The **Light**smith Group

ASAP

Adaptation SME Accelerator Program

The Adaptation SME Accelerator Program (ASAP): LAC-focused Adaptation SME market study

Final Study Report and Selected Findings

March 2020

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Key Findings

There are a significant number of SMEs in Latin America and the Caribbean ("LAC") that offer solutions that can help to identify, assess, and address risks exacerbated by climate change ("Adaptation SMEs"), and these companies are ready to scale.

- *Harmonized Framework for Identifying Adaptation-related Companies can be Applied.* Significant progress has been made in recent years around standards for climate finance and sustainable activities, but a harmonized definition for actual companies providing "adaptation and resilience solutions" had yet to be developed. This LAC Study represented an opportunity to build on the existing set on methodologies and frameworks to set up an initial definition for an "Adaptation SME" and associated eligibility criteria.

- *A Sizeable and Diverse Universe of Adaptation SMEs Exist in LAC.* 216 Adaptation SMEs across 15 countries in Latin America and the Caribbean were identified through the LAC Study. These businesses operate in a variety of sectors and represent a diversity of business models, with a heavy weighting towards companies operating in and/or serving the agriculture, water, and energy sectors. The large proportion of agriculture-, energy- and water-related Adaptation SMEs identified echoes the key adaptation focus sectors for LAC countries indicated by the region's National Determined Contributions ("NDCs"). The identified technologies, products and services ranged from remote sensing technologies for water-efficient irrigation, to agricultural analytics platforms, to dedicated technical consulting, to disease surveillance, addressing key climate risks in the LAC region such as water scarcity, increased flooding and landslides, reduced food production and quality, and the spread of vector-borne diseases[1]. The number and diversity of Adaptation SMEs identified through the LAC Study underscore the vast universe of "climate adaptation and resilience solutions" across industry sectors in LAC.

- *There is a Strong Opportunity to Accelerate and Invest in Adaptation SMEs in LAC.* All companies that were directly engaged during the six months of the LAC Study expressed a strong interest in participating in the broader ASAP initiative's activities (e.g., being featured in the public database of Adaptation SMEs, participating in regional convenings, applying to adaptation-specific accelerator/incubator programs), indicating that these businesses are actively seeking growth opportunities. ASAP's broader set of activities will strive to provide those opportunities for this unique set of companies in LAC and other emerging market regions around the world.

Introduction

As part of the efforts of the Inter-American Development Bank ("IDB") to build the climate resilience of smaller firms, anchor firms and their supply chains, and to foster business and investment opportunities in private resilience solutions through its Proadapt program in the Latin America & Caribbean (LAC) region, IDB engaged the Lightsmith Group ("Lightsmith") in June 2019 to conduct a LAC-Focused Adaptation SME Market Study (the "LAC Study") – a component of the broader Adaptation SME Accelerator Program (ASAP).

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[1] Source: IPCC Fifth Assessment Report.

ASAP seeks to mobilize and empower SMEs in developing countries to address climate resilience and adaptation through a three-pronged strategy, comprised of the following:

- **Component 1: Identification (Map Companies and Markets)** – mapping resilience companies and markets; building the taxonomy of climate resilience and adaptation technologies, products, and services; creating and maintaining a database of Adaptation SMEs; publishing sample investment case studies/company profiles;
- **Component 2: Integration (Organize Regional Adaptation SME Networks)** – developing a network of Adaptation SMEs and related stakeholders through convenings and an up-to-date Adaptation SME database;
- **Component 3: Incubation & Acceleration (Launch Adaptation SME Accelerator Programs)** – incorporating a "toolkit" for identifying and supporting Adaptation SMEs in and into existing incubator and accelerator programs; launching the first cohort(s) of Adaptation SMEs in developing countries through these incubator and accelerator programs.

The LAC Study completed for IDB represents the Latin America and Caribbean regional portion of *Component 1 (Identification)*. With the support of IDB and Proadapt, the LAC Study led by Lightsmith set out to accomplish the following:

(a) Drafting of principles for definition resulting in a taxonomy for adaptation and climate resilience companies (the "Adaptation Taxonomy");
(b) Mapping of at least 100 SMEs involved in adaptation and climate resilience solutions in LAC; and
(c) Case study profiles of high potential climate resilience companies in LAC.

Through the above, the LAC Study hopes to achieve the following longer-term impacts:

- improving the standards and framework for identifying and categorizing adaptation-focused technologies, products, and solutions, which will help to increase the awareness of SMEs involved in activities that fit into the Adaptation Taxonomy;
- increasing the number of investable climate resilience and adaptation-focused businesses in the LAC region by including mapped Adaptation SMEs in a public database and by specifically highlighting opportunities for investment and/or technical assistance; and
- enhancing the ecosystem of adaptation-focused SMEs and other public and private stakeholders in LAC to spur critical investment in climate adaptation and resilience, thereby helping to bridge the gap in financing towards adaptation.

The State of Climate Impacts in LAC

In 2016 and 2017, the world witnessed record economic losses of US$175 billion and US$340 billion, respectively, caused by natural disasters.[2] As Latin America and the Caribbean is the second-most disaster-prone region in the world, many of these climate impacts continue to be felt in this region in particular[3]:

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[2] Sources: MunichRe (https://www.munichre.com/topics-online/en/climate-change-and-natural-disasters/natural-disasters/overview-natural-catastrophe-2016.html; https://www.munichre.com/topics-online/en/climate-change-and-natural-disasters/natural-disasters/topics-geo-2017.html).
[3] Source: United Nations Office for the Coordination of Humanitarian Affairs (https://www.humanitarianresponse.info/en/operations/latin-america-and-caribbean/document/latin-america-and-caribbean-natural-disasaters-2000).

- 152 million people have been affected by 1,205 disasters in LAC since 2000[2]
- On 12 occasions since 2000, floods in LAC have caused more than US$1 billion dollars in total damages[2]
- 25% of earthquakes magnitude 8.0 or higher have occurred in South America[2]
- The Haiti earthquake in 2010 led to over 220,000 deaths and 1.5 million displaced[4], with over US$13 billion of damage
- In 2019, Hurricane Dorian became the strongest Atlantic hurricane on record to directly impact a landmass[2]
- In central and eastern Guatemala, southern Honduras, eastern El Salvador and parts of Nicaragua have been crop yield reductions ranging from 50-75% due to chronic drought[2]

Over this same period, the news media, governments, and the private sector have all begun to discuss more frequently the physical risks of climate change, including how to assess, disclose, and manage these risks and how to build resilience. For example:

- The Task Force on Climate-Related Financial Disclosures ("TCFD") released its final recommendations on the evaluation and disclosure of climate-related risks – both transition risk and physical risk. As of February 2020, support for the TCFD has grown to over 1,027 organizations, representing a market capitalization of over $12 trillion[5]. In 2019, Principles for Responsible Investing ("PRI") announced that TCFD reporting would be mandatory for PRI signatories in 2020[6], which currently includes over 2,300 signatories with over US$86 trillion in assets, including more than 430 asset owners with over US$20 trillion in assets under management.[7]
- The Network for Greening the Financial System ("NGFS"), representing 42 members and 8 observers from Central Banks and Supervisors from 5 continents, collectively acknowledged that climate-related risks are a source of financial risks, and it released its first comprehensive report, including the recommendation that climate-related risks be included in financial stability monitoring and micro-supervision. In April 2019, the NGFS "*encourage[d] all companies issuing public debt or equity as well as financial sector institutions to disclose in line with the TCFD recommendations.*"[8]
- BlackRock released its first analysis of physical climate risk, reporting that physical climate risk poses a threat to the US$3.8 trillion US municipal bond market, to commercial real estate in Houston and Miami, and to 269 utilities, for which the risk was assessed to be underpriced in the current market.[9]

Despite the above, the gap in systematic financing for climate adaptation and resilience, especially from the private sector, continues to persist, even while there is a vast universe of enterprises actively building and deploying climate adaptation and resilience solutions around the world. The costs of adaptation are estimated to reach US$300 billion per year by 2030 in

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[4] Source: UN (https://news.un.org/en/story/2013/01/429742-marking-third-anniversary-earthquake-ban-calls-sustained-efforts-haiti#.VmnBKa3lsdW)
[5] Source: TCFD (https://www.fsb-tcfd.org/wp-content/uploads/2019/06/2019-TCFD-Status-Report-FINAL-053119.pdf).
[6] Source: PRI (https://www.unpri.org/news-and-press/tcfd-based-reporting-to-become-mandatory-for-pri-signatories-in-2020/4116.article).
[7] Source: PRI (https://www.unpri.org/pri/about-the-pri).
[8] Source: https://www.banque-france.fr/sites/default/files/media/2019/04/17/ngfs_first_comprehensive_report_-_17042019_0.pdf.
[9] Source: Blackrock (https://www.blackrock.com/us/individual/literature/whitepaper/bii-physical-climate-risks-april-2019.pdf).

developing countries alone[10], yet less than 6% of the US$463 billion of average annual global climate finance flows (2015-2016) is currently being directed towards climate resilience and/or adaptation.[11] Small- and medium-sized enterprises ("SMEs") in particular, despite generating at least 45% of employment and as much as 33% of GDP in developing countries receive limited focus as sources of innovation and often lack capacity to scale.[12] The LAC Study's development of an Adaptation Taxonomy and identification of Adaptation SMEs in LAC constitute critical initial steps in making progress toward closing these gaps.

Study Scope, Objectives, and Outcomes – Selected Findings

The LAC Study was structured around three key sets of deliverables: (a) drafting principles for definition resulting in a taxonomy for adaptation and climate resilience companies; (b) identifying SMEs involved in adaptation and climate resilience solutions in LAC; and (c) case study profiles of sample climate resilience companies in LAC.

For purposes of this summary report, the terms *climate adaptation* and *climate resilience* are used interchangeably, though readers should be aware that there is a technical distinction between the two. The full draft Adaptation Taxonomy in ATTACHMENT A further details the distinction in definitions between these two terms.

Adaptation Taxonomy

The LAC Study developed a harmonized taxonomy with the aim of setting up transparent principles for determining whether an SME qualifies as an "Adaptation SME" based on the type(s) of technologies, products, and/or services that it provides. Given the existing universe of definitions, standards, methodologies, and frameworks in existence or under development related to climate finance and sustainable activities, the Adaptation Taxonomy was drafted by building upon, and with reference to, the following existing definitions, taxonomies and approaches:

- Intergovernmental Panel on Climate Change ("IPCC")
- EU Taxonomy for Sustainable activities
- Task Force on Climate-related Financial Disclosures ("TCFD")
- Climate Bonds Initiatives ("CBI")'s Climate Resilience Principles
- Joint MDB methodology for tracking climate change adaptation finance
- Joint MDB IDFC Framework for Climate Resilience Metrics
- Market Research for a Climate Services Observatory ("MARCO") project
- European Market for Climate Services ("EU-MACS") project

The proposed Adaptation Taxonomy is intended to be *flexible* and *dynamic*, as adaptation and resilience needs (and the solutions that can address those needs) will evolve and change over time. The taxonomy is also structured to be *inclusive*, since there are many companies that may not self-identify as a climate adaptation-related companies but that do have technologies, products, and services that can help to build climate resilience. In addition, given the highly context-specific nature of climate adaptation, the Adaptation Taxonomy does not provide a stand-

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[10] Source: United Nations Environment Programme.
[11] Source: Climate Policy Initiative.
[12] Sources: OECD (https://www.oecd.org/industry/C-MIN-2017-8-EN.pdf); Climate Policy Initiative (https://www.international-climate-initiative.com/fileadmin/Dokumente/2019/20190225_Understanding-and-Increasing-Finance-for-Climate-Adaptation-in-Developing-Countries.pdf).
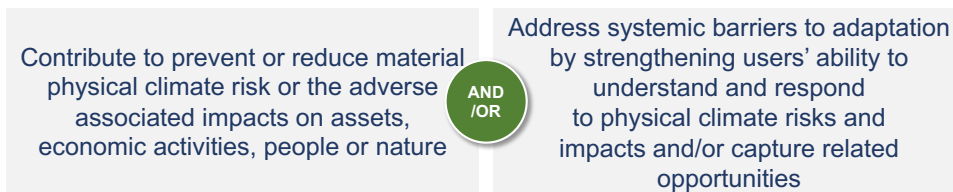
alone list of technologies, products, and services that could be narrowly viewed as contributing to adaptation. Rather, it seeks to offer a framework to identify "Adaptation SMEs" based on whether the technologies, products, and services they provide enable the identification, assessment, management, and/or monitoring of physical climate risks and their impact(s).

Four main elements comprise the proposed Taxonomy, namely: (i) a definition of "Adaptation SME", (ii) eligibility criteria, (iii) a segmentation of "Adaptation SMEs", and (iv) a results framework to measure, monitor and report adaptation-related outcomes. The results framework will be further developed in the subsequent phases of the broader ASAP initiative.

The Adaptation Taxonomy proposes a working definition of an "Adaptation SME" as follows:

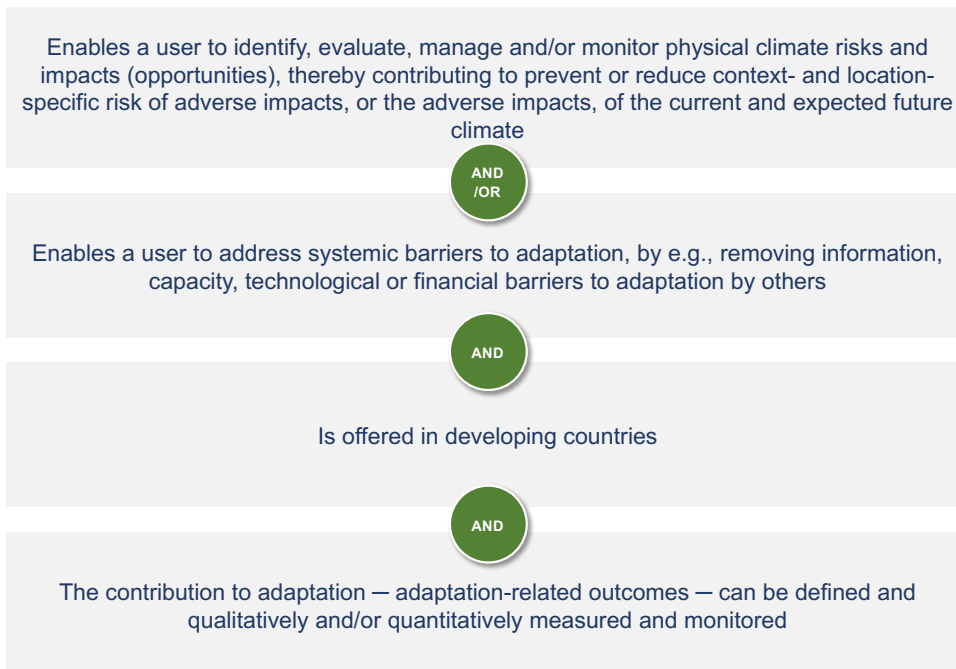**Figure 1.** A working definition for an "Adaptation SME" was developed.

An **Adaptation SME** is a company providing technologies, products and services that:

Contribute to prevent or reduce material physical climate risk or the adverse associated impacts on assets, economic activities, people or nature	**AND /OR**	Address systemic barriers to adaptation by strengthening users' ability to understand and respond to physical climate risks and impacts and/or capture related opportunities

It also provides a set of eligibility criteria for an SME to qualify as an "Adaptation SME", outlined as follows:

Figure 2. An initial set of criteria to evaluate the eligibility of an SME to qualify as an "Adaptation SME" was determined.

In order to qualify as an **Adaptation SME**, an SME's technology, product, or service must satisfy the following criteria:

Enables a user to identify, evaluate, manage and/or monitor physical climate risks and impacts (opportunities), thereby contributing to prevent or reduce context- and location-specific risk of adverse impacts, or the adverse impacts, of the current and expected future climate

AND /OR

Enables a user to address systemic barriers to adaptation, by e.g., removing information, capacity, technological or financial barriers to adaptation by others

AND

Is offered in developing countries

AND

The contribution to adaptation — adaptation-related outcomes — can be defined and qualitatively and/or quantitatively measured and monitored

Over time, the taxonomy may evolve to include/exclude specific technologies, products, and services, but the Adaptation Taxonomy drafted through the LAC Study provides a key starting place for future refinements. Ultimately, the harmonized Adaptation Taxonomy can and should be used by both public and private stakeholders to identify, engage, increase the awareness of, and most importantly, scale SMEs in developing countries involved in climate adaptation and resilience.

The full draft Adaptation Taxonomy can be found in ATTACHMENT A to this report. It includes a glossary of key terms.

Mapping Adaptation SMEs in LAC

Through a combination of desk research and targeted outreach to networks and key regional partners, the LAC Study identified 216 Adaptation SMEs across 15 countries in Latin America and the Caribbean, exceeding the initial target of 100 LAC Adaptation SMEs by over 2x. The CRAFT Project previously conducted by Lightsmith had identified 20 segments of the economy totaling US$130 billion of current spending related to adaptation and resilience globally[13] – many of the companies identified in the LAC Study spanned across these industry sectors and more (see *Figure 3*).

Figure 3 below provides a breakdown of the 216 LAC SMEs identified in the LAC Study that have products, technologies, and solutions that can help to build resilience to risks increased by climate change.

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[13] Source: Global Environment Facility (https://www.thegef.org/project/structuring-and-launching-craft-first-private-sector-climate-resilience-adaptation-fund).

Figure 3. 216 SMEs in Latin America and the Caribbean operating in adaptation- and/or resilience-related sectors of the economy were identified through the LAC Study.

Breakdown by Country (Headquarters)

Breakdown by Sector
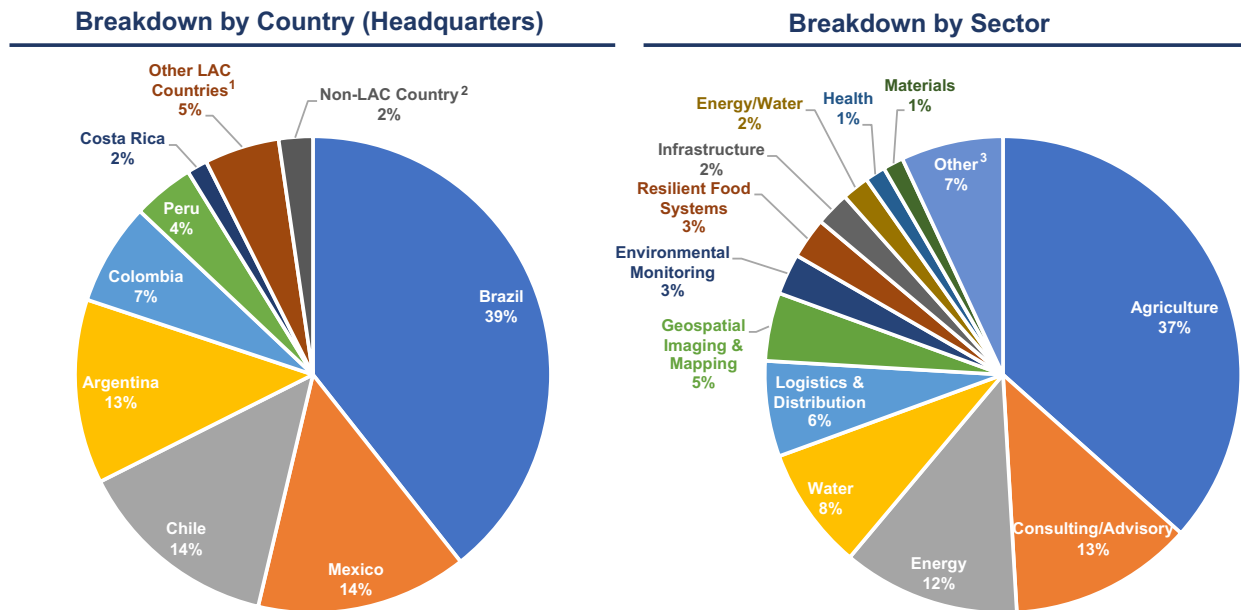
[1] Other LAC Countries where identified Adaptation SMEs are based include Ecuador, Nicaragua, Venezuela, Barbados, Belize, Guatemala, Honduras, and Uruguay, each comprising <1.0% of the total data set.
[2] Non-LAC Countries where identified Adaptation SMEs are based include Spain, Denmark, and the United States. These companies were included in the mapping exercise because they had significant operations in LAC, despite have headquarters elsewhere.
[3] Other Sectors include Asset Management Software, Biotech, Disaster Communications, Waste, Weather Forecasting, Big Data/Analytics, Land Rights, Mobile Technology, Smart Cities, and Telecommunications, each comprising <1.0% of the total data set.

The Adaptation SMEs identified represent a diversity of business models and technology solutions, with a heavy weighting towards the agriculture, water, and energy sectors. The large percentage of agriculture-, energy- and water-related Adaptation SMEs identified resonates with the fact that these are three key adaptation focus sectors for LAC countries, as evidenced by National Determined Contributions ("NDCs") across the LAC region (see slide 5 of the Adaptation Taxonomy provided as ATTACHMENT A).[14] These findings indicate that there is a large number of entrepreneurs and SMEs that are already tackling some of the region's most pressing climate adaptation challenges.

Perhaps unsurprisingly, the set of identified Adaptation SMEs was weighted regionally towards LAC countries known for having developed and robust start-up ecosystems – namely Brazil, Mexico, Argentina, Chile, and Colombia.[15] Information on companies operating in these countries is more readily available compared to others. Supplemental work can be done on the ground in LAC to map more local companies that may not have an online and/or international presence.

In terms of sector distribution, there was a heavy weighting towards companies operating in/serving the agriculture sector. This is likely partially due to the fact that not only is agriculture a significant part of Central and South American economies, but there is also an existing significant ecosystem of agtech start-ups in Latin America with many technologies, products, and services that are directly relevant to adaptation and resilience. As with the geographic distribution,

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[14] Source: World Bank Group (http://spappssecext.worldbank.org/sites/indc/Pages/INDCHome.aspx)
[15] See LAVCA's 2018 *Inside Latin America's Breakout Year in Tech* report: https://lavca.org/industry-data/inside-latin-americas-breakout-year-tech/.

supplemental work can be done to identify additional Adaptation SMEs operating in less developed or less defined industry sectors.

The mapping exercise also revealed that there are many institutional partners – across investors, development finance institutions, local commercial banks, large corporates, project developers, and accelerators/incubators – in the region that have touchpoints with many LAC Adaptation SMEs, though they may not be aware of it. Further mapping (e.g., to identify more SMEs in other LAC countries) can potentially leverage these partnerships on a more targeted basis to identify and engage with additional Adaptation SMEs in particular regions.

The full list of the 216 LAC Adaptation SMEs identified in the LAC Study can be found in ATTACHMENT B to this report.

Case Studies of Adaptation SMEs in LAC

In the LAC Study, Lightsmith engaged directly with seven Adaptation SMEs to learn more about their product offerings, business models, and growth opportunities. The case studies are intended to present a more detailed view into some of the Adaptation SMEs identified through the LAC Study. They not only underscore how each company's technologies, products, and services can help to increase resilience and adaptation to the effects of climate change, but they also identify immediate areas where investment and technical assistant can facilitate further deployment of their offerings. These case studies present real potential investment and partnership opportunities with Adaptation SMEs in LAC, showcasing the types of technologies, products, and services that can be scaled up today.

In conversations with the Adaptation SMEs selected for the case studies, a subset of these companies did self-identify as having adaptation-related solutions, but a larger number of them did not. These conversations often allowed them to view their businesses through a different lens and helped them to identify potential new applications or markets for their offerings.

Case studies were completed for the following companies, and the full case studies can be found in ATTACHMENT C to this report:

- Agrosmart, an SME providing a suite of technologies aimed at supporting farmers in making data-driven farming practices to increase productivity and promote more efficient use of water, energy, and other resources.
- Adapta Group, an SME that has developed a turnkey solution for deploying climate resilient and sustainable technologies and practices to small and medium farmers.
- Ingemann Supply, an SME that has developed an analytical tool for assessing agroclimatic risk, providing financial institutions greater transparency into their agricultural portfolios and giving farmers the data needed to implement climate-smart agricultural practices in the field.

Conclusion

While critical first steps were made for the ASAP initiative through the LAC Study, more work is to be done. The LAC Study shows that there is a wide universe of SMEs in the region that are already building the solutions needed to prevent and manage the effects of climate change, but many of these SMEs do not view their businesses in that context. Continuing outreach to relevant businesses in the region will grow this network, and subsequently, grow the awareness of the

need and opportunity to scale adaptation and resilience solutions in Latin America and the Caribbean and beyond. The LAC Study sets the stage well for the other activities that will be carried out under the broader ASAP initiative.