship, PFAN was able to build the capacity of selected SMEs to develop a sound business proposal that is attractive to impact investors to garner equity investment. In many cases, these SME's have great project ideas but often do not make the proper business pitch that is attractive to impact investors. At the same time, the capacity of investors to better understand the impact of adaptation related projects, as well as the opportunities to invest in adaptation was crucial. By brokering partnerships through capacity building activities, both SMEs and impact investors were informed about the opportunities and incentives related to investment in climate adaptation. This was innovative because it built the capacity of selected enterprises to include adaptation considerations in their business proposals. More importantly, it linked investors and SMEs to engage in adaptation-related initiatives.

From our analysis, it appears that B corporations offer a novel insight on emerging trends in the private sector. Although a relatively new concept of sustainable venturing, B corporations have a transformative approach to creating value through innovative climate solutions because they address threats to the natural environment and ecosystems, rather than addressing negative climate impacts through mitigation or adaptation alone, and therefore, offer a more holistic and nature-positive approach. For example,

Latin American B Corporations have used innovative financial models that align with positive returns on investment in reforestation interventions which also empowers local communities. It has shown that climate-focused businesses can materialize and should be supported more by the public sector, including finance schemes such as tax benefits or prioritization of access to concessional loans. Ultimately, more innovative thinking that brings together a diverse group of stakeholders from the public and private sector, as well as funding organizations, is important to identify flexible ways to integrate and coordinate approaches around adaptation. This includes efforts towards knowledge sharing, brokering and capacity building support to recognize the realities on the ground and facilitate project financing and implementation mechanisms.

4.2.2. Public policy intervention

Two types of public policy interventions are needed, at the country level, and the international donor community level. The country case studies highlighted the crucial role of conducive and enabling environment to remove the barriers to increase private sector climate finance for adaptation. All the countries surveyed in the national assessment recognize the importance of private sector participation in climate finance for adaptation. However, most country policies lack guidance on private sector mobilization. National policies are ambiguous in terms of opportunities and recommendations for private sector climate finance for adaptation. The scope of public versus private climate finance is already complex and because of this, it will require different approaches suited to different types of adaptation investments and activities. Moreover, specific responsibilities between the public and private sector are often lacking in adaptation policy documents (Preston, Westaway, and Yuen 2011) as exemplified by the country policy assessments. The absence of public sector guidance on available types of public financing mechanisms can deter the private sector to engage in climate finance for adaptation due to the unknown risks associated with an investment decision. Generally, private firms are willing to accept appropriate risks arising from the design, construction, operation and maintenance of a project, but its willingness to do so is affected by the governance environment where the project is located (Baker, 2016 in Wang et al. 2019).

Second, complex regulatory environments and political uncertainties exacerbate development challenges such as weak infrastructure, at-risk populations, and high vulnerability of key sectors. Weak governance systems add a layer of complexity for the private sector to engage in adaptation. In majority of the country assessments conducted by the BSR project, climate change policies have been established to leverage private sector investment in adaptation, but implementation has been limited. For example, Bangladesh has instituted policies to bolster the participation of the private sector in building climate resilience through adaptation measures, but there is little participatory engagement with the private sector. In Indonesia and Mozambique, national climate finance goals have been hampered by the lack of implementation plans and associated metrics, insufficient financing, and a complex regulatory environment that is ripe with corruption. In Thailand, ambitious climate plans do not match the country's technical capacity to implement climate measures, which weaken its accountability and limit investor confidence. In Myanmar, the absence of basic governance structures has limited the enabling environment that encourages private sector participation and investment in adaptation. The political and bureaucratic uncertainty in these countries are major barriers for the

private sector to build confidence in investing in adaptation. As such, the public sector needs to address these barriers by mainstreaming private sector investment opportunities in country-driven climate policies such as National Determined Contribution (NDC) and National Adaptation Plan (NAP), as well as play an active role in private sector engagement to build private sector confidence. These climate policies should align with other development priorities such as the Sustainable Development Goals (SDGs) to create both climate and development (i.e. co-benefits). Other approaches for greater private sector participation in adaptation could build on public private partnerships (PPP), but such PPP platforms must be transparent and accountable to build private sector confidence.

Lastly, different private sector actors' investment actions are motivated by different reasons. MNCs and SMEs differ in resources and scope of operation. MNCs have an opportunity to widen the scope of their adaptation activities, which could contribute to better adaptation of communities and their supply chains. SMEs usually have difficulty accessing finance because of the smaller scope of business size, operation and capital. Impact investors and B corporations are committed to purpose right from the start of their investment ventures. It would be helpful if the public sector and international organizations provide a flexible framework for a tailored approach to mobilizing investment opportunities that would consider the complexity of businesses in the context of climate adaptation. Moreover, such complexity will also require a variety of financial mechanisms or tools that would fit the need of the private sector and ensure the reliable access to financing options that would be tailored to the needs of business. For example, countries can explore public-private sector partnerships in adaptation investment, and donor and multilateral organizations can explore blended finance schemes and introduce technical assistance, grant funds, or risk underwriting to protect the private sector investor and provide market incentives to stimulate private sector action in adaptation. Because climate adaptation tends to be risky with long-term impacts that are difficult to measure, providing a guarantee for the private sector is important.

5. Conclusion and policy implications

This paper seeks to understand the conditions which mobilize private sector action for adaptation investment. The review highlighted several barriers that make it difficult for the private sector to act, and thus a role for government is needed to support businesses to overcome these by creating an enabling environment for adaptation. Perhaps not surprising, long-term uncertainty associated with climate change makes it difficult for businesses to make short-term investment decisions. The case studies reviewed present very unique and different examples of innovative methods for building private sector capacity to develop bankable investment ideas in terms of mobilizing investors for adaptation action. Particularly, the PFAN method offers some interesting insights as to how some of these barriers can be addressed in building the capacity to develop a pipeline of bankable ideas.

The analysis highlighted the importance of increasing public financing for adaptation to gain business confidence in low-income countries. Private sector actors are willing to invest in adaptation if they are aware and able to address its risks and barriers, understand the business case and opportunities for investment in adaptation, and operate in

a conducive policy and regulatory environment that ensures confidence in getting a return on their investments. Increasing access to public finance and climate insurance can spur private sector confidence. Although this is becoming the focus in some countries, there is still inadequate effort to supply credit programs using public funds. There is a clear need for more specialized finance programs and better data to ensure that programs reach their intended beneficiaries to measure impact. A low-cost financing option is crucial for many SMEs, including a private sector fund and specialized support for SMEs to integrate adaptation into their business model. Further, many SMEs in developing countries are looking for a more supportive policy for business engagement by increasing access to low-cost finance. Finding a way to unlock the funding for business engagement, which is not a traditional area of support, will boost climate action by many of these small businesses. Developing specialized financing options for SMEs will also help to build their adaptive capacity (e.g. through insurance offerings, conditional loans, subsidizing investments in SMEs) and is an integral part of mobilizing the private sector for adaptation finance. Blending finance (with concessional rates) can help address many of these barriers. However, there is also a role for combined finance (bundling different types of finance within a single project/program) to make otherwise unattractive low-carbon projects attractive. Leveraging an amount of private finance that could be mobilized per dollar of public or quasi-public finance, is another option that can be supported.

Addressing knowledge and information gaps to remove adaptation barriers can boost private sector engagement in climate action. In many countries, knowledge and capacity constraints and information gaps are major hurdles, along with weak financial markets and policy challenges which are significant obstacles to private sector investment. A tailored framework can help the private sector better understand its risks and vulnerabilities, and in the process, include adaptation activities to become climate resilient. If companies become more resilient, then they are more likely to contribute to community, societal and environmental resilience. As a step toward achieving more private finance for adaptation, the public sector and international funding organizations need to work closely with the private sector to build capacity and generate and test new business models. Public sector entities can provide appropriate frameworks and tools for the private sector to better understand adaptation and remove policy barriers through fiscal interventions. Strengthening the capacity of the Ministry of Finance with resources, knowledge, data, and understanding of climate risks and opportunities for adaptation can significantly improve more ambitious climate action.

These case studies did not address another important private sector actor, the National Development Banks (NDBs), who are playing a very important role in financing climate-related projects (although mainly on mitigation, such as renewables). Developing a partnership and alliance between the multilateral development banks (MDBs) and NDBs will be instrumental in supporting climate action at scale and building resilience. The potential partnership between development finance institutions and commercial and investment banks can help align both climate and development goals simultaneously. Also, there is an immense opportunity to mainstream adaptation into development financing strategies because its crucial to align development to address a country's climate risk and vulnerabilities and enhance adaptive capacity.

Moreover, the lack of a coherent national framework and policy environment for mainstreaming climate change adaptation can deter the private sector to invest in adaptation. Efficient coordination, administration and implementation of funding at the national and sub-national level is crucial, as it serves as a guiding source of information that will assist the private sector to calculate the probability of risk before making an adaptation investment. Furthermore, the analysis of the case studies revealed that private sector investment is dependent on the removal of policy and regulatory barriers through fiscal and regulatory interventions. As such, international funding agencies and governments should continue to consider how their funds and policies can shift private sector strategies, potentially unlocking capital expenditure for climate adaptation. From a public policy perspective, mobilizing the private sector for implementing the country-driven climate policies such as the Nationally Determined Contribution (NDC) and National Adaptation Plan (NAP) for both sectoral and integrated adaptation plans can ensure the alignment of the public and private sectors on key activities, while subsequently leveraging them as tools to increase private sector interest and ambition on climate resilience and adaptation.

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