



# Empowering the Green Recovery



**5** Thought  
leaders

**6** Business  
voices



International  
Trade  
Centre



The International Trade Centre supports small business through the COVID-19 crisis.  
For more information, see <http://www.intracen.org/covid19/>

This publication is a contribution to the annual Micro, Small and Medium-Sized Enterprises Day campaign.

MSME Day takes place each year on 27 June.

The publication findings are presented in a global virtual debate that can be found at:  
[www.intracen.org](http://www.intracen.org)

© International Trade Centre 2021

The International Trade Centre (ITC) is the joint agency of  
the World Trade Organization and the United Nations.

**Street address:** ITC  
54-56, rue de Montbrillant  
1202 Geneva, Switzerland

**Postal address:** ITC  
Palais des Nations  
1211 Geneva 10, Switzerland

**Telephone:** +41-22 730 0111

**Fax:** +41-22 733 4439

**E-mail:** [itcreg@intracen.org](mailto:itcreg@intracen.org)

**Internet:** <http://www.intracen.org>



# Empowering the Green Recovery



The *SME Competitiveness Outlook 2021* analyses how small businesses can rebuild from the COVID-19 pandemic so they are prepared to face the looming climate crisis. It provides a 20-point Green Recovery Plan to foster competitive, resilient and environmentally sustainable small and medium-sized enterprises (SMEs).

The report finds that small firms are less resilient to shocks – whether the pandemic or climate change – because they do not have key business fundamentals in place.

The report identifies key areas where small businesses with limited resources can invest to seize opportunities of the green transition – and what business support organizations, governments, lead firms in value chains and international organizations can do to empower small firms to be competitive, resilient and sustainable.

**Publisher:** International Trade Centre (ITC)

**Title:** SME Competitiveness Outlook 2021: Empowering the Green Recovery

**Publication date and place:** Geneva, June 2021

**Page count:** 108

**Language:** English

**ISBN:** 9789211036817

**eISBN:** 9789210057660

**Print ISSN:** 2519-1071

**e-ISSN:** 2519-1225

**UN Sales Number:** E.21.III.T.1

**ITC Document Number:** P87.E/DMD/RSE/21-VI

**Citation:** International Trade Centre (2021). *SME Competitiveness Outlook 2021: Empowering the Green Recovery*

For more information on ITC's SME Competitiveness Outlook, see <http://www.intracen.org/SMEOutlook/> and ITC's Competitiveness Suveys, see: <http://www.intracen.org/SMEintelligence>.

The designations employed and the presentation of material in this publication do not imply the expression of any opinion whatsoever on the part of the International Trade Centre concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means electronic, electrostatic, magnetic tape, mechanical, photocopying or otherwise, without prior permission in writing from the International Trade Centre.

**Digital image on the cover:** © Shutterstock and ITC

© International Trade Centre (ITC), [www.intracen.org](http://www.intracen.org)

ITC is the joint agency of the World Trade Organization and the United Nations.

# Contents

---

Acronyms.....	ix
Foreword.....	xi
At a Glance.....	xii
Executive Summary.....	xiv
Acknowledgements.....	xx
<b>CHAPTER 1: Business lessons from the pandemic.....</b>	<b>2</b>
COVID-19: Stronger impact on smaller firms.....	2
Competitiveness and resilience are complementary.....	3
Competitive firms are more resilient.....	6
Compete to stay robust.....	6
Connect to become related.....	7
Change to emerge responsive.....	9
Small, youth-led firms less resilient.....	11
International traders exposed, but adaptable.....	12
Resilient to COVID-19, resilient to climate change.....	13
<b>CHAPTER 2: Climate change: What impact for small business?.....</b>	<b>16</b>
A warmer planet poses business risks.....	16
Extreme weather halts business.....	17
Changing weather patterns lower productivity.....	19
Access to business inputs is at risk.....	20
Climate responses affect competitiveness.....	20
Environmental regulation can generate uncertainty.....	20
Sustainability standards are multiplying.....	22
Green finance overlooks small businesses.....	24
Circular economy requires openness.....	24
Climate change: Impact on trade competitiveness.....	25
Biophysical changes impact trade flows.....	25
Trade policies respond to climate change.....	25
Restructuring international value chains.....	26
Imports can have lower carbon footprint.....	27
<b>CHAPTER 3: Going green as a business opportunity.....</b>	<b>30</b>
Boosting capacity to compete.....	31
Resource efficiency lowers costs.....	31
Sustainable packaging reduces waste.....	33
Certification signals quality.....	33
Strengthening capacity to connect.....	34
Digital technologies ease access to information.....	34
Circularity provides data and networks.....	34
Enhancing capacity to change.....	35
Finance, insurance fuel adaptation and mitigation.....	35
Eco-innovation builds loyalty and skills.....	35
Smaller, women-led and youth-led firms lag in adaptation.....	36

Appraising green opportunities.....	38
Trade-offs in going green.....	38
Climate measures can pay off.....	40
No support, no green transition.....	42
CHAPTER 4: The Green Recovery Plan.....	45
Green businesses advance the SDGs.....	45
The Green Recovery Plan.....	46
Business support organizations build bridges.....	46
Governments create incentives.....	47
Lead firms support small suppliers.....	48
International organizations prioritize small business.....	48
ENDNOTES.....	56
REFERENCES.....	59
ANNEX I: Glossary.....	69
ANNEX II: Methodology note and data sources.....	72
ANNEX III: ITC's GreenToCompete strategy and toolbox.....	85

## Figures

---

1	COVID-19: Stronger impact on smaller firms.....	3
2	COVID-19: Smaller firms at higher risk of closure.....	3
3	Competitiveness builds resilience.....	4
4	Competitive attributes make firms robust in a crisis.....	6
5	Good capacity to compete means robust to crisis.....	7
6	Connections allow firms to relate.....	7
7	Connected firms have greater capacity to relate.....	9
8	Change factors make firms more responsive.....	10
9	Capacity to change helped firms to be more responsive.....	10
10	Smaller, youth-led firms are less resilient.....	11
11	Resilient companies have more stable sales, employment.....	11
12	Internationally trading firms more exposed to COVID-19.....	12
13	COVID-19: Firms that trade across borders adapt better.....	13
14	Environmental risks significant for two-thirds of African companies.....	17
15	Changing temperatures is top environmental risk for businesses in Africa.....	17
16	Agricultural areas are at high risk for climate hazards.....	19
17	More than one-quarter of firms view environmental regulations as obstacle.....	22
18	Smaller firms are less likely to be certified to a sustainability standard.....	23
19	Carbon footprint: Domestic and imported asparagus in a German supermarket.....	27
20	Compete, connect and change by going green.....	30
21	Top SME resource efficiency measures: Steam, solar power.....	31
22	Large firms more likely to invest in climate change adaptation.....	31
23	Resource efficiency measures pay off.....	40
24	Resource efficiency measures benefit business, environment.....	40
25	Africa company survey: 42% reduced footprint.....	41
26	New opportunities for 59% of firms making green investments.....	41
27	Environmental investment gains.....	42
28	Services firms see fewer opportunities.....	42

## Table

---

1	The Green Recovery Plan to support small businesses.....	46
---	--	----

## Boxes

---

1	Defining micro, small and medium-sized enterprises.....	3
2	Defining competitiveness and resilience.....	5
3	The path to a greener enterprise.....	39



## Thought leaders



14

**Kamina Johnson Smith**  
Governments must help MSMEs  
build resilience to shocks



28

**William R. Moomaw**  
Climate change creates challenges  
and opportunities for SMEs



43

**Inger Andersen**  
SMEs must embrace circularity for  
businesses and the planet to survive



50

**Pedro Beirute Prada**  
Making exporters more competitive  
through environmental sustainability



52

**Ayman El Tarabishy**  
SMEs and climate change:  
Establishing patterns of resilience

## Business Voices



8

**Alisa Osei Asamoah**  
Rethinking the business  
of travel



18

**John Robin**  
A tragedy  
worse than COVID



21

**Ahmed Khan Buzdar**  
When the water  
runs out



32

**Hachmi Chenik**  
Resource efficiency  
boosts profits



37

**Juliet Namujju**  
Unite social, environmental  
and economic sustainability



54

**Douglas Baguma**  
Technology in the service  
of environment



# Acronyms

---

Unless otherwise specified, all references to dollars (\$) are to United States dollars.

BSO	Business support organization
CO <sub>2</sub>	Carbon dioxide
EU	European Union
GDP	Gross domestic product
GHG	Greenhouse gas
IPCC	Intergovernmental Panel on Climate Change
ISO	International Organization for Standardization
ITC	International Trade Centre
LDCs	Least developed countries
MSME	Micro, small and medium-sized enterprise
R&D	Research and development
RECP	Resource efficiency and circular production
SDGs	Sustainable Development Goals
SIDS	Small island developing States
SME	Small and medium-sized enterprise
UNFCCC	United Nations Framework Convention on Climate Change
VSS	Voluntary Sustainability Standard
WTO	World Trade Organization



# Foreword

---

In January 2020, very few would have predicted that a virus would bring the world to a standstill. A year later, COVID-19 had caused the most severe economic crisis since the global depression.

The effects of the pandemic are truly global, but responses are not. COVID-19 has shown that resilience matters, and laid bare the 'resilience divide' between small and large firms. While developed countries have the financial means to sustain their economies and protect the most vulnerable, most developing and least developed countries are unable to do the same. In these countries, many small and medium-sized enterprises (SMEs) succumbed to the shock.

But with every crisis comes opportunity. As the world gradually recovers from the pandemic, small businesses can and must rebuild in a way that prepares them for future shocks and strengthens their competitive position.

This is particularly crucial given the looming climate crisis. The economic impact of climate change is expected to be like a COVID-19-sized pandemic happening every ten years. The longer firms take to act, the higher costs become. Small businesses in developing countries can either adapt now, when opportunities abound and support is available, or will be forced to do so later, at greater expense and little or no funding.

Going green is both a survival imperative and a business opportunity.

The SME Competitiveness Outlook 2021 examines the lessons the pandemic has taught us, and shows how they apply to the climate emergency. Our results reveal that what makes firms more competitive also makes them more resilient. These attributes are not specific to health crises and can be incorporated into climate resilience strategies.

The report also identifies key areas where small firms with limited resources can invest to seize the opportunities in the green transition.

Now is the time to act. The drive to 'build back better' must incorporate environmental sustainability into business operations, investment choices, national policies and international commitments, and place SMEs at its core.



The International Trade Centre is fully committed to supporting SMEs in the green transition. We want to ensure that our partners in developing and least developed countries have the capacity and resources to respond to the climate challenge and pivot successfully. To this end, we adopted the GreenToCompete strategy.

The strategy brings together our large and diverse offering on environmental sustainability in a holistic and coherent manner. It allows ITC to support partner countries more effectively in leveraging the green transition to increase their trade competitiveness.

ITC is not alone in this endeavour. Many public and private actors across the globe are devoting considerable resources to rebuild greener after COVID-19. This reinforces the business case for SMEs to go green, particularly if there is a win-win in building sustainability and increasing competitiveness.

To ensure that the green transition materializes, we need coordinated action and targeted support. Even when the business case is compelling, and particularly when it is not, SMEs need help to become green. Business support organizations, lead firms in international value chains, governments and international institutions must assist SMEs in adapting to and mitigating climate change.

This report is a call for climate action, for the sake of our planet and our people. I hope you will join us in building a greener future.

**Pamela Coke-Hamilton**

Executive Director  
International Trade Centre

# At a Glance: Empowering the Green Recovery



Put **small firms** at the heart of the **green recovery**.

Small firms generate more than **50%** of jobs and greenhouse gas emissions\*

Resilience matters  
COVID-19 lessons



Resilient firms were **5x** less likely to lay off workers and more likely to have stable sales

## The fundamentals of resilience

**Business resilience** is based on:



■ a company's business processes

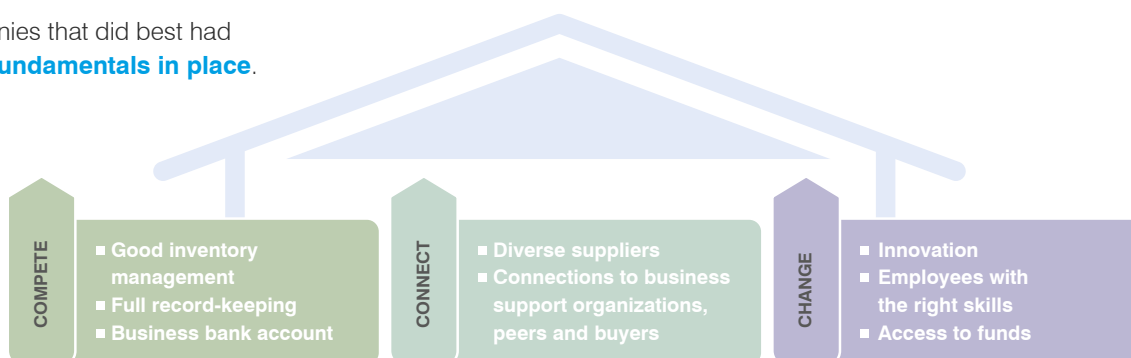


■ its internal and external connections



■ its ability to respond to changes.

Companies that did best had **these fundamentals in place**.



## Climate change matters for small firms

**Small firms in developing countries are more worried** about climate change, but less likely to act.

Who views environmental risks as significant for their business?



**68%**

in sub-Saharan Africa

**54%**

in developed countries\*

Who acts to reduce environmental risk?



**38%**

of small firms

**60%**

of large firms

What they do?



Reduce waste, invest in renewable energy, make green products and services, gain green certification and go digital



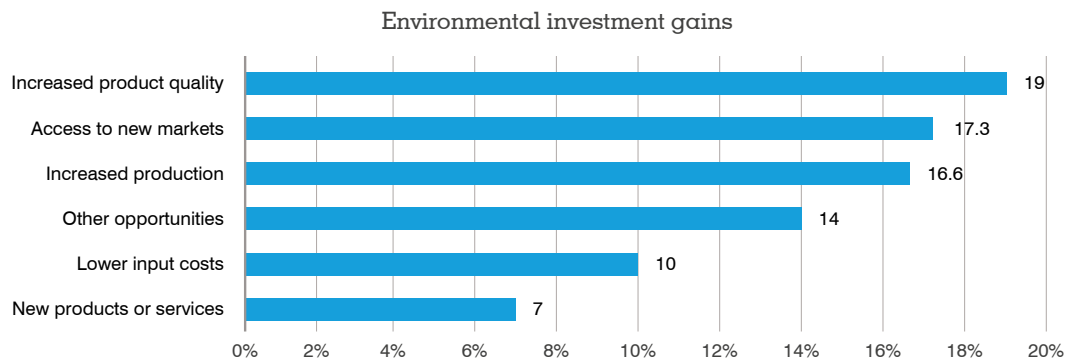
Women-owned and youth-led companies lag behind in adaptation.

\*All ITC data except as noted by an asterix. See endnotes in report.



## Go Green: Seize business opportunities

**Green your business** to seize new **opportunities**.



Nearly **60%** of surveyed African companies

that greened their enterprises said it led to new, higher-quality and more products, access to new markets, or lower input costs.

They were also better-positioned to tap the growing pot of green finance.



For companies that don't see short-term gains, remember: **Greening your business builds resilience and strengthens competitiveness.** New environmental regulations will require it and consumers will demand it. **Green finance markets seek it.**

## The Green Recovery Plan to support small businesses

	<b>BUSINESS SUPPORT ORGANIZATIONS</b>	<b>GOVERNMENTS</b>	<b>LEAD FIRMS IN VALUE CHAINS</b>	<b>INTERNATIONAL ORGANIZATIONS</b>
<b>EMBRACE SUSTAINABILITY</b>	Develop expertise internally/seek it externally	Embed sustainability in recovery plans	Adopt a holistic approach to share and manage risk	Mainstream sustainability in development plans
<b>COLLABORATE, COORDINATE</b>	Create/join networks to share knowledge	Coordinate to ensure regulatory coherence	Harmonize/recognize sustainability standards	Be a platform for information, best practices
<b>ADVOCATE FOR SMES</b>	Build the local support ecosystem	'Think small first' in policymaking	Source from non-traditional locations	Bring SMEs to multilateral forums
<b>FACILITATE SME FINANCE</b>	Be the trusted intermediary	Provide incentives for green finance	Facilitate access to supply chain financing	Promote tailored financial solutions
<b>STRENGTHEN SME CAPACITY</b>	Train SMEs for green, innovative approaches	Promote innovation with skills and technologies	Build skills and technology base of small suppliers	Increase service offering for SMEs

# Executive Summary

---

The SME Competitiveness Outlook 2021 provides a plan for fostering competitive, resilient and sustainable small and medium-sized enterprises (SMEs). SME competitiveness is at the core of ITC's mission, resilience is a key consideration in post-COVID-19 plans and sustainability is essential if the world is to address the climate crisis. This report shows how these three goals can – and should – be pursued in tandem.

COVID-19 was a harsh reminder of the economic and social damage that come with being unprepared. In addition to its grim toll on human life, the pandemic – and measures to contain it – have battered companies worldwide, both large and small.

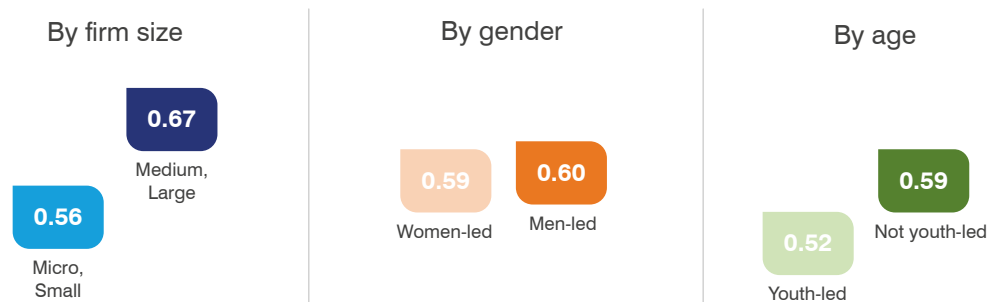
For small and medium-sized enterprises, with their scarce resources, surviving the crisis has been daunting. They suffered the most from the pandemic, with 60% of micro and 57% of small businesses strongly affected, compared with 43% of large firms. This is partly because smaller firms record lower levels of resilience, on average, than larger companies.

The pre-COVID-19 resilience score of micro and small firms was 16% lower than that of medium and large firms, according to a survey-based index constructed by the International Trade Centre. Similarly, companies led by youth have lower resilience scores than firms led by people over 34 years of age. While women-led firms in the sample displayed slightly lower scores than those owned and managed by men, the difference was not statistically significant.

## Smaller, youth-led firms are less resilient

Average index of resilience

---



**Source:** ITC *SME Competitiveness* and *COVID-19 Business Impact Surveys* in Benin, Cambodia and the Philippines, July 2019-August 2020, with 770 firms. The index has values from 0 to 1, with higher values indicating greater resilience. See Annex II for detail.

Resilience is based on the strength of a company's business processes, its internal and external connections and its ability to pivot. It matters, as it signals how a company will fare when crisis strikes, and its chances of long-term success.

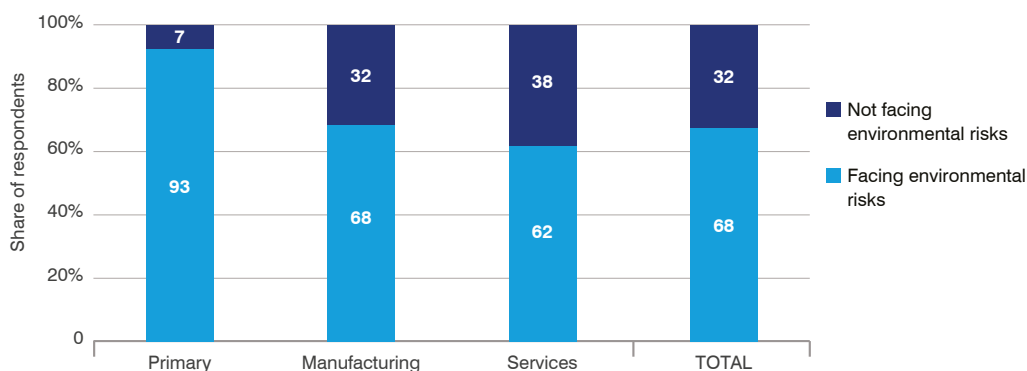
For example, during COVID-19 only 16% of resilient companies reported laying off employees, compared with 76% of companies with a lower index of resilience. As SMEs account for about 90% of businesses and more than 50% of employment worldwide, their demise has disastrous social and economic consequences.

Just as SMEs start to emerge from the first waves of the pandemic, a more far-reaching challenge looms – climate change.

Many scientists view climate change as even more disruptive than COVID-19 in the long term. While the range of likely impacts varies depending on the model used, the economic damage of climate change could be as bad as having a pandemic the size of COVID-19 every ten years.

Managers' experiences during COVID-19 made them aware of the need to build resilience to face future crises, including climate change. Indeed, small and medium-sized enterprises see environmental changes as a competitiveness risk. On average, 68% of the companies interviewed for ITC's SME Competitiveness Surveys in sub-Saharan Africa said that environmental risks were significant for their businesses, with the share rising to 93% among firms in the primary sector.

### Environmental risks significant for two-thirds of African companies

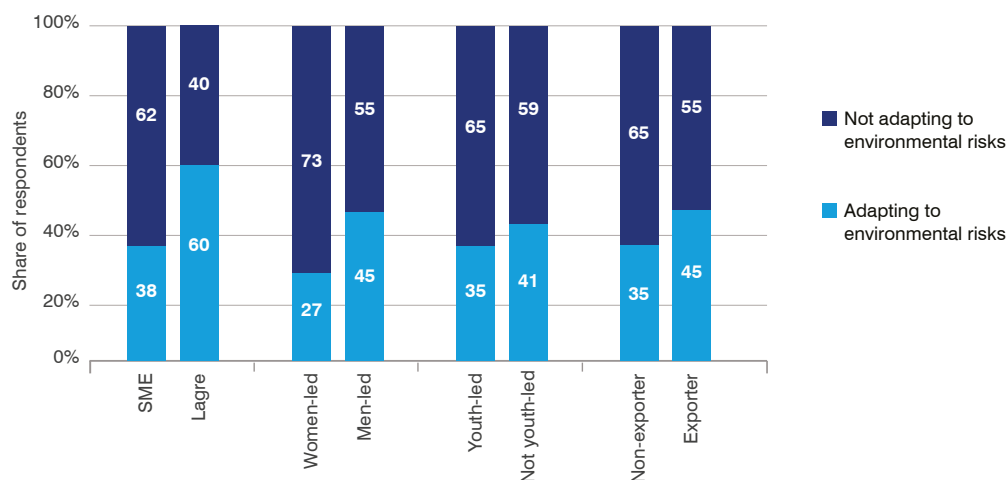


**Note:** Most respondents (94%) are SMEs with less than 100 employees, with 16% in the primary sector, 14% in manufacturing and 71% in services.

**Source:** ITC *SME Competitiveness Surveys* of 1,359 companies, in Zambia (Year 2018, 242 businesses), Botswana (Year 2019, 615 businesses) and Benin (Year 2019, 502 businesses). See Annex II for detail.

Still, while many SMEs are concerned about the consequences of a changing climate, most have not yet invested in measures to adapt to it. Sixty per cent of large firms reported that they had invested in at least one measure to reduce exposure to environmental risks, according to ITC SME Competitiveness Surveys in Africa. In comparison, just 38% of micro, small and medium-sized firms had made such an investment.

### Smaller, women-led and youth-led firms less likely to invest in adaptation



**Note:** Companies are 'women-led' if they are at least 30% owned by women and the top manager is a woman. Companies are youth-led if the top manager is under 35.

**Source:** ITC *SME Competitiveness Surveys* of 1,359 companies, in Zambia (Year 2018, 242 businesses), Botswana (Year 2019, 615 businesses) and Benin (Year 2019, 502 businesses). See Annex II for detail.

If it is mainly large firms that have the foresight and capital to adapt, only they will prepare adequately for climate change. Smaller companies that wait and try to cope after the event are likely to run down assets, with adverse effects on their competitiveness and survival. This could exacerbate corporate concentration, which research suggests is already on the rise as a result of COVID-19.

Not all is doom and gloom. Despite the bleak picture painted by COVID-19, some SMEs displayed a high degree of resilience. Also, the disruption caused by the pandemic provides an unprecedented opportunity to change unsustainable 'business as usual'.

This report analyses the key insights provided by resilient SMEs for all firms increasingly exposed to major disruptions. It also harvests the lessons learned in supporting SMEs during the pandemic and examines how and to what extent these can inform efforts to lessen the impact of the climate crisis.

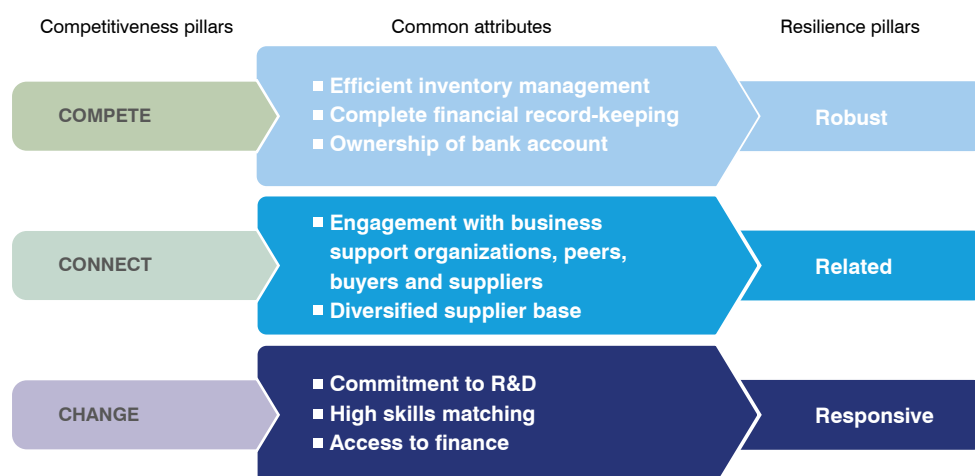
## Lesson 1: Focus on fundamentals

As was the case with the pandemic, SMEs will confront more challenges than bigger firms to prepare for, and adapt to, the many facets of climate change. This reflects constraints that SMEs traditionally face, such as lack of knowledge about the specific impacts on their business, and shortage of finance and expertise to implement necessary countermeasures. It also reflects the trade-off between strengthening short-term competitiveness and building long-term resilience.

ITC research on the business impact of COVID-19 shows there is a path to foster both. Firms have capacities, and business ecosystems have characteristics, that allow companies to thrive in good times and survive in bad times. Businesses that fared better during the pandemic leveraged competitiveness attributes, which increased their resilience, according to evidence from two ITC surveys.

Practices that boosted the *capacity to compete* also made firms *robust* to the shock. Characteristics that drove the *capacity to connect* also determined the strength of the *relationships* that they drew on to access information and benefits during the crisis. Finally, aspects that bolstered firms' *ability to change* also fostered *responsive* coping strategies.

### Competitiveness builds resilience



Source: ITC.

The competitiveness attributes that lay the foundations of resilience are not specific to a health crisis. They enhance the ability of SMEs to cope with any shock, whether a pandemic or a hurricane. They make companies ready for the impacts, giving them relationships to draw on for help, and allowing them to respond in a timely and effective manner. Investing in these fundamental aspects of SME competitiveness can yield dividends for current competitiveness and future resilience.



## Lesson 2: Give timely and clear information

COVID-19 showed that people can adapt if they know what to do – wear a mask, observe physical distance, stay at home. Businesses will adapt if they are aware of risks and know the paths to build resilience.

Small businesses need timely, accurate and clear information on the potential effects of climate change, and of the shifts in consumption, production and trade that are emerging in response.

Climate change impacts follow an inequitable path. The most acute shifts are expected to occur in regions and countries with low incomes and lagging performance in achieving the United Nations Sustainable Development Goals. Businesses in strongly affected countries tend to have relatively fewer resources, alternatives and information to help them adapt.

Companies interviewed for ITC's SME Competitiveness Surveys in sub-Saharan Africa were most concerned by changing temperatures (34%), followed by water scarcity (22%) and floods (20%). They cited a range of other concerns, including scarcity (18%) and quality (15%) of business inputs, storms and other risks (15% each), lower air quality (3.2%) and rising sea levels (2.5%). This shows that small businesses are aware of, and probably already suffering, the direct effects of climate change.

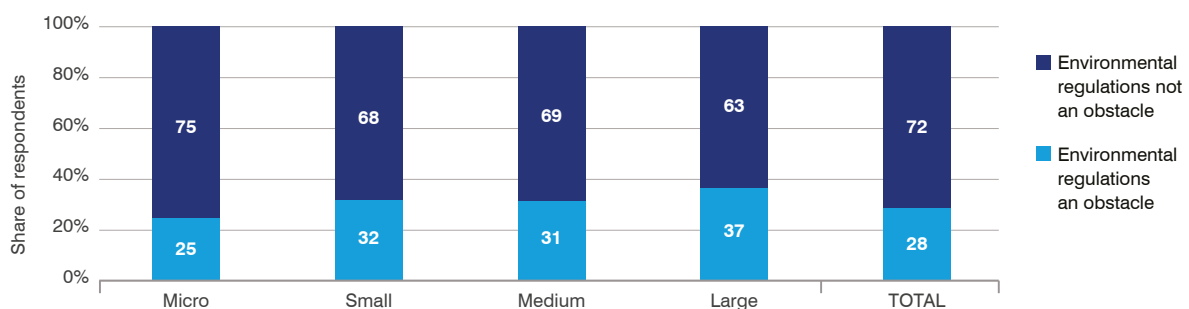
But SMEs in developing countries will not only bear the brunt of climate change's direct impacts. They will also be at the receiving end of measures, largely designed in developed countries, to counter the damage of a warming planet.

While necessary for mitigation and adaptation, such public and private requirements risk limiting further the ability of SMEs to compete, particularly if measures are not clear, coordinated and affordable.

Environmental regulations appear more often in governments' agendas, as they commit to reduce greenhouse gas emissions and mitigate the extent of climate change. New climate policies, regulations, laws and taxes may lead to regulatory risks for SMEs. There are financial costs associated with becoming compliant, and fees incurred for non-compliance.

Moreover, clear rules have yet to be implemented in many states, and the patchwork of declarations, policies and practices generates uncertainty and keeps smaller firms from planning their own green transition. More than one-quarter of African firms interviewed for the ITC SME Competitiveness Survey said that environmental regulations were an obstacle to their operations.

### More than one-quarter of firms view environmental regulations as obstacle

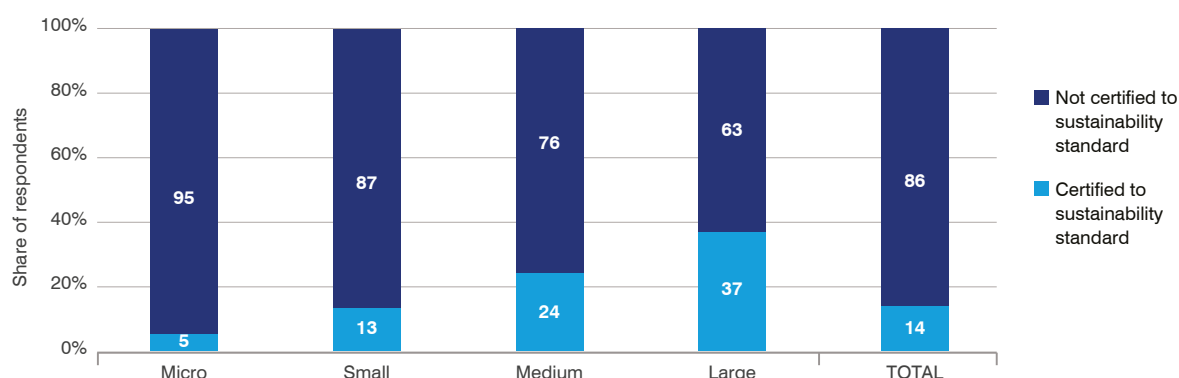


**Source:** ITC *SME Competitiveness Surveys* of 1,359 companies, in Zambia (Year 2018, 242 businesses), Botswana (Year 2019, 615 businesses) and Benin (Year 2019, 502 businesses). See Annex II for detail.

Voluntary sustainability standards complement government regulations and ballooned from just 15 in 1980 to more than 262 in 2020. These standards signal to environmentally-conscious buyers, including corporate purchasers and consumers, that firms follow certain desired practices.

Paradoxically, the proliferation of sustainability standards is limiting their potential, particularly for SMEs. Their multiplicity, as well as the stringency of requirements, make them technically and financially challenging for small businesses. Only 5% of micro and 13% of small firms interviewed by ITC globally were certified to a sustainability standard.

## Smaller firms are less likely to be certified to a sustainability standard



**Source:** ITC *SME Competitiveness Surveys* of 4,844 respondents interviewed between 2017 and 2020 in Argentina, Benin, Botswana, Burkina Faso, Cambodia, Ghana, Hungary, Kenya, Myanmar, Nigeria, the Philippines, Togo, Ukraine and Zambia. See Annex II for detail.

Knowledge about climate risks and how to adapt to them is scarce among SMEs. They often lack the ability to identify environmental threats and, especially, to assess adaptation options. If business support organizations facilitate SME access to such expertise, they can help close a critical knowledge gap.

At the same time, SMEs need timely and well-defined information to plan their own green transition. Public and private sector actors must convey their policy intentions clearly so that SME managers can avoid making investments or embarking on ventures that run counter to future measures.

## Lesson 3: Leverage opportunities

The transition to sustainable practices is a challenge – and an opportunity for SMEs to strengthen their competitiveness and resilience. Although 58% of the firms surveyed by ITC in 2019 expected climate change measures to affect them negatively, 39% expected some positive impact.

Adopting sustainable practices is not only about businesses being good – it is also about good business.

There are five factors driving the SME business case for going green:

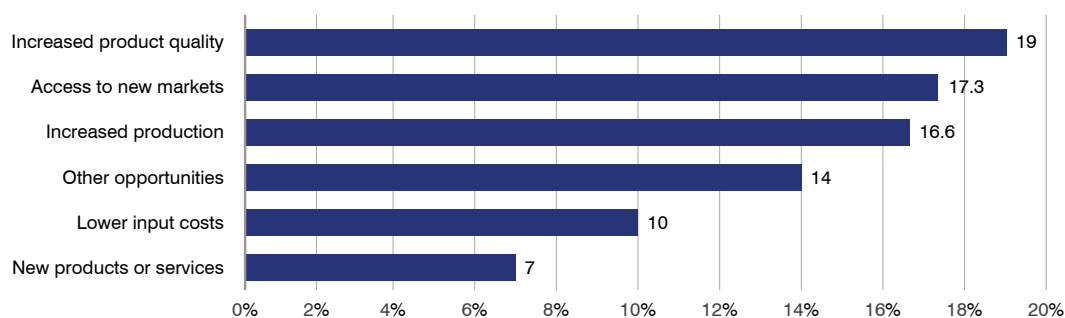
- Increased resilience
- Cost reduction and higher productivity
- Compliance with climate regulations
- Access to markets
- Eligibility for green financing

Measures to reduce firms' environmental footprint that cost nothing or very little, such as changing management of water, electricity and chemicals, pay off quickly. Although these 'quick wins' can mark the first step in the greening of SME business practices, bigger investments deliver much more significant benefits to the bottom line and the planet.

For example, the costliest measures adopted by SMEs participating in ITC's resource efficiency and circular production interventions were installing solar panels and electricity equipment, which require significant initial investments. These initiatives, however, are expected to deliver the largest total financial benefits after 10 years and the biggest environmental dividend in reduced greenhouse gas emissions.

Fifty-nine per cent of African firms that had invested in greening their enterprise said it provided them with new opportunities. Of firms that made green investment during the previous three years, 19% increased product quality, 17.3% accessed new markets, 16.6% increased production, 10% reduced their input costs and 7% made new products or services.

## Environmental investment gains



**Source:** ITC SME Competitiveness Surveys of 1,359 companies, in Zambia (Year 2018, 242 businesses), Botswana (Year 2019, 615 businesses) and Benin (Year 2019, 502 businesses). See Annex II for detail.




Some green investment projects, however, do not seem to pay off financially in the short term. Forty-one per cent of the firms interviewed by ITC in Africa felt their green actions had not yielded benefits. This is particularly true of firms in the services sector.

## Lesson 4: Support, support, support

Even when the green business case is compelling, and particularly when it is not, SMEs need support to transition. As small firms seek assistance to recover from the pandemic, all stakeholders should provide them with the means to become more competitive, resilient and sustainable.

Small firms must be at the centre of a green transition, as investing in them generates a 'double-dividend' of private and social gains. The Green Recovery Plan is a set of recommendations for business support organizations, governments, lead firms in international value chains and international organizations to help SMEs embark on a green transition.

## The Green Recovery Plan to support small businesses

	BUSINESS SUPPORT ORGANIZATIONS	GOVERNMENTS	LEAD FIRMS IN VALUE CHAINS	INTERNATIONAL ORGANIZATIONS
 <b>EMBRACE SUSTAINABILITY</b>	Develop expertise internally/seek it externally	Embed sustainability in recovery plans	Adopt a holistic approach to share and manage risk	Mainstream sustainability in development plans
 <b>COLLABORATE, COORDINATE</b>	Create/join networks to share knowledge	Coordinate to ensure regulatory coherence	Harmonize/recognize sustainability standards	Be a platform for information, best practices
 <b>ADVOCATE FOR SMES</b>	Build the local support ecosystem	'Think small first' in policymaking	Source from non-traditional locations	Bring SMEs to multilateral forums
 <b>FACILITATE SME FINANCE</b>	Be the trusted intermediary	Provide incentives for green finance	Facilitate access to supply chain financing	Promote tailored financial solutions
 <b>STRENGTHEN SME CAPACITY</b>	Train SMEs for green, innovative approaches	Promote innovation with skills and technologies	Build skills and technology base of small suppliers	Increase service offering for SMEs

COVID-19 taught the world hard lessons. Without action, climate change will teach even harder ones. By acting now and placing SMEs at the core of a green transition, it is possible simultaneously to address the climate crisis and build the competitiveness and resilience of the businesses on which a large percentage of the global population depend.

# Acknowledgements

---

The *ITC SME Competitiveness Outlook 2021* was prepared by a team led by Barbara Ramos, Chief of Research and Strategies for Exports, under the strategic direction of ITC Senior Management. Olga Solleder coordinated the report. The writing team in the Research and Strategies for Exports Section included Floriana Borino, Sarah Mohan, Nathalie Raschka, Valentina Rollo and Olga Solleder. Research assistance was provided by Sergio Martinez Cotto, Aissata Boubacar Moumouni, Antonina Popova and Maria Camila Porras. We thank Aaron Cosbey and Chiara Ravetti for their significant contributions during the drafting process. The report benefited from background papers prepared by Floriana Borino, Eric Carlson, Justine Falciola, Sarah Mohan, Valentina Rollo and Olga Solleder.

We thank all ITC colleagues who provided comments and contributions to the report, in particular Rajesh Aggarwal, Leonardo Iebra Aizpurúa, Federica Angelucci, Milou Van Bruggen, Anne Chappaz, Yang Chen, Simone Cipriani, Delphine Clement, David Cordobés, Frédéric Couty, Raphaël Dard, Vanessa Erogbogbo, Alexander Kasterine, Martin Labbé, Mathieu Lamolle, Charles Lor, Elizabeth Martinez, Olivier Marty, Hernan Manson, Chloé Mukai, Yaya Ouattara, Susanna Pak, Anton Said, Andrea Santoni, Ian Sayers, Robert Skidmore, Topias Tamminen, Matthew Wilson, Joseph Wozniak, Julia Zietemann and Ann-Kathrin Zotz, and especially Annegret Brauss for her continuous support. ITC's Trade for Sustainable Development team provided the data and insights from the resource efficiency and circular production interventions.

We appreciate the personal contribution of distinguished Thought Leaders: Inger Andersen, Pedro Beirute Prada, Ayman El Tarabishy, Kamina Johnson Smith and William R. Moomaw.

We acknowledge the special significance of our Business Voices: Alisa Osei Asamoah of Riali Consult Ltd., Douglas Baguma of Innovex, Ahmed Khan Buzdar of Burg Olive Oil Products, Hachmi Chenik of ITEX, Juliet Namujju of Kimuli Fashionability and John Robin of Benjo's Seamoss. We also thank all respondents to the *ITC COVID-19 Business Impact Survey* and *SME Competitiveness Surveys*.

The report benefited from the input and comments of Opeyemi Abebe (The Commonwealth Secretariat), Bettina Heller, Minori Lee and Dominic MacCormack (United Nations Environment Programme), Christian Volpe Martincus (Inter-American Development Bank), Laura Kuhl (Northeastern University), Trang Luu, Shusuke Oyobe, Pelin Sekerler Richiardi and Catherine Saget (International Labour Organization), Jason Clay (WWF), Pooja Mall and Mahesh Sugathan (independent experts).

Natalie Domeisen led the editorial assessment and production process, and contributed to editing. Julie Wolf served as Lead Editor. Anne Griffin provided production and translation support, as well as copy editing for the annexes and references. Shakira Lakdawalla and Maeve Rees-Jones provided administrative support. Iva Stastny Brosig led art direction and layout. Serge Adeagbo provided digital printing services.





# Empowering the Green Recovery



## CHAPTER 1

# Business lessons from the pandemic

The COVID-19 pandemic may have been the most severe and widespread shock to the global economy in recent history. In addition to its grim toll on human life, the pandemic – and measures to contain it – have battered companies worldwide, both large and small.

For small and medium-sized enterprises (SMEs), with their scarce resources, surviving the crisis has been daunting. Just as SMEs around the world start to emerge from the first waves of the pandemic, an even more far-reaching challenge looms – climate change.

Their experiences during COVID-19 made managers aware of the need to build resilience to face future crises, including climate change. Still, ITC surveys show that, while many SMEs are concerned about its consequences, most have not invested yet in measures to adapt to a changing climate.

As was the case with the pandemic, SMEs will face more challenges than bigger firms to prepare for and adapt to the many facets of climate change. This reflects constraints that SMEs traditionally face, especially lack of knowledge on how specifically they will be affected, and finance and expertise to implement the necessary countermeasures.

It also reflects the trade-off between strengthening short-term competitiveness and building long-term resilience. ITC research on the business impact of COVID-19 shows there is a path to foster both, as factors that make firms competitive in good times also make them resilient in bad times.

This chapter analyses these factors using ITC's three pillars of competitiveness: the ability to compete, connect and change. The pillars, in turn, link into three dimensions of resilience: the capacity of companies to be robust, related and responsive.

For example, efficient inventory management and complete financial record-keeping increase companies' ability to compete and make them more robust. Links to business support organizations and a diversified supplier base help them connect and relate. Efficient cash flow management and commitment to research and development make companies more responsive and able to change.

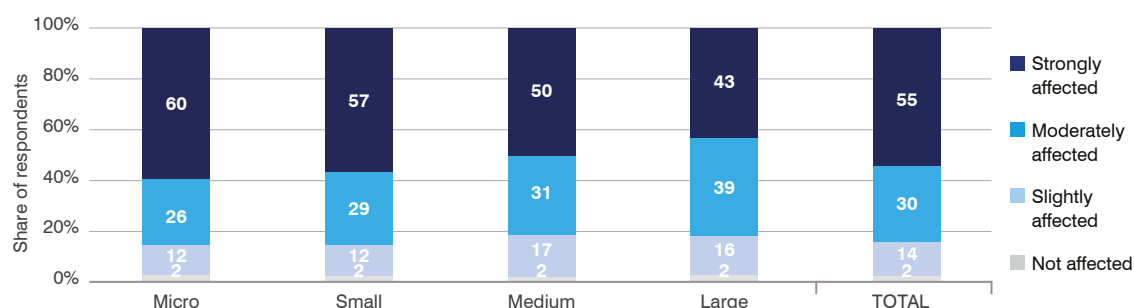
By identifying the pre-shock characteristics that allowed firms to fare better during the COVID-19 crisis, it is possible to start building an action plan to strengthen SME resilience to climate change.

## COVID-19: Stronger impact on smaller firms

A global pandemic was a low-probability, high-impact risk in autumn 2019. By the end of 2020, COVID-19 had caused more than 1.5 million deaths and \$28 trillion in economic losses.<sup>1</sup> As the virus spread, so did containment measures to stem the health threat. Governments imposed restrictions on the movement of people, such as confinements, curfews, shutdowns and border closures, all of which impaired business operations. Halted production lines eventually caused shortages within supply chains.<sup>2</sup> Lower business revenues led to temporary or permanent layoffs, affecting demand and creating a vicious cycle.<sup>3</sup>

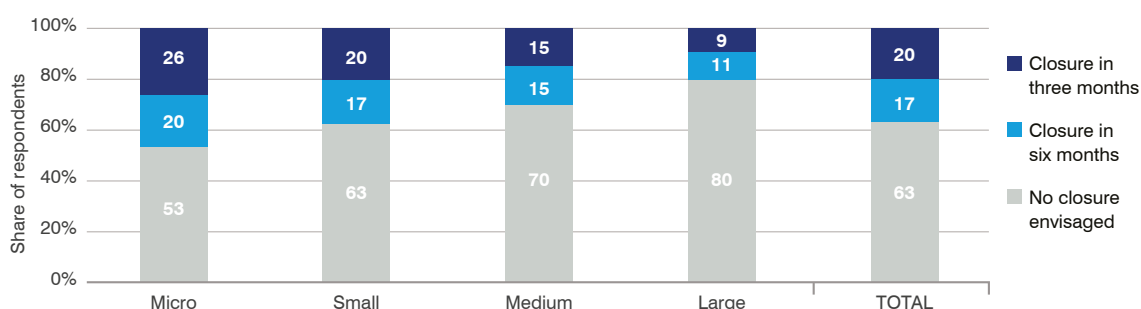
The smaller the firm, the stronger it felt the negative impact of COVID-19. The global ITC COVID-19 Business Impact Survey<sup>4</sup> shows that the pandemic affected virtually all companies (98%), with a majority (55%) stating they were strongly affected. Still, smaller companies were more exposed than larger ones, as nearly two out of three reported their business operations had been strongly affected, compared with less than half of large companies (Figure 1).

**FIGURE 1** COVID-19: Stronger impact on smaller firms



**Source:** ITC COVID-19 Business Impact Survey, April-August 2020, with 3,949 businesses in 123 countries. See Annex II for detail.

**FIGURE 2** COVID-19: Smaller firms at higher risk of closure



**Source:** ITC COVID-19 Business Impact Survey, April-August 2020, with 4,694 businesses in 136 countries. See Annex II for detail.

**BOX 1: Defining micro, small and medium-sized enterprises**

This report classifies companies based on the number of full-time employees in the following way:

- Micro: 0 to 4 employees
- Small: 5 to 19 employees
- Medium: 20 to 99 employees
- Large: 100 or more employees.

Therefore, the SMEs referred to in this report are companies with fewer than 100 employees.

SMEs are often cash strapped, with less inventory and more limited supplier networks. Absorbing price increases and input shortages, or sourcing from new suppliers, is more challenging.<sup>5</sup> Not surprisingly, one in four (26%) micro firms risked shutting down permanently within three months, compared with less than one in ten (9%) large firms (Figure 2).

Despite this bleak picture, some SMEs displayed a high degree of resilience. In part, this is because SMEs face an ‘innovate or die’ dilemma – unlike larger firms with resources to sustain them through crises.<sup>6</sup> These resilient SMEs can provide key insights to firms increasingly exposed to major disruptions.<sup>7</sup>

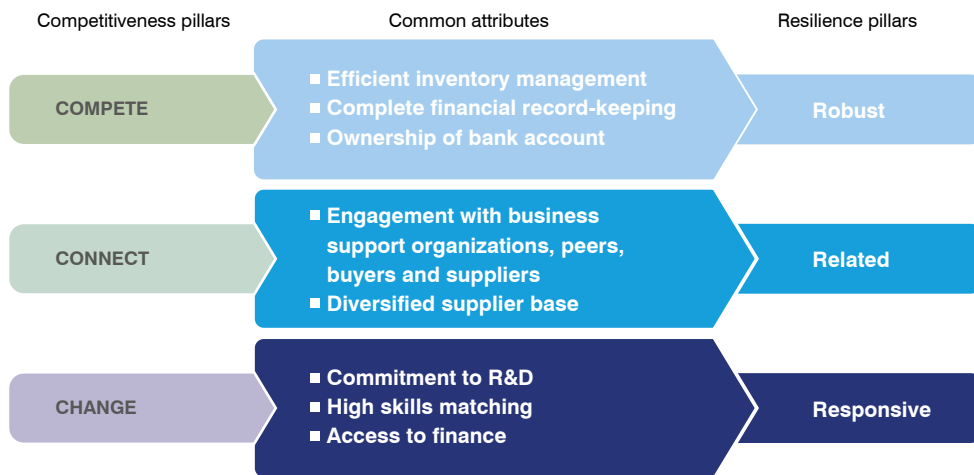
**Competitiveness and resilience are complementary**

Competitiveness and resilience reflect factors that enable a firm to succeed in the short, medium and long term.

ITC defines enterprise competitiveness holistically:

*Competitiveness is the demonstrated ability to design, produce and commercialize an offer that fully, uniquely and continuously fulfils the needs of targeted market segments, while connecting with and drawing resources from the business environment, and achieving a sustainable return on the resources employed.<sup>8</sup>*

**FIGURE 3** Competitiveness builds resilience



Source: ITC.

ITC has also developed an analytical framework to understand firm competitiveness and how it improves over time. The framework is built around three pillars – compete, connect and change (Box 2).<sup>9</sup>

Resilience is the capacity to withstand disruption. Firms display the ability to absorb shocks with situation-specific responses, based on how robust, related and responsive they are. Resilient firms emerge from a crisis as strong, or stronger, than before (Box 2).<sup>10</sup>

A company’s resilience is likely to be closely linked to its competitiveness, as two recent ITC surveys show. Before COVID-19, ITC was collaborating with institutions in Benin, Cambodia, and the Philippines to assess the competitiveness of small and medium-sized enterprises through its SME Competitiveness Survey. In mid-2020, ITC carried out a complementary survey in the three countries to assess how companies had been affected by COVID-19. Combining data from the two surveys allowed analysis of whether, and to what extent, pre-crisis competitiveness factors influenced business outcomes during the pandemic (see Annex II for methodology).

Practices that boosted the *capacity to compete* also made firms *robust* to the shock. Characteristics that drove the *capacity to connect* also determined the strength of the *relationships* that they drew on to access information and benefits during the crisis. Finally, aspects that bolstered firms’ *ability to change* also fostered *responsive* coping strategies (Figure 3).

Not all factors that make a firm competitive make it more resilient. In fact, some elements of competitiveness can undermine resilience. For example, lean inventories and streamlined input sourcing can lower costs, but leave the firm vulnerable to supply disruptions. The higher productivity, efficiency and scale associated with competitiveness can come at the expense of the flexibility and diversity of relationships required for resilience.<sup>11</sup>

A strategic approach can focus on elements that work together to build both competitiveness and resilience. Competitiveness characteristics that lay the ground to build resilience are:

- **Capacity to compete:** Efficient inventory management, complete record-keeping and possession of a bank account;
- **Capacity to connect:** Strong, varied links with business support organizations and other firms in the sector; access to information about buyers and suppliers; and a diverse supplier base;
- **Capacity to change:** Investment in research and development, skills matching and access to finance.



## BOX 2: Defining competitiveness and resilience

### Competitiveness pillars: Compete, connect and change

Several factors at the firm, business ecosystem and national levels influence the capacity of a company to be competitive. ITC's competitiveness framework classifies these factors under three interrelated pillars – compete, connect and change.

- **Capacity to compete** refers to the static dimension of competitiveness. It focuses on factors for a firm to deliver output of appropriate quantity, quality and cost.

Quality of inventory management and compliance with internationally recognized standards are examples of such factors at the company level. Access to electricity, transport infrastructure and services are examples of factors at the business ecosystem and national levels.

- **Capacity to connect** describes a company's ability to exploit information to underpin strategy and operations.

At the firm level, this covers efforts to gather information flowing into and from the firm, including through communications with suppliers and advertising to buyers. At the business ecosystem level, this includes links to sector associations, chambers of commerce and other business support organizations. At the national level, the capacity to connect is influenced by the availability and quality of information and communications technology infrastructure and services.

- **Capacity to change** refers to factors that support a firm's capacity to make changes in response to, or in anticipation of, dynamic market forces.

When companies mobilize financial resources, capital and skills and invest them in innovation, they draw on the information they have to improve competitiveness. Access to finance and appropriately skilled workers are key ingredients in this process. Nationally, education, research and development policies and governance structures affect firms' incentives to invest in change.

### Resilience pillars: Robust, related and responsive

As with competitiveness, several factors influence a company's resilience. ITC categorized them under three pillars – robust, related and responsive.

- **Robust** firms have strong management and operational procedures to withstand pressure during a crisis.

This involves effective risk management and business contingency plans, inventory management and savings. Pre-crisis practices and resources build shock absorbers into the structure of a robust firm.

- **Related** firms leverage internal and external connections to access resources and support during a crisis.

Firms with strong internal communication are better equipped to navigate shocks.<sup>12</sup> Similarly, companies with extensive and strong links to actors in the business ecosystem have a network or social capital they can draw on for help.

- **Responsive** firms overcome crises with inventive, well-adapted strategies to absorb shock, transform and cope with the new reality.

Ingenuity under stress<sup>13</sup> tends to be higher among firms that have already learned, through experience, how to navigate a crisis. Availability and good management of human, technological and financial capital are likely to promote an effective response that kick-starts the recovery process.

**Source:** (Battisti et al., 2019; ITC, 2015; Madni & Jackson, 2009; Kaplan, Leonard, and Mikes 2020; Rose & Krausmann, 2013; Suarez and Montes 2020; Sullivan-Taylor & Branicki, 2011; Torres et al., 2019; UNDRR 2020; van der Vegt et al., 2015; WEF, 2013; Weick & Sutcliffe, 2007).

## Competitive firms are more resilient

### Compete to stay robust

What drives a firm's ability to meet market requirements in the short term, or its capacity to compete, also makes it more robust.<sup>14</sup> Firms with efficient inventory management, complete financial record-keeping and ownership of a business bank account were more likely to be robust in the face of COVID-19, according to ITC surveys (Figure 4).

Efficient inventory management helps firms stay competitive in normal times, and robust in the face of disturbances.<sup>15</sup> Companies with better inventory practices know which input needs are more acute and worthy of management attention in the short run. Only one-third of enterprises with low efficiency in managing their inventory were robust during the crisis. In contrast, about half of firms with highly efficient inventory management were not hard hit (Figure 4).

As strained supply chains made it harder to access inputs quickly during the pandemic, this quality was particularly valuable. Survey results show that 83% of enterprises with low inventory management efficiency faced problems obtaining inputs during the crisis, compared with 77% of firms with medium-high inventory management efficiency.

Good record-keeping practices enable managers to identify buffers.<sup>16</sup> Companies that kept complete records of revenues, expenses and liabilities or assets during the

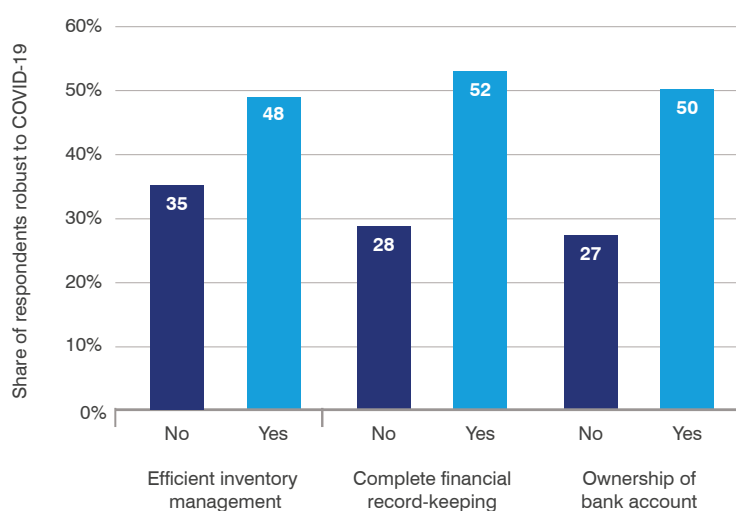
pandemic were more likely to be robust (52%) than those that did not keep complete records (28%). One possible explanation is that firms used the slack identified in their records to get through the hard times.

Similarly, good financial management influences how well a company responds to changes in the economic environment. Bank account ownership, for example, is associated with higher competitiveness and resilience, though this may reflect factors beyond a firm's control. Having a bank account may be a sign of good savings behaviour or solid financial management. Yet, not all SMEs have access to a functioning financial system that enables them to open an account. Thus, bank account ownership can reflect poor availability of financial services, that in turn undermines competitiveness and resilience.

Firms that do have a bank account can amass savings to tide them over in tough times.<sup>17</sup> They can also establish a relationship with their bank that gives them access to loans and other support in times of crisis. Some 73% of businesses without a bank account were strongly affected by the pandemic according to the ITC, compared with 50% of those with a bank account.

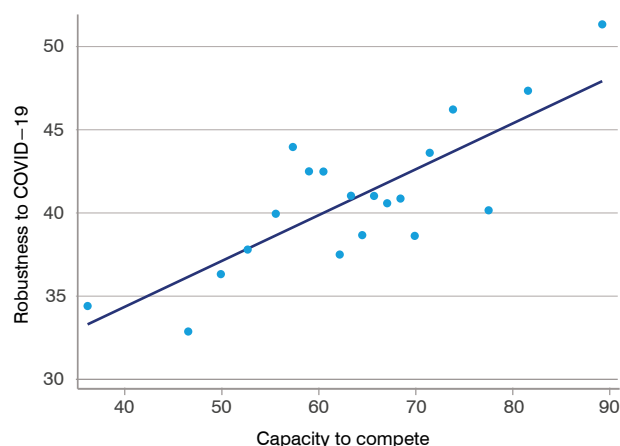
To investigate the link between a firm's capacity to compete and its robustness to shocks, ITC calculated a 'capacity to compete' score.<sup>18</sup> Companies with higher scores were better able to withstand pressure during the crisis and hence were more robust (Figure 5).

**FIGURE 4** Competitive attributes make firms robust in a crisis



**Source:** ITC *SME Competitiveness and COVID-19 Business Impact Surveys* in Benin, Cambodia and the Philippines, July 2019-August 2020, with 770 firms. See Annex II for detail.

**FIGURE 5** Good capacity to compete means robust to crisis



**Source:** ITC *SME Competitiveness and COVID-19 Business Impact Surveys* in Benin, Cambodia and the Philippines, July 2019-August 2020, with 770 firms. See Annex II for detail.

### Connect to become related

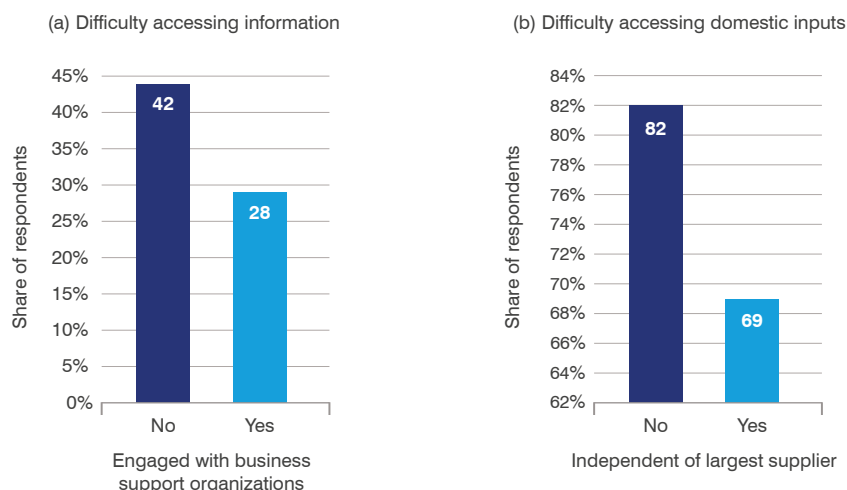
Competitiveness and resilience also depend on a firm's diverse and strong connections to business support organizations, peers, buyers and suppliers. When a firm connects externally, it gathers and shares information. This allows firms to identify potential clients and market goods and services, a key competitiveness factor. It also allows companies to access critical information and support they need during a crisis.

Firms with established relationships with business support organizations prior to the crisis appeared to have better access to information and benefits, such as government assistance to mitigate the effects of the pandemic.<sup>19</sup>

The share of firms that reported difficulty with accessing information and benefits dropped from 42% to 28% when they were engaged with business support organizations (Figure 6a).

It may be that companies with a higher tendency to reach out for information and support were also more likely to connect to business support organizations and COVID-19 assistance.<sup>20</sup> Riali Consult, a Ghanaian travel and tours company featured as a Business Voice in this chapter, shows that connections to business support organizations were key to obtain information on how to adapt.

**FIGURE 6** Connections allow firms to relate



**Source:** ITC *SME Competitiveness and COVID-19 Business Impact Surveys* in Benin, Cambodia and the Philippines, July 2019-August 2020, with 770 firms. See Annex II for detail.



**Alisa Osei Asamoah**

CEO, Riadi Consult,  
Ghana

## Rethinking the business of travel

**This tourism company specialized in inbound tours and corporate travel. It now also works in domestic tourism, thanks to training to adapt its business strategy and improve its digital marketing.**

'While we started 2020 on a very positive note, COVID-19 was a big tragedy for us. Because of border closures, most of our international and corporate clients cancelled their bookings and we lost our main source of revenue. This meant that we had to come up with a new business approach.

As short-run strategies, we negotiated with our employees to reduce salaries by 30%-50% and decided to introduce domestic tourism packages.

Initially, there was little demand for this type of travel. As time went on, it picked up. We are now looking to employ a domestic tours officer. Once the pandemic is over, we plan to offer both international and domestic tours. We also found that our employees adapted well to working remotely; they now work from home two days each week.

In addition, we benefited from our connections to multiple business support organizations. From them, we received a lot of information on how to expand and adapt our business.

ITC's SheTrades Commonwealth COVID-19 Crisis Management toolkit helped us in our transition to domestic tourism. We and 14 other tour operators also received extensive training on digital marketing. Three of these former trainees have now become trainers and are coaching a further 60 individuals.

To other companies I would say: be hopeful. Tourism will bounce back and the pandemic will pass. In the meantime, we should take this opportunity to diversify our revenue streams. So that if you are hit by a shock, your business can still survive.'

*ITC's SheTrades Commonwealth is funded by the United Kingdom's Foreign, Commonwealth and Development Office. The project enables women-owned businesses to thrive in international markets, generate growth and jobs, and decrease poverty. It is active in Kenya, Nigeria, Ghana and Bangladesh.*

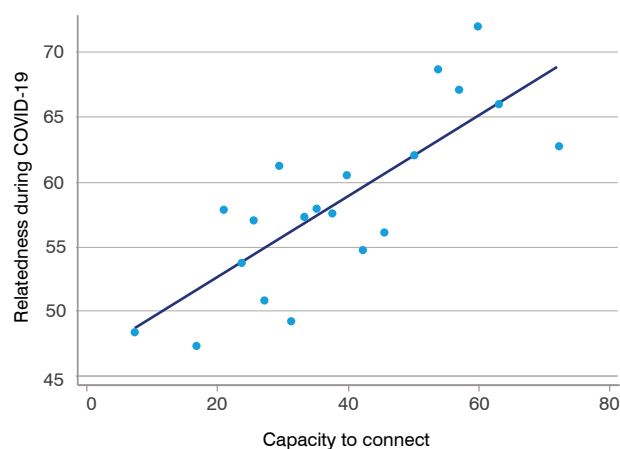
Companies that traditionally collaborate with peers also fared better during the crisis. Cooperation among companies in the same sector to solve common problems can help to spread information about challenges and solutions.<sup>21</sup> Survey results show that 29% of firms with a track record of cooperation with their peers had difficulty accessing COVID-19-related government information and benefits. This compares with 46% of firms without cooperative problem-solving habits.

Given that crises often spread through supply and demand connections, enterprises with a diversified supply, production and sales network tend to be more resilient. Firms that source inputs from varied suppliers, produce in different locations, have alternative transport links and sell through different market outlets are less affected by harm from any one actor in their business ecosystem.<sup>22</sup>

Firms with six or more suppliers were four percentage points less likely to report difficulty accessing inputs during COVID-19, compared with firms with fewer than six suppliers. Similarly, enterprises that said they were independent of their largest supplier were 13 percentage points less likely to report problems accessing inputs compared with firms that relied heavily on their largest supplier (Figure 6b).

To assess the relationship between a firm's capacity to connect and its ability to relate, ITC computed a 'capacity to connect' score.<sup>23</sup> Companies with a higher score were less likely to have difficulty accessing information and benefits during the pandemic, and hence were more related (Figure 7).

**FIGURE 7** Connected firms have greater capacity to relate



**Source:** ITC *SME Competitiveness and COVID-19 Business Impact Surveys* in Benin, Cambodia and the Philippines, July 2019-August 2020, with 770 firms. See Annex II for detail.

### Change to emerge responsive

The ability to transform knowledge and ideas into new products, processes and systems continuously is essential to a company's capacity to change.<sup>24</sup> This adaptive capacity is also key to crisis response. It relies on enterprises having the skills and funds to spearhead innovation.<sup>25</sup> What supports a company's capacity to change in response to shifting market dynamics also drives its ability to respond to crises.

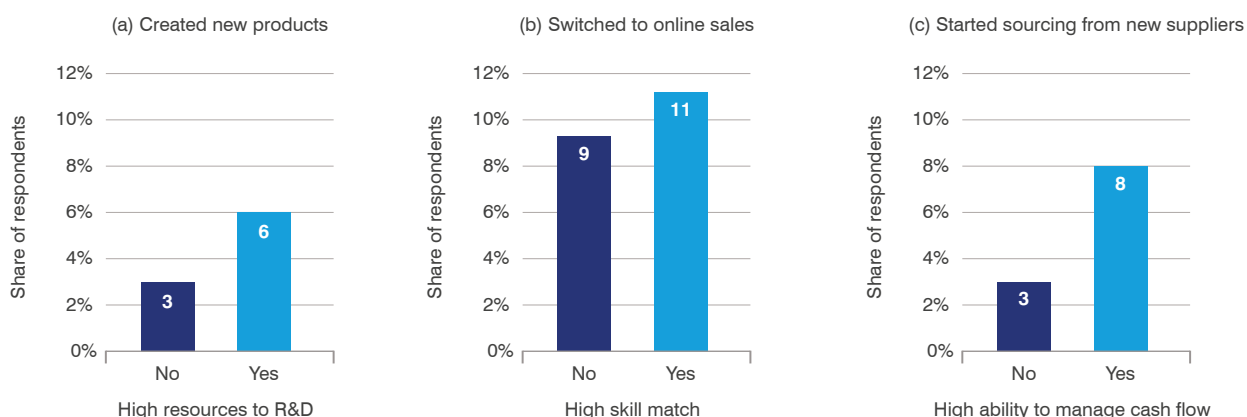
Investments in innovation through research and development (R&D) are essential if a firm is to adapt successfully. Firms that invested more in R&D before the pandemic were more likely to adopt resourceful strategies to cope with the crisis. They were, for example, twice as likely to create new or customized products (Figure 8a).

Skill matching was also important in dealing with COVID-19. Workers that possess the right set of skills and know the product and production process well are more likely to implement creative solutions to problems.<sup>26</sup> For example, when confinement rules forced SMEs to shut their doors, many put their full offering online, which required digital skills.<sup>27</sup>

Data from Benin, Cambodia and the Philippines also illustrate the connection between skills endowment and resilience. Managers who said they had a good match between employee skills and company needs were more likely to sell online during the pandemic (Figure 8b).



**FIGURE 8** Change factors make firms more responsive



**Source:** ITC *SME Competitiveness and COVID-19 Business Impact Surveys* in Benin, Cambodia and the Philippines, July 2019-August 2020, with 770 firms. See Annex II for detail.

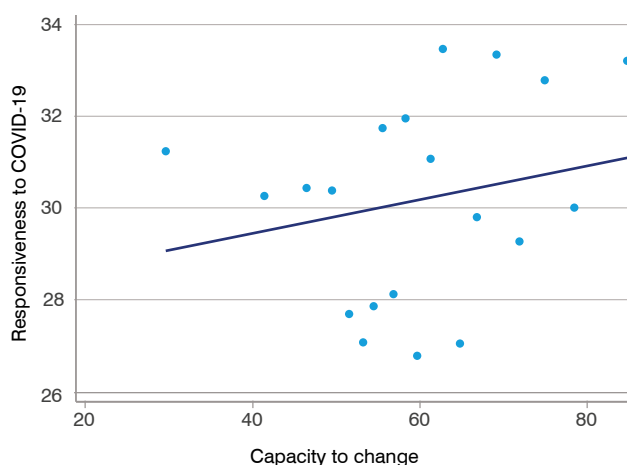
Firms may have strong ideas on how to change in response to crises, but they need access to finance to implement them.<sup>28</sup> Many elements, both internal and external to the firm, influence the ability of a company to access finance. Banks in developing countries are often hesitant to provide loans to SMEs due to perceived high transaction costs and risks. There are also formidable barriers to matching investors with small firms.<sup>29</sup>

At the firm level, SMEs that manage their cash flow well have a better chance of possessing the liquidity to finance short-term coping strategies, other things being equal.<sup>30</sup>

Indeed, ITC surveys show that companies with strong cash flow management were more than twice as likely to start sourcing from new suppliers during the crisis. Extra liquidity may have equipped them to start new relationships in response to problems with existing suppliers (Figure 8c).

Firms with a higher 'capacity to change' score<sup>31</sup> were more likely to adopt responsive strategies to cope with the COVID-19 crisis (Figure 9). These include selling online, launching new or customized products and sourcing from new suppliers.

**FIGURE 9** Capacity to change helped firms to be more responsive



**Source:** ITC *SME Competitiveness and COVID-19 Business Impact Surveys* in Benin, Cambodia and the Philippines, July 2019-August 2020, with 770 firms. See Annex II for detail.

### Small, youth-led firms less resilient

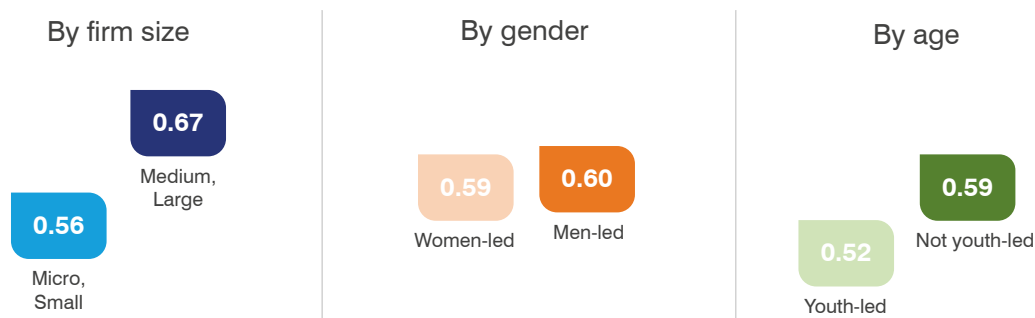
Smaller firms record lower levels of pre-crisis resilience, on average, than larger companies, according to an index ITC constructed based on the attributes described earlier in this chapter. Specifically, the resilience score of micro and small firms was 16% lower than that of medium and large firms. Similarly, companies led by youth have lower resilience scores than firms led by people over 34 years of age. While women-led firms in the sample displayed slightly lower scores than those owned and managed by men, the difference was not statistically significant (Figure 10).

The ITC index takes into account the characteristics that make firms robust, related and responsive. Described in detail in Annex II, the index has values from 0 to 1, with higher values indicating greater resilience.<sup>32</sup>

Resilience preceding a crisis matters, as it signals how a company will fare when hit by a shock. Companies with higher resilience were 17 percentage points more likely to report stable sales and almost five times less likely to lay off employees during the crisis, compared with companies that had a lower index. Specifically, 68% of companies with an index of resilience above the median reported stable sales during the crisis, against 51% of companies with an index below the median. Only 16% of resilient companies reported laying off employees compared with 76% of companies with a lower index of resilience (Figure 11).

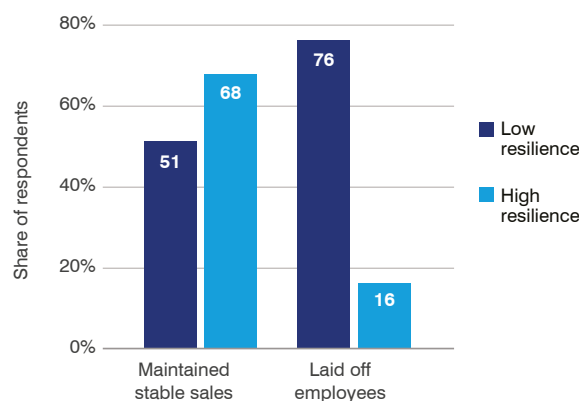
These findings indicate that helping SMEs build resilience not only increases their chance of withstanding a crisis, but also reduces the disastrous employment consequences of their decline or demise.

**FIGURE 10** Smaller, youth-led firms are less resilient



**Source:** ITC SME Competitiveness and COVID-19 Business Impact Surveys in Benin, Cambodia and the Philippines, July 2019-August 2020, with 770 firms. See Annex II for detail.

**FIGURE 11** Resilient companies have more stable sales, employment



**Source:** ITC SME Competitiveness and COVID-19 Business Impact Surveys in Benin, Cambodia and the Philippines, July 2019-August 2020, with 770 firms. See Annex II for detail.

## International traders exposed, but adaptable

The analysis so far has not differentiated firms that operate domestically and those that trade internationally. The pandemic had a greater impact on firms trading internationally than on firms operating domestically, according to findings from the global ITC COVID-19 Business Impact Survey. Responses from companies based in 133 countries show that internationally trading firms were 10 percentage points more likely to be hard hit by the pandemic, so were more exposed to the shock.<sup>33</sup>

Firms that traded internationally had more difficulty accessing inputs than domestic firms (Figure 12a). This was due to the particular nature of the COVID-19 crisis, which struck most countries simultaneously and cut off travel and transport in much of the planet. Internationally trading firms were more affected, as they are directly involved in the international movement of goods (Figure 12b).

Although sourcing from foreign suppliers and selling to buyers overseas made firms more susceptible to this exceptional global economic shock, it does not mean that internationally trading firms were less resilient.

Importing and exporting help companies to build relationships that are useful during crises. Trading across borders forces firms to liaise with government agencies for tariff rebates, connect to emergency suppliers and build solid, sustainable market linkages. Internationally

trading firms were three percentage points more likely to say it was 'easy' or 'very easy' to access information and benefits from government COVID-19 assistance programmes, according to findings from the ITC survey (Figure 13a).

Furthermore, firms that trade internationally are better placed to innovate, as they have more resources and skilled workers to invest in innovation.<sup>34</sup> This renders them more adaptable in the face of disruption. ITC analysis shows that companies that exported and/or imported were six percentage points more likely to adopt positive, constructive responses to the pandemic than firms that operated domestically (Figure 13b).<sup>35</sup> Internationally trading firms were more likely to go online, make new products, and source from new suppliers.

A company's resilience is defined by how robust, related and responsive it is. These resilience characteristics, in turn, are affected differently depending on the nature of the shock.

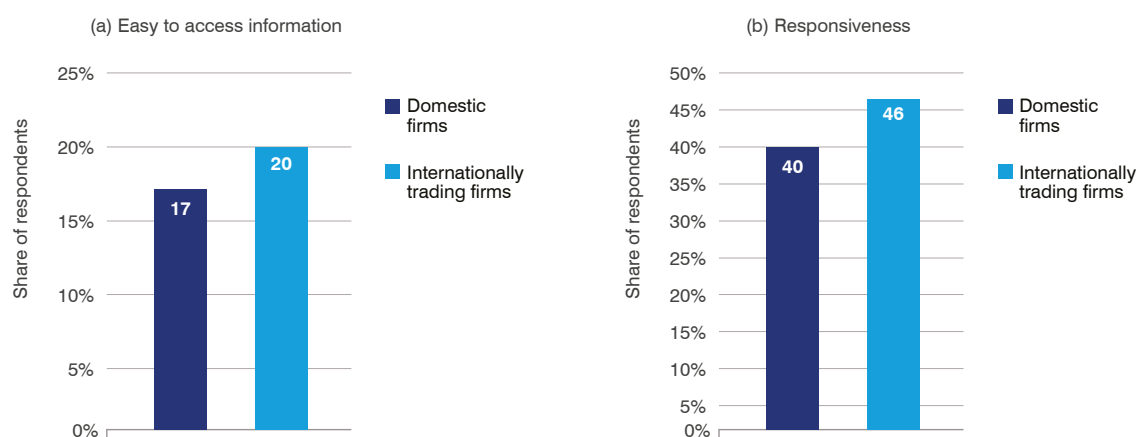
In the case of COVID-19, firms that trade across borders were more exposed because they are more related, and the shock was global. These firms bore the burden of domestic restrictions in addition to those in partner countries. Nonetheless, internationally trading firms displayed greater capacity to adapt and respond effectively than domestic ones. Whether the negative effect of higher exposure or the positive effect of greater adaptability to COVID-19 dominate in the net outcome is ultimately an empirical matter.

**FIGURE 12** Internationally trading firms more exposed to COVID-19



**Source:** ITC COVID-19 Business Impact Surveys with 4,433 firms in 133 countries, April-August 2020. See Annex II for detail.

FIGURE 13 COVID-19: Firms that trade across borders adapt better



Source: ITC COVID-19 Business Impact Surveys with 4,433 firms in 133 countries, April-August 2020. See Annex II for detail.

## Resilient to COVID-19, resilient to climate change

Resilience is a general attribute of firms. It should enhance their ability to cope with any crisis, whether a pandemic or a hurricane. The factors that build resilience make companies ready for a shock, giving them relationships to draw on for help, and tools to respond in a timely and effective manner.

The ramifications of climate change will reach every corner of the globe, as with COVID-19. They are likely to be even more far-reaching. 'The climate emergency is like the COVID-19 emergency, just in slow motion and much graver,' said Nobel Prize winner Joseph Stiglitz and climate expert Nicholas Stern.<sup>36</sup> Bill Gates added that the economic impact of climate change is expected to be like a COVID-19-sized pandemic happening every ten years.<sup>37</sup> It is crucial that the lessons learned about SME success during the COVID-19 crisis help prepare them for a warming world.

The pandemic experience has made people across the planet more aware of the need to learn about and prepare for risks.<sup>38</sup> Most decision makers and stakeholders now know of the slow onset of climate change and its potentially devastating impacts on economies and societies. Having experienced the disruption of COVID-19, businesses and those that support them are primed to enhance proactively their resilience to specific climate-induced shocks.

This is a window of opportunity to boost SME resilience in a way that also improves their competitiveness. Action to prepare for the climate crisis and reduce its severity depends on information, business planning, political will and social change. The rest of this report unpacks the nature of the climate change threat, its implications for SMEs and trade, and what can be done to enhance SME resilience through the green recovery.



THOUGHT LEADER



**Kamina Johnson Smith**

Minister of Foreign  
Affairs and Foreign Trade,  
Jamaica

## Governments must help MSMEs build resilience to shocks

**The name Jamaica conjures up the sound of reggae music, and beautiful images of sun, sand and lush green landscapes.**

Jamaica, however, also has an incredible story of economic recovery to tell. Prior to the pandemic, we had been on a path of robust debt reduction and increased inclusive economic growth, even cutting the gender gap in unemployment to less than 3%. Supporting micro, small and medium-sized enterprises (MSMEs) and building climate resilience were critical to our plans, and this remains the case.

Like other small island developing States (SIDS) however, Jamaica is highly vulnerable to climate change. Our most important sectors, including tourism, agriculture and fisheries, are at risk from increasing temperatures, extreme rainfall, drought and intense hurricanes. Climate models project that by 2050, the dry season will increase by 6.8%, and the frequency and strength of hurricanes will rise.<sup>1</sup>

Between 2001 and 2012, hurricanes, flooding and drought cost Jamaica approximately J\$128.54 billion. In 2017, heavy rains resulted in loss of life and damage to infrastructure amounting to J\$4.4 billion, equivalent to 0.2% of GDP.<sup>2</sup> The World Bank anticipates that Jamaica will need approximately US\$121 million (J\$16 billion) annually to cover losses associated with natural disasters.<sup>3</sup>

Our experience underscores an urgent need for adaptive strategies to reduce vulnerability and mainstream climate resilience into development planning processes at all levels. In this context, the point deserves emphasis that while we believe wholeheartedly in the free market, when we speak of 'Government Help' for MSMEs we allude to the reality that such fundamental challenges require governmental action to create a supportive and enabling environment.

Jamaica's MSME sector comprises more than 425,000 companies and represents 90% of the private sector.<sup>4</sup> Climate events have caused MSMEs to suffer major production losses from

1 Winston Mccalla and Associates. (2019). *Regional scoping study for private sector investment in climate change mitigation and adaptation*. Prepared for the Climate Change Division in the Ministry of Economic Growth and Job Creation.

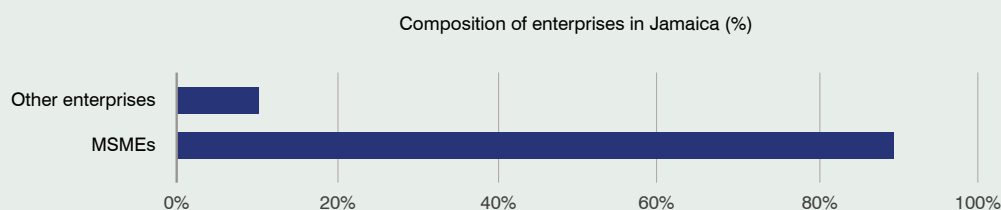
2 Planning Institute of Jamaica. (2017). *Economic and social survey of Jamaica*.

3 World Bank. (2018). *Advancing disaster risk financing in Jamaica*. World Bank.

4 MSME Unit, Ministry of Industry, Investment and Commerce, Jamaica.

reduced operational hours and disruption to supply chain and export distribution networks. MSMEs must, therefore, build climate resilience while responding to new market conditions.

The Jamaican Government has set up an extensive institutional framework to support climate change management. This includes establishing: the Climate Change Division; the Climate Change Advisory Board to exchange scientific and technical information; and the Climate Change Focal Point Network, a multi-sectoral approach to policies and programmes that benefit a wide range of stakeholders, including businesses.



**Source:** Ministry of Industry, Investment and Commerce (MIIC, Jamaica)

## Expanding finance and investment

Jamaica has adopted new legislation to enhance financing for MSMEs. Policymakers also are working to facilitate investment in emerging climate-resilient goods and services, as well as mechanisms to encourage MSMEs to pursue climate adaptation strategies.

Few MSMEs are equipped to rebound quickly from the pandemic due to inadequate liquidity, limited access to finance, retrenchment of the workforce or complete shutdown of activity, and lockdowns of varying degrees. These challenges are in addition to traditional constraints faced by MSMEs, such as:

- High cost of energy and raw materials;
- Market access restrictions;
- Inadequate legislative frameworks;
- Limited access to new technologies;
- Inadequate capacity-building opportunities.

MSMEs, of course, also have significant opportunities. Reflecting our focus on individuals as well as businesses, financial inclusion policies now encourage individuals, especially women, to formalize their entrepreneurial efforts. We assist MSMEs to take advantage of e-commerce, digital trade and increased demand for innovative goods and services.<sup>5</sup> Furthermore, more businesses now have continuity plans, which augurs well for their resilience to external shocks.

The pandemic has also led the Government to accelerate the transition to electronic platforms for key services, improving the ease of doing business in Jamaica.

Expanding our foreign trade is critical to Jamaica's economic growth. We are committed to developing innovative programmes with local and international partners and stakeholders to support the international reach of our MSMEs. These must be accompanied by concerted efforts to build their capacity to adopt climate adaptation and mitigation strategies. We must recognize such efforts as part of the work of building a more sustainable, green and resilient economy and society.

<sup>5</sup> The Government of Jamaica has partnered with the private sector to develop the E-commerce National Delivery Solutions (ENDS), an app enabling business continuity during the COVID 19 curfew hours. ENDS will allow any business or vendor to connect to and leverage the island-wide network of delivery solutions to have their goods transported safely to clients.





## CHAPTER 2

# Climate change: What impact for small business?

Climate change impacts follow an inequitable path. The most acute shifts are expected to occur in regions and countries with low incomes and lagging performance in achieving the United Nations Sustainable Development Goals. Businesses in strongly affected countries tend to have relatively fewer resources, alternatives and information with which to adapt.

SMEs in low and middle-income countries appear more likely to perceive environmental changes as a short-term risk than those in high-income countries. Approximately half of companies interviewed in developed countries say climate change poses short-term risks, but the percentage ranges between 68% and 83% for those in emerging and developing countries.<sup>39</sup>

ITC's competitiveness framework provides a useful tool to understand the risks climate change poses for SMEs. A firm's competitiveness is undermined if climate change halts business, lowers productivity and hampers access to critical inputs. Thus, climate change reduces the firm's ability to deliver sufficient quantities at adequate quality and cost to markets.

SMEs in developing countries will not only bear the brunt of climate change's direct impacts. They will also be at the receiving end of measures, largely designed in developed countries, to counter the damage of a warming planet. While necessary for mitigation and adaptation, such public and private requirements risk limiting further the ability of SMEs to compete, particularly if measures are unclear, uncoordinated, and unaffordable.

A quarter of SMEs interviewed by ITC in sub-Saharan Africa already perceive environmental regulation as an obstacle to their business. Moreover, only 5% of micro and 13% of small firms interviewed by ITC globally were certified to a sustainability standard, even though consumers and large buyers increasingly require this.

As the world makes the transition to more sustainable practices, SMEs will need to adjust to three key trends. First, to retain or gain access to markets, SMEs will need to anticipate and adjust to emerging regulation. Second, to maintain or create new connections to buyers and consumers, they will need to adopt increasingly popular sustainability standards. Third, to access a growing pot of financial resources and break into the evolving circular economy, SMEs will need to craft environmentally friendly business plans.

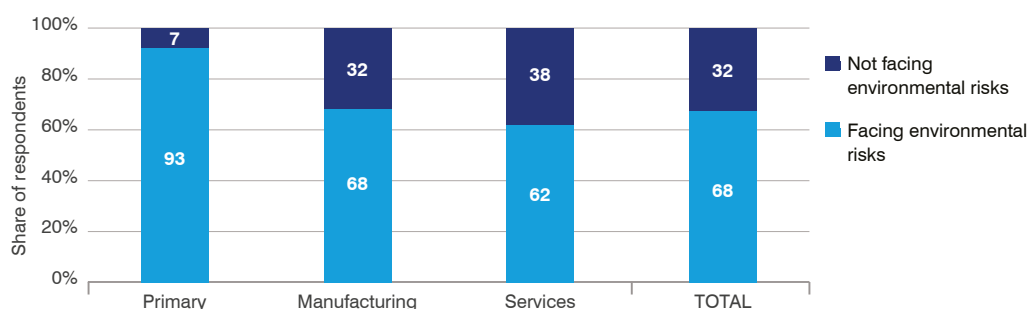
The success of small firms will depend on their ability to adapt to climate-induced impacts and respond to consumption, production and policy trends. This capacity, in turn, depends in part on the support small firms receive from those in the business ecosystem, both nationally and internationally.

### A warmer planet poses business risks

The planet is getting warmer. Independent scientists with the Intergovernmental Panel on Climate Change (IPCC) predict that mean global surface temperature could increase by up to 4.8°C by 2100. Greenhouse gas emissions such as carbon dioxide and methane are the proximate causes of this phenomenon. They trap heat within the atmosphere, where it increases global average temperatures.<sup>40</sup>

Higher temperatures trigger additional biophysical alterations, collectively known as 'climate change'. The main biophysical changes that affect business include:

- Extreme weather events, such as hurricanes and floods;
- Changing weather patterns, leading to droughts and heat waves;
- Altered ecosystems, including forest decline and soil infertility.

**FIGURE 14** Environmental risks significant for two-thirds of African companies

**Note:** Most respondents (94%) are SMEs with less than 100 employees, with 16% in the primary sector (including 14% in agriculture and 2% in mining), 14% in manufacturing and 71% in services.

**Source:** ITC *SME Competitiveness Surveys* of 1,359 companies, in Zambia (Year 2018, 242 businesses), Botswana (Year 2019, 615 businesses) and Benin (Year 2019, 502 businesses). See Annex II for detail.

Small and medium-sized enterprises see environmental changes as a competitiveness risk. On average, 68% of the companies interviewed for ITC's SME Competitiveness Surveys in sub-Saharan Africa said that environmental risks were significant for their businesses (Figure 14).

The highest proportion of companies facing significant environmental risks (93%) was in the primary sector (Figure 14). Yet, a clear majority in manufacturing (68%) and services (62%) also saw significant environmental risks. In Botswana, for example, water shortages experienced by services and manufacturing companies reduced their sales, profits and competitiveness.<sup>41</sup> Textile factories in Morocco subject to flash floods are considering moving away from Casablanca.

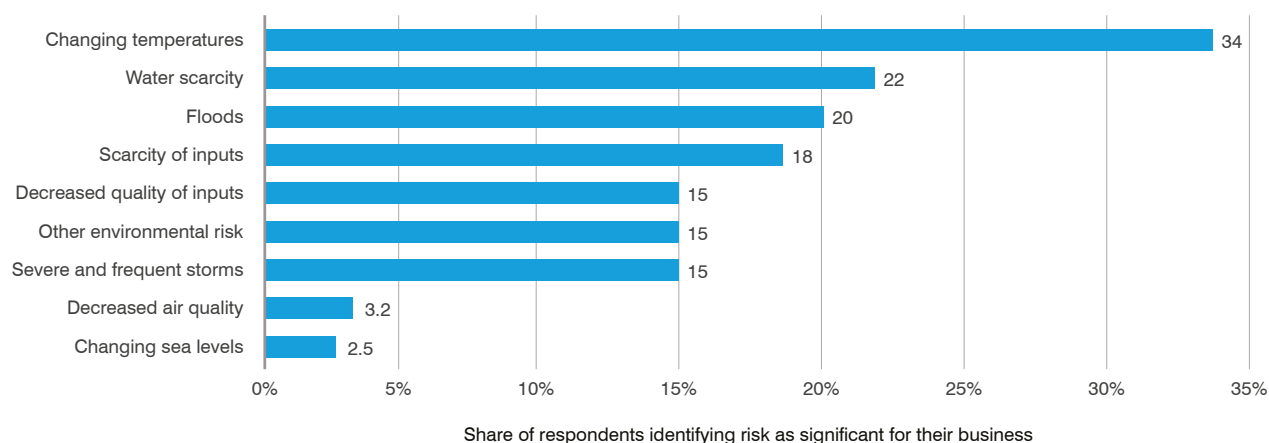
Surveyed firms were most concerned by changing temperatures (34%), followed by water scarcity (22%) and floods (20%). They cited a range of other concerns,

including scarcity (18%) and quality (15%) of business inputs, storms and other risks (15% each), lower air quality (3.2%) and rising sea levels (2.5%) (Figure 15).

### Extreme weather halts business

Already, extreme weather events are more frequent and severe, affecting businesses. The owner of Benjo's Seamoss, a company from Dominica featured as a Business Voice in this chapter, remarked that hurricanes are not only becoming more frequent, but also cause greater destruction.

Extreme weather events threaten business continuity and revenues, as customers are unable to physically access the business, electricity is cut and production comes to a standstill.<sup>42</sup> Companies can incur costs without being able to generate revenue.<sup>43</sup>

**FIGURE 15** Changing temperatures is top environmental risk for businesses in Africa

**Note:** Most respondents (94%) are SMEs, with 16% in the primary sector (including 14% in agriculture and 2% in mining), 14% in manufacturing and 71% in services.

**Source:** ITC *SME Competitiveness Surveys* of 1,359 companies, in Zambia (Year 2018, 242 businesses), Botswana (Year 2019, 615 businesses) and Benin (Year 2019, 502 businesses). See Annex II for detail.



**John Robin**

Owner, Benjo's Seamoss,  
Dominica

## A tragedy worse than COVID-19

**This beverage producer specializes in seaweed-based drinks. It has survived two major hurricanes through pre-crisis preparedness and post-crisis responsiveness.**

'Living on an island in the Caribbean, we witness climate change first-hand. The frequency with which we are hit by hurricanes has increased, as well as their destructive force. The worst one to ever make landfall in Dominica was Hurricane Maria in 2017. The consequences were worse than the pandemic. Maria caused damages equivalent to 224% of Dominica's GDP.

Over 90% of houses were damaged or destroyed. Roads, bridges and ports were mostly inaccessible. After the storm, we had no access to food or clean water. Businesses were looted. It took about four months to repair the local infrastructure, a time during which we had no electricity. Even four years later, a large percentage of houses are not yet rebuilt.

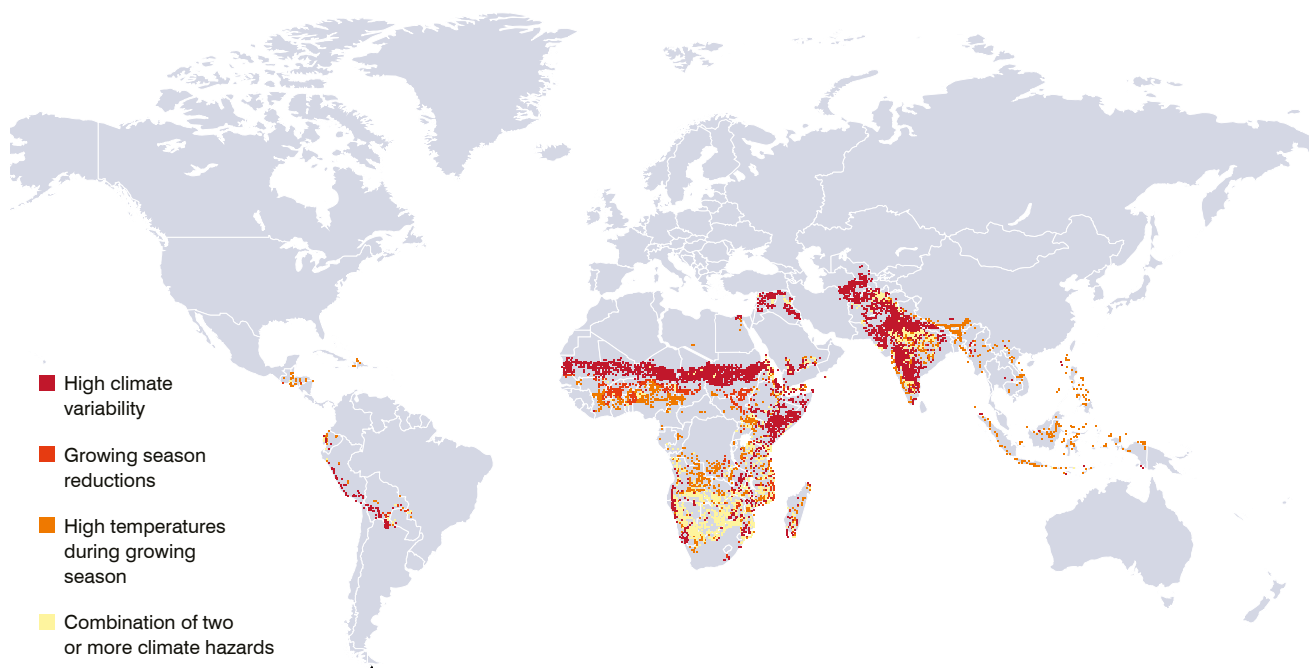
My production facility escaped this tragedy with minimal structural damage, as, based on my decades of experience, I located it far away from the coast and rivers. But still, it was a difficult time. Having no electricity, we had to shut down production. Because of the damages to ports, it was nearly impossible to ship out our remaining stock. We lost almost four months of income. But we came up with creative workarounds such as using yachts for transport.

Insurance is important when rebuilding, but not something to be relied on blindly. Insurance policies are expensive and complex. After the hurricane, a lot of people realized that not all damages were covered. Getting compensated can be a slow process and many are still waiting for their repayments.

Today, four years after the hurricane, the key challenge in Dominica is access to finance. Financial support should not only be given to start-ups but also extended to more mature, medium-sized businesses ready to scale up. These are the companies that, by having the financial means to expand their operations, can provide the most value to Dominica's economy.

I also believe that it is our responsibility to protect the island's environment. An essential part of this is good waste management. This is why I started an island-wide glass recycling programme that is ready to expand to other types of waste. I would welcome partnerships that can help this initiative by providing machinery or financing its purchase.

Despite the hardships we have faced, I believe that Dominica's future is bright. Our manufacturing sector has enormous employment and export potential and, whether we are in the aftermath of a hurricane or pandemic, should be at the heart of our economic recovery.'

**FIGURE 16** Agricultural areas are at high risk for climate hazards

**Source:** Global Commission on Adaptation, 2019.

Where worker protection is weaker and short notice periods are common, companies may simply let employees go, and the temporary shock may lead to a long-term human resource loss, as experienced during the COVID-19 crisis.<sup>44</sup>

These disruptions are costly. For example, the private sector bore roughly 90% of the \$45.7 billion in damages caused by the 2011 floods in Thailand.<sup>45</sup> Catastrophe insurance payouts between 2017 and 2018 represented the highest environmental insurance bill in history.<sup>46</sup>

Clearly, small firms need access to financial instruments such as climate and catastrophe insurance. Unfortunately, as the experience of Benjo's Seamoss in Dominica shows, insurance premiums are expensive and the application process is complex, putting them out of reach for many SMEs. Moreover, they often do not fully cover the cost of damages and the wait time for payment can be very long, preventing companies from rebounding faster, or at all.<sup>47</sup>

### Changing weather patterns lower productivity

Climate change shifts weather patterns in a way that compromises small business productivity. Hotter temperatures, rising sea levels and changed precipitation affect production in fundamental ways.

Rising temperatures melt polar sea ice and expand the oceans. Sea level will rise by 26–82 cm by 2100, according to the IPCC.<sup>48</sup> The change will hit island and coastal states hardest, notably in the Caribbean and the Pacific, as well as in South-East Asia.<sup>49</sup> Coastal cities such as Jakarta, Lagos, Houston and Bangkok could be submerged as early as 2050.<sup>50</sup> Low-lying island countries such as the Maldives risk going completely underwater.<sup>51</sup>

Ocean-dependent sectors, particularly tourism and fishing, will be unable to operate, either temporarily or permanently. SMEs tend to be disproportionately represented in these sectors.

With more heat, SMEs may experience increased absenteeism and lower labour productivity.<sup>52</sup> Average annual rainfall is likely to increase in high-latitude regions and decrease in dry regions closer to the equator.<sup>53</sup> Heat and strong rains may undermine the machines vital to small and medium-sized manufacturing companies. In some regions, precipitation and runoff changes will affect hydroelectric generators, causing more outages that are so debilitating to small businesses.<sup>54</sup>

These phenomena are already reducing farm productivity in many regions.<sup>55</sup> Estimates suggest that global agricultural yields may decline by up to 30% by 2050, with the most negative impact occurring at mid-latitudes (Figure 16).<sup>56</sup> Climate change also adversely affects agricultural output quality.<sup>57</sup>

---

SMEs often lack knowledge on how to adapt, and resources to do so. Technical assistance can help farmers change the crops they plant, while knowledge on how to climate-proof a shop or factory can be essential to survival. Once they know what to do, SMEs need to access the funds and technologies required to adapt.

### **Access to business inputs is at risk**

The scale and speed of climate change will alter ecosystems, affecting access to goods and services on which small businesses depend.<sup>58</sup> In the absence of affordable, good-quality inputs and services, SMEs are unable to meet market requirements for the quantity, quality and timeliness of their output.

Collapse of forest ecosystems can reduce access to firewood for small-scale agrifood processing firms, for example. Ecosystems also provide services, such as water purification and insect pollination, which businesses take for granted, but would be hard-pressed to do without.

Deteriorating biodiversity and ecosystems already hurt small firms.<sup>59</sup> Small-scale fisherfolk go further out to sea to catch the same quantity of fish,<sup>60</sup> female farmers spend more time seeking wood to fuel the furnaces that process their crops<sup>61</sup> and more fuel is needed for ever-deeper bore wells that draw water from ever-lower aquifers.<sup>62</sup>

The owner of Burg Olive Oil Products, an olive farm in Balochistan province in Pakistan, featured as a Business Voice in this chapter, describes how water scarcity is threatening the livelihoods of his livestock-rearing community.

In some locations, fragile environments will be especially prone to natural disasters such as landslides. The effect on transport infrastructure will hurt SMEs, which need these lifelines for their businesses.<sup>63</sup>

Furthermore, ecosystems that have been compromised by climate change, land use changes and other causes have lower biodiversity, which scientists say is a root cause of outbreaks of animal and insect-borne zoonotic diseases such as COVID-19 and Ebola.<sup>64</sup> More severe global warming will accelerate biodiversity loss,<sup>65</sup> which in turn is predicted to increase the likelihood of more COVID-type pandemics in the future.<sup>66</sup> As we are now keenly aware, this type of shock tends to hit SMEs the hardest.<sup>67</sup>

SMEs need national regulatory approaches to climate that are well integrated with other environmental objectives and programmes, including through nature-based solutions to climate change that support the ecosystems and biodiversity they depend on for inputs.

## **Climate responses affect competitiveness**

---

Climate change will also alter consumption, production and policy trends. This indirectly affects SME competitiveness.

SMEs must take into account:

- Environmental regulation
- Sustainability standards
- Green investment
- Circular economy

Through environmental regulation, governments define climate-friendly behaviour. Individual businesses and coalitions are adopting sustainability standards, which signal alignment with consumer preferences. Investors, for their part, reflect the interest of asset owners in supporting sustainable practices through dedicated green investment funds. Burgeoning interest in circular modes of production and exchange are reshaping business connections.

### **Environmental regulation can generate uncertainty**

Government regulations to reduce greenhouse gas emissions mitigate the extent of climate change. However, clear rules have yet to be implemented in many states, so there is a patchwork of declarations, policies and practices. The uncertainty keeps smaller firms from planning their own green transition.

Governments use carbon taxes and cap-and-trade systems to deter greenhouse gas emissions. Carbon taxes impose a fee on energy and production processes that emit carbon dioxide and other greenhouse gasses. Such taxes, including levies on greenhouse gas-emitting fuels, have been, or are scheduled to be, implemented in 30 national and subnational jurisdictions.<sup>68</sup>

In a cap-and-trade system, a regulatory body decides the maximum amount of permissible emissions by industry and issues a corresponding number of emission allowances that companies can buy and trade with one another. Limits on the industrial emissions of greenhouse gasses have been set through 31 cap-and-trade schemes, including the European Union's Emissions Trading System.<sup>69</sup>

International policy frameworks also influence national climate policies. The Paris Agreement entered into force in 2016 and requires its 196 signatories to submit nationally determined contributions to reduce national greenhouse gasses. In early 2021, United States President Joseph Biden signed an executive order to re-join the Paris Agreement, furthering global momentum.



## BUSINESS VOICE



### Ahmed Khan Buzdar

Owner, Burg Olive  
Oil Products,  
Pakistan

## When the water runs out

**This olive farm specializes in producing olive oil. It moved from livestock rearing to growing olives to adapt to climate change.**

'Before I was an olive farmer, I reared livestock. I abandoned this in 2010 because I lost about 1,400 animals due to drought and fodder deficiency. Droughts are becoming more frequent in my region as temperatures rise. For many people in my community this poses a threat to their livelihoods, as they rely on livestock for income.

Water table levels also are going down. In a 60km radius around our village, we were unable to find any water. Because of this scarcity, farming is not an option for most people. On my private land I was lucky enough to find some water and set up a tube well. I also have built a small dam to save rainwater during the monsoon season.

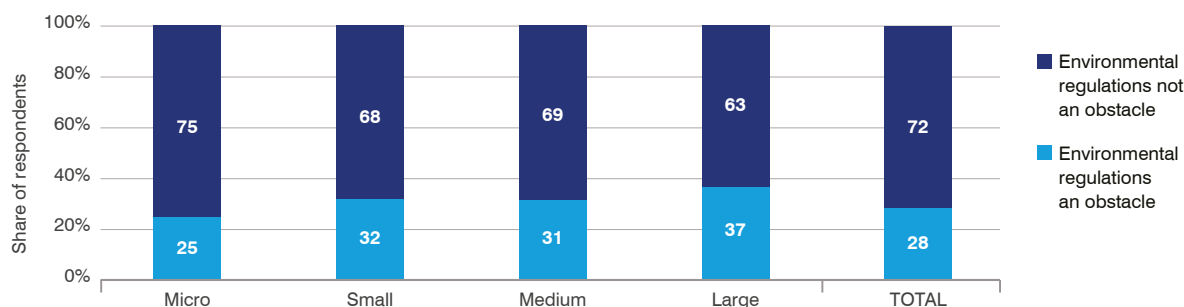
Planting olive trees was a way for me to adapt to the changing climate. They are drought-resistant plants that require little water, are evergreen and can survive temperatures up to 50 degrees Celsius.

My olive oil is used in homeopathic treatments to address health conditions such as diabetes and arthritis. Olive shoots and leaves are by-products of the oil production that I use to feed my remaining livestock. They are very nutritious fodder that improves meat quality. I have also started to produce olive tea, made from the leaves.

I am participating in ITC's GRASP project to learn more about best farming practices. Recently, I joined an exposure visit where we discussed the latest innovations in olive value chains and were taught about orchard management, grading, packaging and marketing.'

*The Growth for Rural Advancement and Sustainable Progress (GRASP) project, funded by the European Union, focuses on rural SMEs in two Pakistani provinces, in the horticulture and livestock sectors, with an emphasis on climate-smart agriculture.*

**FIGURE 17** More than one-quarter of firms view environmental regulations as obstacle



**Source:** ITC *SME Competitiveness Surveys* of 1,359 companies, in Zambia (Year 2018, 242 businesses), Botswana (Year 2019, 615 businesses) and Benin (Year 2019, 502 businesses). See Annex II for detail.

National Adaptation Plans fostered by the UN Framework Convention on Climate Change (UNFCCC), the parent agreement to the Paris Agreement, have been taken up by developed and developing country alike, sometimes with private sector involvement.<sup>70</sup>

Countries accounting for half of global GDP have committed to achieving 'net zero' emissions by 2050.<sup>71</sup> These commitments, and accompanying regulation on how to achieve them, are more prevalent among developed countries.<sup>72</sup>

Globally, roughly \$400 billion is spent on subsidies for fossil fuel production and use. Removing these subsidies could make greenhouse gas emissions in 2050 6%–8% lower than they would be otherwise. In 2009 the G20 pledged to 'rationalize and phase out' fossil fuel subsidies, describing them as 'inefficient' and 'wasteful'.

New climate policies, regulations, laws and taxes, while necessary, may lead to regulatory risks for SMEs. There are financial costs associated with becoming compliant, and fees incurred for non-compliance.<sup>73</sup> Among African firms interviewed for the ITC SME Competitiveness Survey, 28% said that environmental regulations were an obstacle to their operations (Figure 17). Interestingly, fewer micro-sized firms found these regulations to be an obstacle than larger firms.

Environmental regulations may be more stringent in agriculture and manufacturing. Agricultural and manufacturing firms were significantly more likely to see environmental regulations as an obstacle than those in the services sector, according to the survey.

Voices pushing for a green recovery became louder during the pandemic, and with good reason. While economy-stopping measures temporarily reduced greenhouse gas emissions, the estimated reduction of 4%–8% was within

normal year-on-year variation.<sup>74</sup> Many support programmes during the pandemic nurtured business as usual, including support for carbon-intensive industries and fossil fuel use.<sup>75</sup>

To 'build back better' after COVID-19, some governments are providing incentives in their recovery efforts for investments to reduce greenhouse gasses. These include financing green infrastructure, providing energy-efficient retrofit subsidies and investing in sustainable agriculture.<sup>76</sup>

Access to concessional loans or recovery programmes is sometimes conditional on commitments to cut greenhouse gasses. Some governments also subsidize SME access to cleaner renewable energies.<sup>77</sup> Yet many SMEs continue to rely on fossil fuels to power their operations, and need more support to switch to cleaner energy.

SMEs need clear, predictable regulatory approaches to mitigate climate change in order to plan their own green transition. Governments that communicate their plans to achieve carbon neutrality – and specify the related technical and financial aid to assist small businesses – make it more likely that businesses get up to scratch by the time the regulations are imposed.

### Sustainability standards are multiplying

Sustainability standards are increasingly necessary to access markets. They complement government regulations, and are developed by business, civil society organizations and multi-stakeholder initiatives.<sup>78</sup>

Sustainability standards signal to environmentally-conscious buyers, including corporate purchasers and consumers, that firms follow certain desired environmental, social and ethical practices. However, SMEs come up against formidable knowledge and financial barriers to adopt sustainability standards.

For some firms, going green is necessary to maintain market share. Consumer and buyer sustainability demands compel many businesses to take climate action. A smaller carbon footprint can lead to a better corporate reputation and competitive edge, especially in sectors with relatively homogeneous products.<sup>79</sup>

Companies without green credentials may face reputational risks that could make them lose business, particularly with developed country buyers. Most buyers in developing countries do not place heavy emphasis on sustainability criteria, though attitudes are shifting.<sup>80</sup> In China, for example, green marketing and consumption increased dramatically over the last decade.<sup>81</sup>

Attuned to these changes, more than 90% of chief executive officers surveyed by the UN Global Compact believe that sustainability will be important to the success of their business.<sup>82</sup> In part because of public and shareholder pressure, many publicly-traded companies in developed countries are embarking on their own green transitions.

Regardless of whether large companies' green marketing campaigns reflect a real belief in sustainable firm practices,<sup>83</sup> many large companies are adopting sustainability schemes and pressuring their supplier SMEs to go green as well.<sup>84</sup> Several industry platforms have emerged to craft and monitor voluntary sustainability standards in key international value chains.<sup>85</sup> The Roundtable for Sustainable Palm Oil, for example, is a non-profit, multi-stakeholder platform to develop and implement international standards.

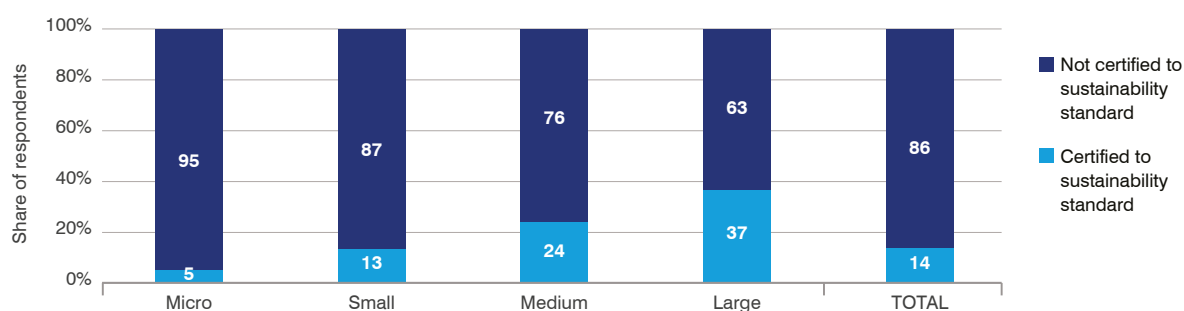
Sustainability standards have also made their way into public regulations.<sup>86</sup> In 2018 the Republic of Korea began requiring timber operators to show proof of certification to at least one scheme in its list of voluntary sustainability standards. Government regulations requiring specific voluntary sustainability standards as proof of corporate due diligence on sustainability have been adopted in the EU, France and California.<sup>87</sup> Public procurement of certified green products is also growing.<sup>88</sup>

Private benchmarking initiatives have arisen to assess which standards are considered sufficient to supply into a given market.<sup>89</sup> For example, soya bean sustainability schemes can apply to be benchmarked against the European Feed Manufacturers' Federation's Soy Sourcing Guidelines if they wish to export to the European market.

Voluntary sustainability standards ballooned from just 15 in 1980 to more than 262 in 2020.<sup>90</sup> In commodity markets, Rainforest Alliance, organic, GLOBALGAP and other schemes are growing rapidly, with the acreage dedicated to them increasing by 52% between 2014 and 2018, according to the State of Sustainability Markets.<sup>91</sup>

Paradoxically, the proliferation of sustainability standards is limiting their potential, particularly for SMEs. The multiplicity of standards, as well as the stringency of requirements, make them technically and financially challenging for small businesses.<sup>92</sup> The fixed costs of initial certification are proportionately more onerous for SMEs.<sup>93</sup> Evidence from almost 5,000 companies interviewed for ITC's SME Competitiveness Surveys shows that smaller firms tend to adopt sustainability standards less often than larger firms (Figure 18).

**FIGURE 18** Smaller firms are less likely to be certified to a sustainability standard



**Source:** ITC *SME Competitiveness Surveys* of 4,844 respondents interviewed between 2017 and 2020 in Argentina, Benin, Botswana, Burkina Faso, Cambodia, Ghana, Hungary, Kenya, Myanmar, Nigeria, the Philippines, Togo, Ukraine and Zambia. See Annex II for detail.

---

Lead firms in value chains can facilitate small business sustainability by aligning and streamlining certification requirements, and providing funding and technical expertise to help small companies switch to green production processes. Including SMEs in the design and governance of standards, as well as providing technical assistance and sharing costs, can foster SME participation in international trade governed by sustainability standards.<sup>94</sup>

### **Green finance overlooks small businesses**

New funds to finance green investments offer opportunities for eligible small businesses. At the same time, some financial institutions are introducing environmental criteria for loan eligibility, which risk excluding SMEs.

The green finance market is booming, with significant funding available for climate-relevant investments.<sup>95</sup> Both private and institutional investors have increasing appetite for projects that reduce carbon emissions or implement innovative adaptation solutions. Many asset holders have committed to reducing the negative environmental impact of their investments, or have taken a proactive approach by investing for positive environmental change.<sup>96</sup>

In 2019, 3,300 companies with \$81.7 trillion in assets under management had committed to the UN-backed Principles for Responsible Investment.<sup>97</sup> The OECD has drafted guidelines for export credits that give special treatment to green projects.<sup>98</sup> Multilateral development banks have pioneered green bonds and are increasing investments in climate funds in developing countries. Impact investors offer green bonds where the proceeds from the offering are applied exclusively towards funding green projects.

Defining green investments remains a work in progress, however. The green finance market still lacks a harmonized, reliable benchmark and transparent evaluation methods.<sup>99</sup> The IRIS+ impact investing assessment scheme is one of the most popular means by which investors assess the environmental impact of their investments.<sup>100</sup> The EU in 2020 adopted criteria defining sustainable investments, designed to facilitate the raising of private and public finance for these ventures.<sup>101</sup> Some developing country banks have also issued guidance on green finance.<sup>102</sup>

Some green finance aspects have excluded SMEs. What undermines SME access to finance in general also applies to green finance. For example, high transaction costs often make it difficult to match SMEs to investors interested in larger financial instruments.<sup>103</sup>

Often SMEs are unaware of the range of investment tools available nationally and internationally for climate finance. Green investments that could lead to predictable savings, such as through energy efficiency, are not understood as a quasi-revenue stream and monetized as such in lending decisions.

When standard banks offer green financial products, they are often available only in combination with technical assistance programmes. These programmes build capacity of recipients, but use bank human resources intensively. As a result, participation is restricted to few beneficiaries.

These schemes often have cumbersome application procedures, and require proven business models and reliable measurement of energy consumption.<sup>104</sup> If SMEs fail to disclose climate risks and performance, this perceived lack of transparency undermines the screening efforts of would-be investors in climate mitigation and adaptation initiatives.<sup>105</sup>

Impact investors expect clear reporting on sustainability issues as well as a high financial return. The average SME falls short on both fronts. As a result, the supply of 'climate liquidity' frequently exceeds demand.<sup>106</sup> Financing climate projects faces a double challenge of high transaction costs for lending to small companies and little lender expertise on climate projects.

Given these difficulties, there is policy space for governments, international and business support organizations to facilitate access to climate finance by SMEs.

### **Circular economy requires openness**

Lead firms, government procurement offices and consumers are starting to show preferences for products made in a 'circular' manner. SMEs that fail to learn to cycle their production processes risk being excluded from markets. Those that go circular can reduce their input costs, generate new revenue streams and tap into new markets.

The circular economy is changing how goods and services are produced and consumed. It represents a shift away from the 'take-make-waste' approach of the linear economy, in which goods are produced from non-renewable sources, used by the consumer for a limited amount of time and thrown away, often destined for incineration or landfills.

In the circular economy, products cycle through phases of reuse, repair, refurbishment, remanufacture and recycling that keep them generating value over several generations

of use. By decoupling economic activity from inputs that emit greenhouse gasses, the circular economy approach reduces economic activity pressures on the environment.

Firms that are part of value chains associated with the supply of virgin materials may suffer due to decreasing demand. Yet, opportunities arise from the 'servicification' of circular linkages. Demand for support services for the circular economy abound – for example in waste management to increase the availability of recycled materials<sup>107</sup> and repair services to extend the life of products already in the market.<sup>108</sup>

Knowledge is a key barrier to SMEs incorporating the circular economy into their business processes. They need greater access to technical advice on circular ways to reduce costs, improve sales and strengthen linkages in international value chains.

Cross-border movements of materials intrinsic to the circular economy – waste and scrap, secondary raw materials, second-hand goods and goods intended for refurbishment and remanufacturing – can help SMEs exploit the opportunities associated with circularity.<sup>109</sup>

## Climate change: Impact on trade competitiveness

The planet's biophysical changes will alter trade patterns in the years ahead. Trade policy responses and international value chain practices will affect the extent to which humanity is able to mitigate its emissions of greenhouse gasses – and adapt to climate impacts.<sup>110</sup>

### Biophysical changes impact trade flows

The physical impacts of climate change are affecting export competitiveness. Global export shares will shift in response to the new relative competitiveness of countries.

Firms may see a drop in productivity or higher production costs, losing market share to firms elsewhere, due to changing climate conditions. This will adversely affect SMEs in climate-affected countries, and particularly in LDCs and small island developing States, where export baskets tend to be more concentrated.<sup>111</sup>

Agriculture, fisheries and tourism in tropical regions may see productivity drop due to higher temperature. Firms from these sectors in temperate countries may find their competitiveness improves, as their weather becomes more favourable.<sup>112</sup> Some of the world's breadbaskets may even become infertile, while new regions will be cultivated for the first time.<sup>113</sup>

Melting polar ice caps make a Northern Arctic Sea route commercially viable, undermining traffic through the Suez Canal and affecting associated trade flows.<sup>114</sup> Frequent storms in tropical seas and higher fossil fuel costs may reduce maritime shipping connections to small island developing States, and hurt their exports.<sup>115</sup>

What's more, today's interdependent value chains mean that climate events that affect one firm spread to others in the chain, even if they operate in unaffected regions. Tropical storms, for example, impair factories, roads, ports and other infrastructure.<sup>116</sup> They threaten access to inputs,<sup>117</sup> with risks spreading quickly across value chains.

For SME exporters to cope, technical assistance can help them to assess how climate change will affect their competitiveness on world markets. Environmental management services, either locally or imported, can enable them to access the knowledge they need to plan tomorrow's climate-resilient business model.

### Trade policies respond to climate change

Policies to prevent energy-intensive industries from relocating to countries with less strict climate regulations, a phenomenon known as carbon leakage, will affect the exports of SMEs.<sup>118</sup> Border carbon adjustments address carbon leakage by imposing taxes on products imported from countries with less strict environmental regulation than the importing country.

This aims to ensure that the final product price reflects the higher compliance cost in importing countries. Governments may also rebate environmental compliance costs to producers exporting to countries with lower environmental standards.<sup>119</sup>

Feasibility, modalities and implications of border carbon adjustments have been discussed for more than a decade.<sup>120</sup> The European Commission, for example, is developing a border carbon adjustment mechanism to accompany its European Green Deal, and is expected to publish its proposal in mid-2021.<sup>121</sup>

Border carbon adjustment proposals currently focus on commodities that are emission-intensive and exposed to trade, such as steel, aluminium, chemicals, pulp and paper and fertilizers.<sup>122</sup> Developing country agricultural exports are unlikely to be affected since most border carbon adjustments explicitly exclude agricultural trade, and developing country production processes are relatively less carbon intensive.<sup>123</sup> Services and most manufacturing sectors are excluded from border carbon adjustments discussed to date.



---

Climate policies have not only been made at the domestic level in environmental forums. Regional and international trade policies are also playing a proactive role.<sup>124</sup> Regional trade agreements, such as the recent accord between the EU and Vietnam, promote sustainable forestry trade, in the hopes of stemming deforestation (which accounts for at least 8% of annual global greenhouse gas emissions).<sup>125</sup> The WTO is crafting new international rules to reform fisheries subsidies to protect ocean ecosystems as well as small-scale fisherfolk livelihoods.<sup>126</sup>

Climate-related trade measures may pose market access risks for exporting SMEs. Exporters will need to be in line with domestic regulations as well as rules in destination countries. Small companies may have to cope with uncertainty due to market access fluctuations as rules change.

There are business opportunities in identifying and reducing carbon footprints now to gain secure, preferential trade access later.<sup>127</sup> As companies strive to become compliant with new government regulations, access to green technologies will be critical.<sup>128</sup> Environmental goods are used by SMEs to prevent or minimize pollution and greenhouse gas emissions. Many states are reducing their tariff and non-tariff barriers to such technology imports, with a view to facilitating SME access to the tools they need to respond to climate change.<sup>129</sup>

To take advantage of environmental goods, SMEs also need access to complementary climate-friendly services. Construction workers build energy-efficient buildings, waste management workers help reduce pollution, and other environmental service providers are also key to the green economy. They often use imported environmental goods to perform their tasks.<sup>130</sup>

While services are in many cases locally sourced, facilitating trade could also open opportunities for providers from overseas to deliver environmental services, particularly where local know-how about new technologies is limited. Engineers, training service providers, business management consultants and green machine maintenance mechanics have potential for cross-border services trade to support the SME green transition.<sup>131</sup>

Greater environmental awareness may provide a golden opportunity to accelerate progress towards the 2030 Agenda for Sustainable Development through trade, as long as governments avoid protectionist tendencies. World Trade Organization rules as well as trade agreements could have relevance in addressing climate policies, with implications for trade flows.<sup>132</sup>

## Restructuring international value chains

Lead firms are reorganizing their value chains to make them more resilient to climate-induced shocks and to reduce their carbon footprint. This trend risks excluding SMEs that cannot demonstrate their sustainability. It also opens doors to new SME suppliers, as lead firms diversify their upstream value chain.

At their peak, international value chains coordinated the movement of 80% of world trade.<sup>133</sup> Lead firms have directed these value chains towards higher efficiency – marked in the extreme by just-in-time production methods that shuttle small inventories around the world through rapid, lean flows.<sup>134</sup> The pandemic made clear that these highly efficient international value chains could also be vulnerable.

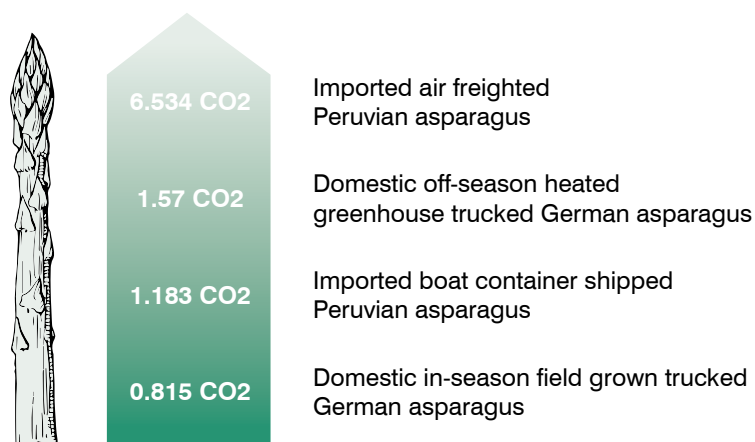
Lockdowns in one country reverberated throughout the system, leading to shortages elsewhere.<sup>135</sup> In the wake of this value chain contagion came COVID-induced calls to relocate production to home countries (onshoring) or to neighbouring countries (nearshoring). However, bringing production closer to home could be bad for GDP and resilience.<sup>136</sup>

Lead firms are in fact restructuring their chains to be more resilient, instead of shortening them.<sup>137</sup> Investing in resilience can foster more stable sales within value chains. It also reduces exposure to localized climate shocks, by diversifying sourcing from multiple producers in multiple countries.<sup>138</sup>

Supply chains that were once based on single-country sourcing and selling may thus become more international. This generates opportunities for SMEs in previously overlooked locations.<sup>139</sup>

Value chain buyers also are making efforts to reduce their environmental footprint. They seek suppliers with proven climate credentials, and are building stronger relationships with them.<sup>140</sup> The relationship-building includes investing in suppliers to improve their capacity to manage for sustainability and performance. This market-based mechanism 'pulls' SME suppliers into the climate transition, in contrast to regulations, which 'push' them into it.

SMEs need technical assistance to get certified to the sustainability standards needed to thrive in international value chains. In so doing, they access value chain upgrading opportunities, higher value export markets, and more stable and larger market share. Uncertified SMEs risk being excluded from the selected group of suppliers. Instead, they could be left behind in shrinking low value markets.

**FIGURE 19** Carbon footprint: Domestic and imported asparagus in a German supermarket

**Note:** CO2 refers to carbon dioxide equivalent greenhouse gas emissions.

**Source:** Schäfer, 2013.

### Imports can have lower carbon footprint

Trade trends are likely to shift in response to mitigation and adaptation policies, with implications for SMEs. In 2014, the transport sector accounted for approximately 23% of global greenhouse gas emissions.<sup>141</sup> This significant share of emissions led many to equate green production with local sourcing.

This could lead to trade measures that use language related to climate change, but are designed to protect local producers. Such an approach would hurt SME exporters in developing countries. Instead, sustainability-induced trade measures should be based on carbon emission facts, and support export and development aspirations of developing countries.

Consuming products that are made domestically, or within the region, is often assumed to be better for the planet's climate than consuming products imported from far away. This may not always be the case.

Most transport emissions come from road vehicles, not maritime shipping.<sup>142</sup> Maritime freight shipping emits about two grams of CO2 equivalent per tonne over a kilometre, while for road trucking it averages around 150 grams, according to the IPCC.<sup>143</sup> This implies that maritime shipping releases almost 100 times less greenhouse gas emissions per kilometre than 3.5-ton-trucks on roads.<sup>144</sup>

Products imported by sea still need to be distributed locally via trucks. Yet the sea-based part of the journey plays a relatively small role in their carbon footprint. Road distance and trucking network efficiency are much more

relevant.<sup>145</sup> Moreover, the carbon intensity of shipping decreased by 28% between 2008 and 2018, according to the International Maritime Organization, and it plans to lead efforts to cut maritime emissions in half by 2050.<sup>146</sup>

A product's carbon footprint depends on the distance over which it travels, and also on how it is made. Some production systems and locations are more energy-intensive than others. Tomatoes grown in greenhouses, for example, are 10 times more energy-intensive than those grown in open fields.<sup>147</sup> How long food is stored before retail also contributes to emissions.

In other words, imported products made in low-carbon ways that are shipped via maritime transport may be more climate-friendly than domestically made products (Figure 19). Air freight, however, is energy-intensive and can outweigh the lower emissions associated with production in more energy-efficient environments.

As humanity emerges from the disruptions of COVID-19, it is faced with an even larger challenge – climate change. The lessons from the pandemic are informing new patterns of consumption, production and trade, characterized by greater efforts to mitigate and adapt to a changing climate.

Yet the transition should leave no one behind. For this, small businesses will need support to adjust to new regulations, sort through the ballooning number of sustainability standards, tap green financing opportunities and embed circular economy practices in their businesses. Climate change responses should be designed to make the green transition feasible – and profitable – for SMEs, particularly those in hard-hit developing countries.



**William R. Moomaw**

Professor Emeritus,  
The Fletcher School,  
Tufts University

Distinguished Visiting  
Scientist, Woodwell Climate  
Research Center, USA

## THOUGHT LEADER

# Climate change creates challenges and opportunities for SMEs

**As the macro economy shifts to respond to climate change, and is buffeted by pandemics, small and medium-sized enterprises (SMEs) are forced to adapt and become more sustainable or face failure. Those in developing countries are especially vulnerable.**

**I**t is becoming all too clear that a warming world is not simply a gradual process with a few additional milder days in winter, and longer summer seasons. The differential heating of the planet – much greater at the poles – has led to changes to the jet stream and to ocean currents with resulting increases in intense precipitation and storms punctuated by longer and more intense droughts and fires.

These erratic weather patterns are posing major challenges to SMEs, especially those in agriculture. They must change their operating model to become more resilient and reduce climate altering emissions.

Governments are finally mobilizing to address climate issues. Their sometimes mixed and changing messages – or the absence of policies – can create regulatory risk for companies. Governments must convey their policy intentions clearly so that SME managers can avoid making investments or embarking on ventures that run counter to future government measures.

### **Incentives work best**

As a lead author of five major Intergovernmental Panel on Climate Change Reports, I have evaluated technologies and strategies to promote resiliency and address growing climate challenges. Incentives have proven more effective than penalties to encourage the needed transformations. Policies to discourage use of fossil fuels, such as price hikes, should be accompanied by compensation to assist SMEs and others to switch rapidly to new, cleaner forms of energy and prevent the often violent opposition to such measures.

For example, Norway is fostering use of electric vehicles by eliminating its high vehicle purchase tax, establishing rapid charging stations, reducing tolls and providing dedicated parking. Norwegians are far ahead in replacing petroleum powered vehicles, even though much of the country's wealth comes from oil and gas production. Less affluent countries such as Nepal have accelerated the shift to electric 'motorized rickshaws' by making them easier to purchase and operate.

While smaller firms may be more vulnerable to changing weather patterns and regulatory risks, many have been at the forefront of innovation. In Europe and North America, organic agriculture began at small scale and is now the fastest growing sector of food production. In Niger, an innovative agroforestry farming method that responded to increasing temperatures and erratic rainfall was developed locally and transmitted from village to village. It now serves several million people.

While not every small start-up in the back room of someone's home will become a technological giant, most large firms began as a small enterprise.

The key challenges for SMEs to become resilient to climate change are threefold:

- Building capacity, which includes the ability to modify dysfunctional business models or accept new technologies;
- Finding and accessing financial resources;
- Responding to changing external market conditions.

### **SMEs as innovators**

Building capacity in developing countries to replace expensive diesel generators and their fuel with less expensive solar panels and batteries avoids the need to build large, expensive electric grids to bring power to homes and businesses. It also creates self-reliant communities, improves overall well-being and provides new opportunities for SMEs.

When lack of electricity in Africa's rural areas made mobile phone charging difficult, for example, enterprising village women borrowed money to buy a solar panel and phone charger. In Tilonia, Rajasthan, the *Barefoot College* has trained thousands of poor village women to be 'solar engineers' who have brought solar panels, lanterns and ovens to rural India and several African countries. They also service and maintain these systems.

Creating these innovators entails overcoming the financial limits that traditionally hamper adaptation by SMEs. The microfinancing pioneered at scale by the Grameen Bank in Bangladesh and its imitators has underwritten a revolution in climate adapted small enterprises. Women now produce marketable goods, and have gained a higher status in their communities.

Once SME-based economies are secure and resilient, they move beyond basic needs and begin to make marketable goods for local markets and eventually for export. This is already happening, with fair trade organizations purchasing food items and handicrafts from SMEs and marketing them internationally.





## CHAPTER 3

# Going green as a business opportunity

The transition to sustainable practices is a challenge – and also an opportunity for SMEs to strengthen their competitiveness and resilience. Although 58% of the firms surveyed by ITC in 2019 expect climate change measures to affect them negatively, 39% expected some positive impact.<sup>148</sup>

Adopting sustainable practices is not only about businesses being good – it is also about good business.

The following five factors drive the SME business case for ‘going green’.

**Increased resilience:** Targeted investments that boost business ability to cope with the impact of global warming can improve competitiveness. Through strategic improvements in business operations, management practices and business models, small businesses can build their resilience, foster agile operations, and support their economies and societies in adapting to climate change.

**Cost reductions and higher productivity:** Lower costs and higher productivity are some of the most convincing reasons for green SME investments in developing countries.<sup>149</sup> Production processes that use fewer resources lower input costs and improve profit margins. Eco-efficiency technologies allow small businesses to produce more from the inputs they have while reducing – or even earning value from – waste. Environmental investments also increase long-run productivity,<sup>150</sup> counterbalancing some of the loss in productivity from climate change.

**Compliance with climate regulations:** As more governments adopt policies to address the climate challenge, many SMEs are adjusting their practices for compliance or to stay ahead of the curve.<sup>151</sup> Existing or expected regulations or trade rules, when coherent and

clearly communicated, give incentives for SMEs to proactively reduce their carbon footprint.

**Access to markets:** Environmental products, services and processes can propel small businesses towards greater revenue. Given growing demand for sustainability, many SMEs are greening their operations to maintain or access markets. For small businesses selling to climate-conscious buyers domestically or internationally, going green is a survival imperative. For others, certification to sustainability standards can open lucrative new opportunities, as lead firms look for suppliers to diversify access to inputs and increase resilience to shocks.

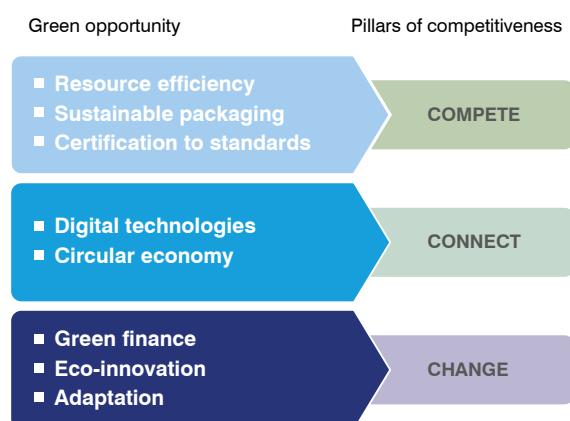
**Eligibility for green financing:** Financial institutions increasingly include sustainability criteria into their decision-making. SMEs that prepare shovel-ready climate mitigation or adaptation projects can be first in line to access funds from eager investors. As financial institutions of all stripes undertake a green transition in their own operations, firms that develop a track record of financially viable climate action now will have access to liquidity in the years ahead.

Taking action on these factors can lead to improvements in all three pillars of ITC’s competitiveness framework (Figure 20).

- Through resource efficiency, sustainable packaging and certification to sustainability standards, a company can enhance its ability to compete.
- Digitally-enabled supply chain linkages and adopting circular economy principles can deepen the firm’s connections with buyers and suppliers.
- Adapting to climate change, accessing green finance and environmental innovation can enhance the firm’s capacity to change in response to global warming.<sup>152</sup>



FIGURE 20 Compete, connect and change by going green



Source: ITC.

### Boosting capacity to compete

Small and medium-sized enterprises that reduce their greenhouse gas emissions often enhance their capacity to compete in the short term. Initiatives to improve resource efficiency, package sustainably and obtain certification advance environmental objectives, and enable SMEs to meet market requirements.

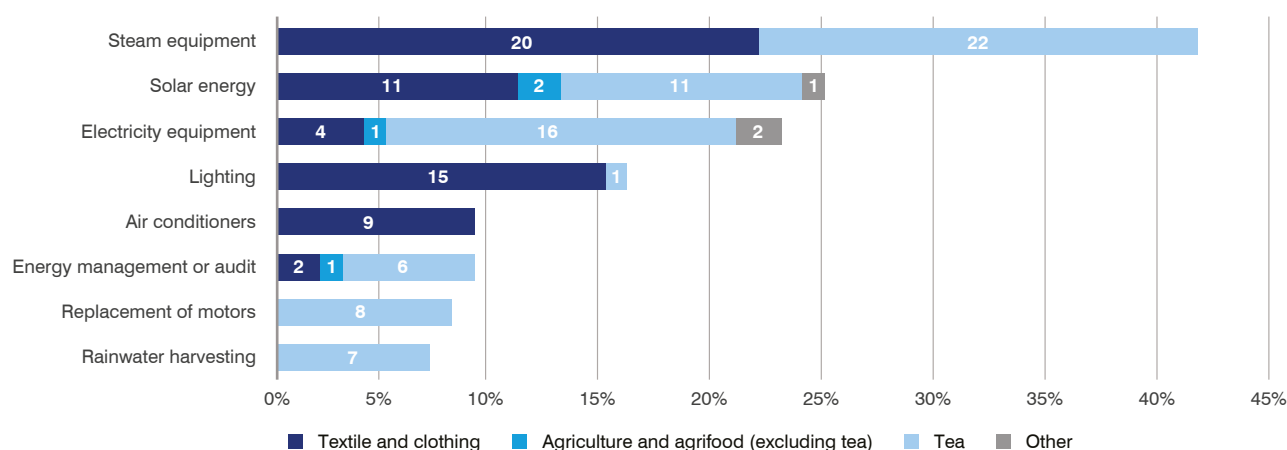
#### Resource efficiency lowers costs

Natural resource inputs are costly both for the bottom line and the planet. Indeed, many SMEs are already interested in green practices for their potential to reduce production costs. Reorganized production processes can cut input costs and waste, and improve productivity.<sup>153</sup> More efficient use of lighting, heating, water, gas and transportation reduces associated costs, while lowering emissions.

Fifty-six SMEs took part in resource efficiency interventions in 2019–2020 in Ethiopia, Jordan, Kenya, Peru and Vietnam, carried out by ITC. Working with environmental experts, the firms developed 202 resource efficiency measures relevant to their agricultural, apparel and tea enterprises. These ranged from installing LED bulbs to replacing industrial hot air machinery with energy-efficient ones. Others replaced fossil fuel with renewable energy sources, such as solar panels.

These resource-efficiency projects yielded environmental and financial dividends – reductions of 15 tons of CO2 equivalent emissions and savings of \$14,700 per year, on average. Steam equipment, solar energy, and changes in electricity equipment were the most common measures, though these varied by industry (Figure 21).

FIGURE 21 Top SME resource efficiency measures: Steam, solar power



Note: Values represent the number of measures in most popular categories, selected by 56 firms in Ethiopia, Jordan, Kenya, Peru and Vietnam.

Source: ITC Resource efficiency and circular production interventions, 2019-2020. See Annex II for detail.



**Hachmi Chenik**

Technical director, ITEX,  
Morocco

## Resource efficiency boosts profits

**This textiles and clothing producer does all stages of manufacturing in-house. To reduce costs, it analysed its resource use and is implementing resource-saving strategies.**

'In Morocco, water shortages are the most pressing issue related to climate change. These have not impacted our production yet. They do, however, have the potential to make our resource inputs more expensive in the future. We are therefore pre-emptively engaging in adaptation.

Because it is difficult to identify shortcomings in the manufacturing processes ourselves, we opted to join ITC's GTEX MENATEX project. Its experts looked at our water, fuel and electricity use at different production stages and, after a cost-benefit analysis, suggested measures through which we could decrease these inputs.

We implement measures that do not need external funding and have a pay-back period of three years or less. Some measures do not require any additional investment – it is all about knowing what to do. We have finalized two energy-reducing solutions: installing a photovoltaic system and thermal insulation of hot surfaces. We are putting in place further measures that reduce our energy, fuel, water and chemical use and generate less waste.

Making our production more resource efficient is increasing our resilience and also helps us lower input costs. As a result, we can decrease the price of our products, become more competitive and attract new buyers. Sustainable production allows us to retain customers that are becoming more concerned about the environmental footprint of the goods they buy.

I encourage other companies to investigate their use of resources. Not only does it have a positive effect on the environment but it also lowers costs and increases profits.'

*GTEX MENATEX, funded by the State Secretariat for Economic Affairs of the Swiss Confederation and the Swedish International Development Cooperation Agency, encourages textiles and clothing exports to promote employment and income generation.*

Installing renewable energy sources, such as solar arrays, is a popular measure. These can link with mini-grid systems that feed excess energy back into the grid, generating additional revenue or credits.

Quick wins are possible by greening buildings.<sup>154</sup> Optimized lighting systems use LED bulbs and smart sensors to reduce electricity use and thus greenhouse gas emissions. Improved insulation, in conjunction with effective windows and efficient heating and fans, reduces small business energy bills. Water harvesting systems, such as rooftop or rainwater gathering pits, reduce irrigation and water pumping costs.

Many governments favour SME investments in greening their premises, providing subsidies and/or reducing property taxes. Moving to a building constructed expressly with a smaller environmental footprint also generates financial savings through lower energy use and can benefit from government incentives.

Greening production processes also reduces firm-level energy use. Retrofitting or upgrading machinery for efficient electricity use reduces energy bills and fossil fuel burning. High energy prices strengthen the financial case for cutting energy use.

SMEs that improve their waste management practices, notably through the appropriate handling of hazardous chemicals, increase their efficiency, reduce their environmental footprint and enhance the occupational health and safety of their workers.<sup>155</sup>

Resource efficiency is relevant to exporting and non-exporting firms, as benefits derive from lower operational costs. These benefits may nonetheless be most readily available to firms in the manufacturing sector, in which use of material inputs and energy are higher.<sup>156</sup>

In agriculture, replacing fossil-fuel intensive pesticides and fertilizers with organic substitutes reduces costs and the carbon footprint. Appropriate techniques maintain productivity,<sup>157</sup> and the shift reduces exposure to input supply shocks. Moreover, it improves soil health, fostering the resilience of farming systems.

The case of ITEX, a Moroccan textiles and clothing producer featured in this chapter's Business Voices, illustrates how resource efficiency measures increase enterprise resilience and lower input costs. The case shows that SMEs often need expert technical advice to assess business practices and find the most appropriate technologies to improve resource efficiency.

## Sustainable packaging reduces waste

Appropriate packaging ensures products arrive safely, yet is not wasteful. It must be optimized to product shelf life, and length and means of transport. Such packaging makes better use of space, minimizes package dimensions and reduces the quantity of material, lowering resource and transportation costs.

The packaging material of choice for businesses around the world is plastic. This secures billions of dollars' in goods – many of which are, themselves, made of plastic. As more than 98% of plastic production relies on fossil fuel feedstock, sustainable packaging is essential to reduce emissions.<sup>158</sup> Much of global plastic use is dedicated to single-use packaging, and plastics are projected to account for 15% of the global annual carbon budget by 2050.<sup>159</sup>

More recycled content and multiple-use packaging can reduce waste, lower input costs and respond to market demand.<sup>160</sup> Some businesses now eschew the use of plastic entirely, in favour of more sustainable packaging options. Biodegradable, compostable, and renewable-source packaging materials such as bamboo can be used, so long as companies meet the needs of transportation, protection and preservation. A life cycle approach to plastics and their alternatives can help enterprises choose the best option for the environment, the firm and its customers.<sup>161</sup>

In most regions, virgin packaging (e.g. plastic bought directly from the fossil fuels refinery) is less expensive than recycled materials. Hence, for many SMEs, there is a weak financial incentive to switch to sustainable packaging. Regulations that make fossil fuel-based inputs relatively expensive and subsidies that make renewable packaging cheaper can tip the scale.<sup>162</sup> These measures are enabling conditions for sustainable packaging strategies to be commercially viable.

## Certification signals quality

In a context of increasing buyer sustainability demands, firms can improve sales by demonstrating green credentials. Adopting voluntary sustainability standards encourages sustainable production as mandated by SDG 12, while supporting quality and productivity improvements.<sup>163</sup>

Most small and medium-sized enterprises are aware of the standards required to meet the sustainability requirements of their current buyers. There are dozens of carbon footprint measurement and reporting schemes that can help SMEs benchmark and communicate about their green transition.<sup>164</sup>

---

Adopting a standard can reduce firms' emissions, so they can play their part in mitigating climate change. At the same time, certification can help them keep current buyers and access new ones, expanding access to markets.

Certified companies have a better chance of securing longer-term contracts that set quantities and prices in advance. As such contracts often reduce uncertainty,<sup>165</sup> SMEs that sign them have a greater incentive to invest in quality, adaptation to climate change and productivity-enhancing innovation, which may also be financially supported by buyers.

Certification also can be helpful in accessing new markets and diversifying the portfolio of sales of SMEs.<sup>166</sup> One United Kingdom buyer, who sourced horticultural products from developing countries, pointed out that being certified to GLOBALGAP or other sustainability schemes can open up the entire United Kingdom market.

When certification draws additional buyers, it improves resilience.<sup>167</sup> Even if one client stops buying because of a climate-induced impact, SMEs can sell to another one. When SMEs focus all their sales on a single certified buyer, they risk reducing their resilience to shocks – as seems to have been the case during the COVID-19 pandemic.<sup>168</sup>

## Strengthening capacity to connect

---

Going green enhances the ability of small and medium-sized enterprises to connect. Initiatives to deploy digital technologies and adopt circular economy approaches are used by small businesses to mitigate and adapt to climate change.

In the process, they strengthen relationships with buyers, suppliers, consumers, business support institutions and value chain partners. Given their strong links in local communities, small and medium-sized enterprises can be a source of social and environmental change.<sup>169</sup>

### Digital technologies ease access to information

Businesses use digital technologies to access information from consumers, buyers and suppliers in a more environmentally friendly way. Due to COVID-19, managers found it difficult, if not impossible, to travel to trade fairs and training sessions. Video conferencing and market information portals partially closed the gap, and should have enduring value.

Some SMEs reach new buyers and receive feedback through web-based sales portals.<sup>170</sup> Others are searching

online for potential suppliers and information on production conditions. To prepare for and respond to climate risks, some businesses access data on local and destination weather conditions online.

Digital technologies improve the footprint of transport and logistics in supply chains.<sup>171</sup> A company's supply chain produces, on average, 5.5 times as much greenhouse gasses as its own operations.<sup>172</sup> Blockchain and other tracking technologies can help trace sustainable practices along the value chain.<sup>173</sup> Digital supply chain technologies can help improve the coordination of truck routes, which shortens delivery times, boosts capacity utilization, lowers costs and reduces greenhouse gas emissions.<sup>174</sup>

Lack of internet access hinders SMEs in developing countries, creating unequal competitive conditions compared with their developed country counterparts. Governments and business ecosystem actors that expand access to, and skills for, internet access and communication technologies, particularly in remote areas, provide crucial support to SMEs in the digital and green transitions.<sup>175</sup>

### Circularity provides data and networks

The circular economy allows companies to access new partnerships, expand business networks, generate additional revenue and find ways to cut costs.

SMEs can begin to reap the benefits of circular economy practices by moving away from non-renewable inputs. This will make them more resilient, given that commodity supply chain fluctuations affect recycled inputs less. It also allows firms to anticipate future environmental regulations linked to climate change.<sup>176</sup>

Waste generated in regular production processes can either be reintegrated into production or sold, eliminating or reducing the need to pay for disposal. This also provides business opportunities for other enterprises.<sup>177</sup>

Businesses engaged in manufacturing can strengthen their relationships with clients and consumers by offering to fix broken products or by encouraging buyers to return items that have reached the end of their first stage of life.<sup>178</sup> This allows the firm to obtain information about the wear and tear of their products to inform future product design and marketing.<sup>179</sup>

The company can then refurbish the returned products and sell them on second-hand markets at a lower price or it can use parts to produce a new item. This generates new revenue streams from something that would have been viewed as waste in a linear economy.<sup>180</sup>

## Enhancing capacity to change

Environmental retrofitting of small businesses reinforces their capacity to change. It draws on their ability to learn, innovate and access finance to fuel plans. Access to green financing, eco-innovation initiatives and adaptation measures boost the ability of SMEs to change in response to market trends.

### Finance, insurance fuel adaptation and mitigation

Businesses need finance for their green investments. Some green financing schemes are specifically targeted at SMEs in developing countries, and sometimes go hand-in-hand with advice and assistance in environmental project design and implementation.<sup>181</sup>

For example, the Green Climate Fund's pilot programme to support micro, small and medium-sized enterprises is providing \$25.6 million in loans to women-led SMEs and farmers' associations in Ghana to support low-emissions and climate-resilient agricultural practices.<sup>182</sup> In India, solar investment trusts and impact investors fund small-scale SME rooftop solar energy projects.<sup>183</sup> Green venture capitalists meet annually at their Ecosummit to choose green start-ups in which to invest.<sup>184</sup>

Private insurance against climate losses is another useful instrument, as it can protect small businesses from the devastating effects of storms, drought and higher sea levels. In Kenya and the Philippines, weather-indexed insurance schemes make payments to farmers based on the occurrence of a pre-defined phenomenon linked to production losses.<sup>185</sup>

Countries with widespread insurance coverage recover faster from the financial impacts of extreme events.<sup>186</sup> In Mexico, the landfall of Hurricane Delta in late 2020 triggered payouts of a coral reef insurance policy in the Quintana Roo region. The funds were used to repair the reef, which is essential to SMEs in local tourism.<sup>187</sup>

However, insurance currently covers few types of environmental damage.<sup>188</sup> Even when environmental insurance is available, some small businesses fail to acquire it, assuming the government will help in the event of such shocks. In some firms that have experienced a devastating environmental incident, there is a feeling that a similar event is unlikely to strike again.<sup>189</sup>

Business support organizations can help SMEs meet the environmental, social and governance requirements of financial institutions. This may entail providing technical

assistance to develop bankable green business plans, and facilitating connections with financial institutions, foundations and impact investors. Additionally, there is a need for mechanisms to promote broader and more affordable environmental insurance coverage to help SMEs' bottom line, and the macroeconomic health of countries with economies dependent on SME viability.

### Eco-innovation builds loyalty and skills

New markets are emerging with the greening of consumption and production. New products and services are being created to fit an explicit environmental purpose such as low-carbon transportation and production. SMEs will need to innovate, dropping relatively 'dirty' parts of their product and service offering and replacing them with environmentally-friendly options, if they are to break into these new markets.

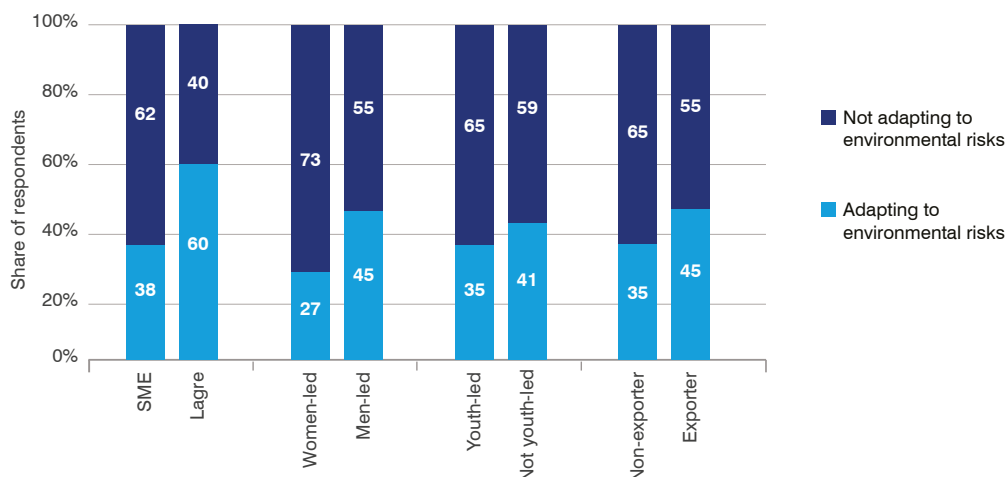
Creating new products, processes and services to reduce the environmental impact of human activity is known as 'eco-innovation'.<sup>190</sup> Many firms are shifting focus or being created on this basis, and the scope of entrepreneurship in environmental goods and services is growing sufficiently quickly for it to garner a new name: 'ecopreneurship'.<sup>191</sup> Young entrepreneurs are at the forefront of this revolution.<sup>192</sup>

Eco-innovation reinforces a company's competitiveness. The know-how, agility and skills developed in the process of environmental innovation are transferable to other operations. Offering an environmentally friendly product alongside a conventional one can encourage product discrimination and brand loyalty among customers. Finally, the pursuit of eco-innovation can reinforce the enterprise's employee commitment and community support.

Eco-innovation is closely related to research and development (R&D). According to the ITC SME Competitiveness Surveys, African companies with a history of R&D investments were 29% more likely to see business opportunities from their environmental actions than companies that went green, but had no prior R&D experience.

Financing and technological support help ecopreneurs move beyond climate-friendly product or service prototypes, and scale up to become independently viable. Venture capitalists, supply chain buyers, angel investors and governments are important allies. They create an enabling environment for ecopreneurship, and foster the abilities and ideas of innovators.

**FIGURE 22** Large firms more likely to invest in climate change adaptation



**Note:** Companies are women-led if they are at least 30% owned by women and the top manager is a woman. Companies are youth-led if the top manager is under 35.

**Source:** ITC *SME Competitiveness Surveys* of 1,359 companies, in Zambia (Year 2018, 242 businesses), Botswana (Year 2019, 615 businesses) and Benin (Year 2019, 502 businesses). See Annex II for detail.

### Smaller, women-led and youth-led firms lag in adaptation

For businesses, adaptation means minimizing the risk of harm from climate change and/or exploiting opportunities arising from it.<sup>193</sup>

SMEs may design adaptation measures to prepare themselves for specific climate threats, such as building physical barriers to reduce flood damage. Business adaptation can also strengthen overall resilience. For example, sound inventory management makes firms more robust when there are shortages due to storms. Solid peer relationships raise awareness on new agricultural conditions. R&D allows for innovative responses to shifting market conditions.

Because smaller firms often lack the information, skills, financing and time to dedicate to long-term planning, they tend to respond passively to shocks.<sup>194</sup> Larger companies are for their part increasingly seeing climate change as a significant long-term threat to their business models and investing to adapt to these changes.<sup>195</sup>

Sixty per cent of large firms reported that they had invested in at least one measure to reduce exposure to environmental risks, according to ITC SME Competitiveness Surveys in Africa. In comparison, just 38% of micro, small and medium-sized firms had made such an investment (Figure 22).

If it is mainly large firms that have the foresight and capital to adapt, only they will prepare adequately for climate change. Smaller companies that wait and try to cope after the event are likely to run down assets, with adverse effects on their competitiveness and survival. This could exacerbate corporate concentration, which research suggests is already on the rise as a result of the COVID-19 pandemic.<sup>196</sup>

Other characteristics affect companies' tendency to adapt.

A higher proportion of men-led firms invest in adaptation, according to ITC SME Competitiveness Surveys (Figure 22). This is worrisome, as there is evidence that women-led farming households are more vulnerable to climate change, and livelihood diversification strategies are less likely to shield them.<sup>197</sup>

Age matters, too. Youth-led firms are less likely to have taken adaptive measures.

Finally, exporters are more likely than non-exporters to invest in measures to reduce exposure to environmental risks.

Those less likely to invest in adapting to climate change – small, women-led, youth-led and non-exporting firms – tend to have one thing in common. They have less capital at their disposal and hence less capacity to invest, even when there is a clear business case for doing so. This underscores the need for equitable access to information and technical and financial support.



## BUSINESS VOICE



**Juliet Namujju**

Founder,  
Kimuli Fashionability,  
Uganda

## Unite social, environmental and economic sustainability

**This social enterprise makes clothing and accessories from recycled plastics. The workers are persons with physical disabilities. To respond to changing market demand due to the pandemic, it produces innovative face masks.**

'The idea for the business came from my early life experiences. When I was very young, my father lost one of his legs in a cycling accident. Because of his disability, he lost his job and felt very isolated from the community.

At the age of six, I became an orphan and went to live with my grandmother who was a tailor. I would sew up her fabric scraps with plastic waste and create dolls and flowers. This inspired me to start a fashion enterprise that can help tackle the plastic waste crisis in Africa while providing employment to marginalized groups.

Our approach contributes to environmental conservation and is a cost-effective way to run a business. We are saving on expenses for material inputs, as we do not have to pay for the plastic itself. This enables us to pay fair wages to our workers. Using recycled materials makes our products unique and the company more competitive. Our customers value that they help protect the environment and support persons with disabilities by purchasing from us.

In 2020 we planned to open a workspace for our disabled employees. But because of the pandemic, our sales decreased and we lacked the capital to move ahead. To adjust to the new business environment, we started producing masks. We developed a model that has a transparent window made from plastic in the mouth area. This is useful for people who are hard of hearing, as it allows them to lip-read.

Our membership in ITC's Ye! Community enables us to connect with coaches and exposes us to new opportunities. Since we joined, we have participated in several competitions and received various awards. This gave us international exposure and helped the business grow.'

*The Ye! Community is a global network supporting youth entrepreneurship and self-employment. The platform provides a space for young entrepreneurs and business support organizations to connect with tools, resources and opportunities to support their enterprises.*

---

## Appraising green opportunities

---

### Trade-offs in going green

Even if the business case is strong, the green transition is not straightforward or easy for small and medium-sized enterprises. Investments in reducing emissions, and improving resilience to climate shocks, have to be carefully planned and justified. The information, time, skills and financing required to green the business partially explain why so few SMEs have pursued it.

SMEs face the challenge of balancing short-term and long-term considerations. Current actions, such as whether to flood-proof the factory this year, must account for their future value, such as how much they reduce the likelihood or potential cost of flooding damage.

Calculating the future benefits and costs of climate action or inaction requires extensive information that is not always easy to obtain. Some green actions have short payoff periods and generate new revenue streams, which increase their viability and attractiveness. SMEs often prefer these actions to more costly and long-term measures, even if the latter are more necessary and potentially more profitable.

Uncertainty makes this balancing act more difficult. First, the types, locations and intensity of climate shocks are not entirely clear. Second, although there are potential business benefits from greening the enterprise, many SMEs are uncertain about whether and when these will materialize.<sup>198</sup> Third, there is policy uncertainty, as many governments have yet to clarify their regulatory approach to carbon reductions. All of these factors tend to delay green transitions, as managers opt instead for investments with more certain short-term returns.

For these reasons, SMEs are more likely to invest if they have first-hand experience with climate disruptions. Farmers, tourism companies and retail shops that have already seen the impact of climate shocks may be driven to take climate action. Manufacturing industries may not feel compelled to adapt pre-emptively. Family-owned businesses tend to be particularly interested in going green, as they pass on the enterprise to their children and hence place a higher value on the future.<sup>199</sup>

Climate change mitigation and adaptation measures cost money, and liquidity is tight for SMEs worldwide following COVID-19. Many SMEs would rather not access external financing for an investment with an uncertain return. Most financial institutions have yet to incorporate long-term environmental calculations into their loan approval calculus, further constraining the capacity of SMEs to act.

Trade-offs between climate and other environmental objectives can be overcome.<sup>200</sup> SMEs that adopt nature-based solutions to global warming preserve wild spaces and biodiversity while adapting to and mitigating climate change.<sup>201</sup> For example, farmers can use local seed varieties that are resistant to storms and weather fluctuation to preserve biodiversity and facilitate adaptation to climate change. This has the added benefit of being affordable, as inputs from community seed banks tend to be relatively cheaper.

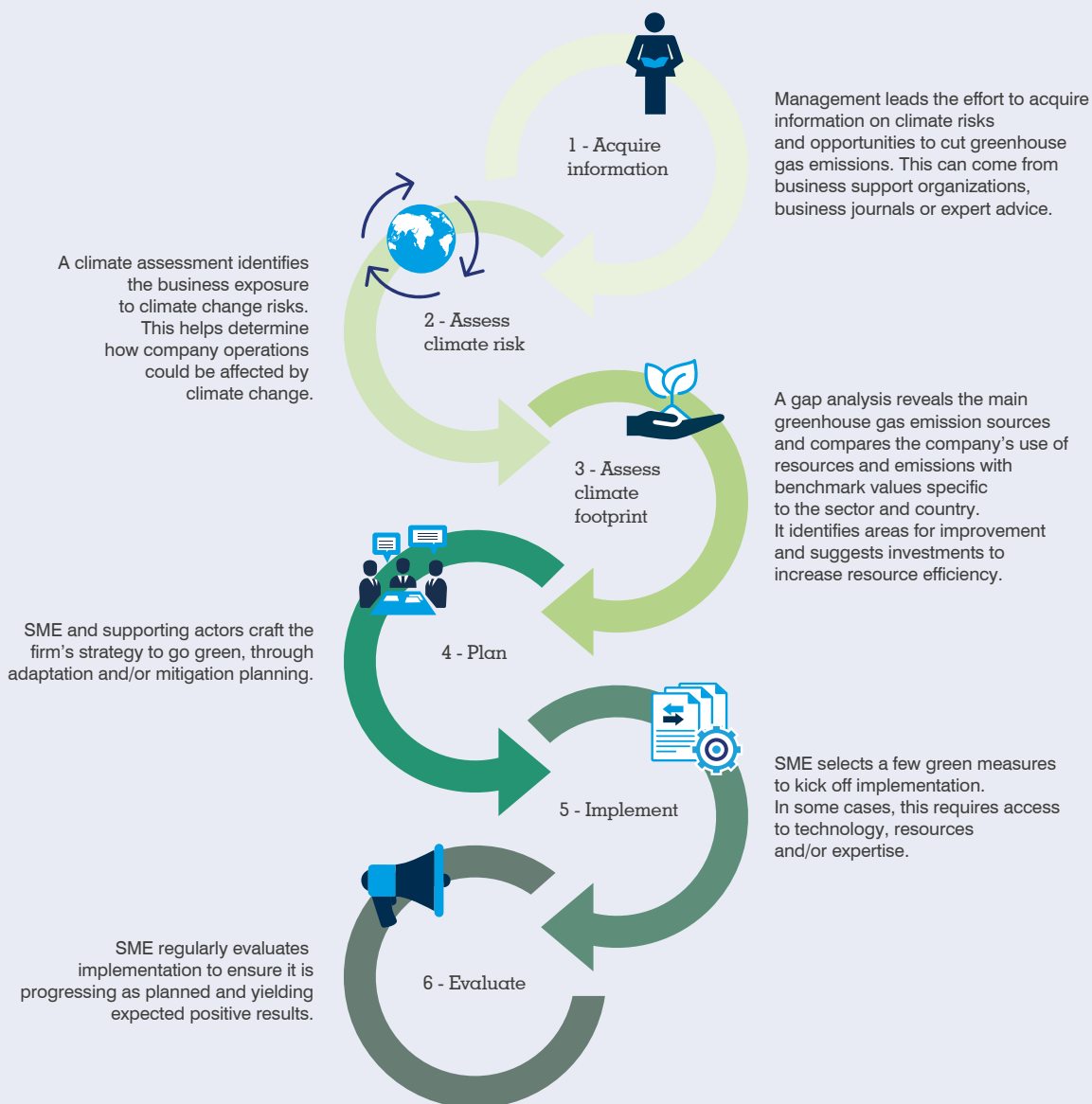
Sustainability is multifaceted, with trade-offs between environmental, social and economic objectives. Company capital invested in reducing its carbon footprint is not spent on raising worker wages or providing health care. Yet these objectives need not be mutually exclusive. This is illustrated by Kimuli Fashionability, a Ugandan social enterprise featured in this chapter's Business Voices.

There are potential pitfalls in going green and mistakes can be costly. In one case, an industrial cluster in a developing country invested massively in the installation of solar panels on the rooftops of member SMEs. Because of dry conditions, the panels were often covered in dust, requiring large amounts of water for cleaning and generating less electricity than expected.

A wiser green strategy based on appropriate technical expertise would have considered the local environmental and business context, and found that the small factories used lots of wood to fuel their machines. Investments in liquid natural gas stoves would have reduced emissions from wood burning, improved productivity and reduced deforestation.

Challenges that firms face are unique to their circumstances. In going green, SMEs need assistance to select locally appropriate environmental investments. Careful choice of green strategies can ensure financially viable, effective reduction of environmental footprints and improve the enterprise's competitiveness.

**BOX 3: The path to a greener enterprise**



**Adaptation planning**

Focus on probable risks that would cause most damage, and on which the firm can act. The strategy can reduce exposure through risk-specific blocking measures, such as storing inventory in a remote site, or through general moves to enhance resilience, such as ensuring cash is on hand for sudden climate-related costs.

Focus on win-win options that pay off now and/or have added social, environmental and economic benefits, as well as measures that are financially viable immediately, regardless of whether a climate risk materializes.

**Mitigation planning**

Focus on significantly reducing the firm's environmental footprint, including through readily available cuts in resource use. The best investments accomplish this goal quickly and affordably, and are easy to measure and report on to climate-conscious buyers.

**Source:** Lessons learned from ITC's Resource Efficiency, Climate Resilience and Climadapt for Trade approaches (see toolkits in Annex III), (James, 2015) and (Brauss & Zotz, 2020).

## Climate measures can pay off

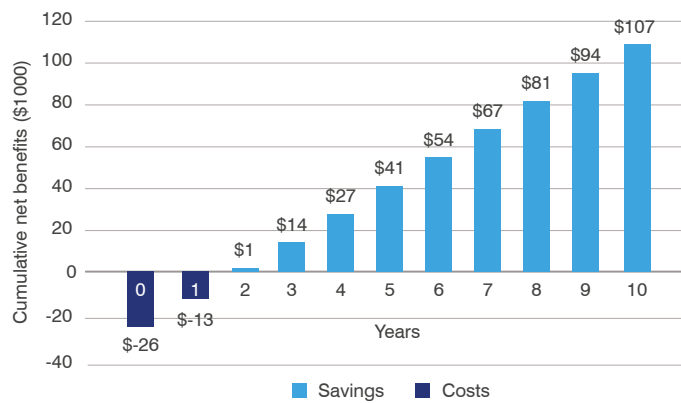
Some measures analysed in ITC's resource efficiency and circular production interventions could be adopted at no cost, such as improving waste management processes and removing certain chemicals. However, most entailed an up-front cost; the average estimated initial investment was \$26,200. The average payback period, after which the measure generated a cumulative net benefit, was three years (Figure 23).<sup>202</sup>

Measures to reduce firms' environmental footprint that cost nothing or very little, such as changing management of water, electricity and chemicals, paid off quickly. Changing

chemical management practices, for example, cost on average less than \$1,000 per company, and savings through reduced waste meant that the initiatives paid off within two years, on average.

Although these 'quick wins' can mark the first step in the greening of SME business practices, bigger investments in resource efficiency measures deliver much more significant benefits to both the bottom line and the planet (Figure 24). The more a company is able to invest, the more benefits it receives in the long term. Moreover, measures that are most costly to start are more effective in reducing greenhouse gas emissions.

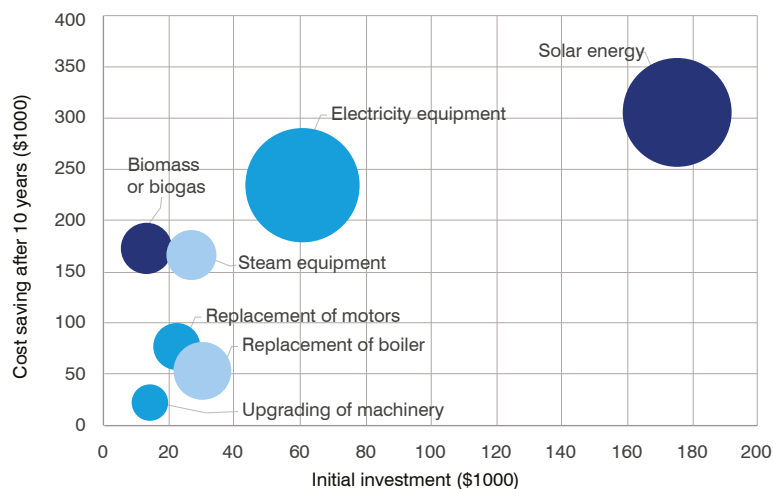
**FIGURE 23** Resource efficiency measures pay off



**Note:** Figures are averages based on 202 resource efficiency measures implemented by 56 firms in Ethiopia, Jordan, Kenya, Peru and Vietnam. The costs in year 0 are the initial investment.

**Source:** ITC Resource efficiency and circular production interventions, 2019-2020. See Annex II for detail.

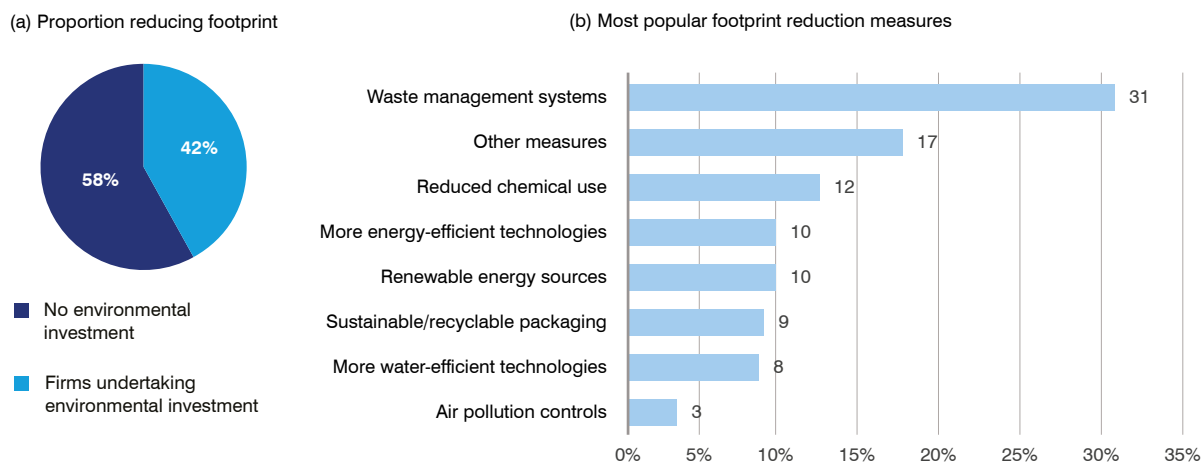
**FIGURE 24** Resource efficiency measures benefit business, environment



**Note:** The size of the bubble is proportionate to the CO2 equivalent emissions reduction. Figures are averages based on 202 resource efficiency measures selected for implementation by 56 firms in Ethiopia, Jordan, Kenya, Peru and Vietnam. Dark blue colour refers to measures related to renewable energy, light blue to thermal energy, medium blue to other measures. Selected categories shown.

**Source:** ITC Resource efficiency and circular production interventions. See Annex II for detail.

**FIGURE 25** Africa company survey: 42% reduced footprint



**Source:** ITC *SME Competitiveness Surveys* of 1,359 companies, in Zambia (Year 2018, 242 businesses), Botswana (Year 2019, 615 businesses) and Benin (Year 2019, 502 businesses). See Annex II for detail.

For example, the costliest measures adopted by SMEs were installing solar panels and electricity equipment, which require significant initial investments. These initiatives, however, are expected to deliver the largest total financial benefits after 10 years and the biggest environmental dividend in reduced greenhouse gas emissions (Figure 24).

Forty-two per cent of the companies surveyed through the ITC SME Competitiveness Surveys in Africa had invested in climate-conscious measures in the preceding three years, such as more energy-efficient technologies and air pollution controls (Figure 25). Companies producing according to buyer specifications were more likely to have invested in these green measures.

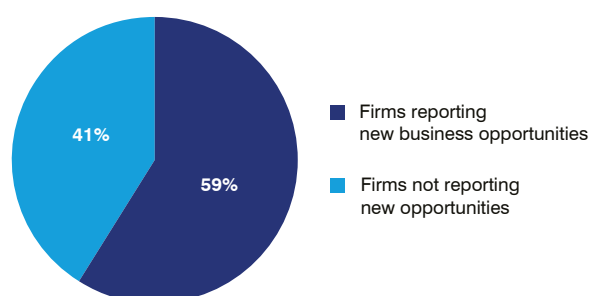
Fifty-nine per cent of African firms that had invested in greening their enterprise said it provided them with new

opportunities (Figure 26). This figure is higher than the global average calculated in a recent survey, in which 22% of respondents said they had realized modest or significant value from sustainability in the past five years.<sup>203</sup> This preliminary evidence indicates that the rate of return from green investments in Africa may be higher than elsewhere.

Of firms that made green investment during the previous three years, 19% increased product quality, 17.3% accessed new markets, 16.6% increased production, 10% reduced their input costs and 7% made new products or services (Figure 27).

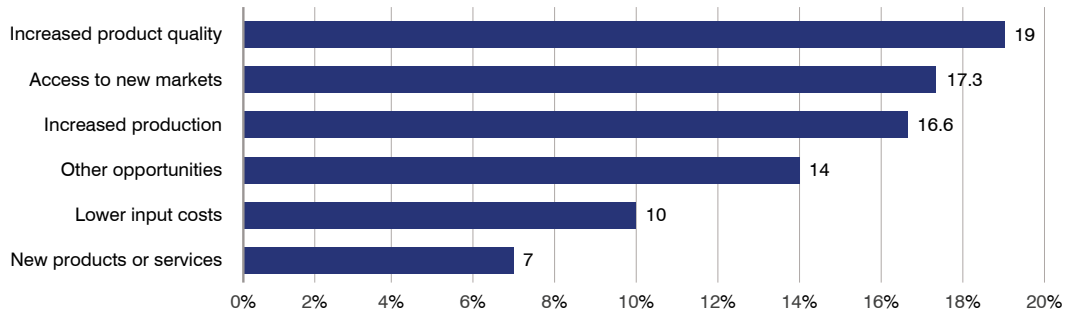
Some green investment projects do not seem to pay off financially in the short term. Forty-one per cent of the firms interviewed by ITC in Africa felt their green actions had not yielded benefits (Figure 28).

**FIGURE 26** New opportunities for 59% of firms making green investments



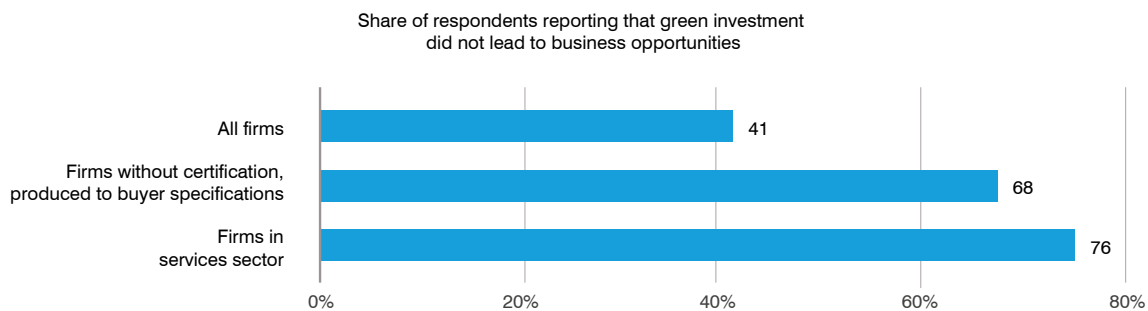
**Source:** ITC *SME Competitiveness Surveys* of 1,359 companies, in Zambia (Year 2018, 242 businesses), Botswana (Year 2019, 615 businesses) and Benin (Year 2019, 502 businesses). See Annex II for detail.

**FIGURE 27** Environmental investment gains



**Source:** ITC *SME Competitiveness Surveys* of 1,359 companies, in Zambia (Year 2018, 242 businesses), Botswana (Year 2019, 615 businesses) and Benin (Year 2019, 502 businesses). See Annex II for detail.

**FIGURE 28** Services firms see fewer opportunities



**Source:** ITC *SME Competitiveness Surveys* of 1,359 respondents, in Zambia (Year 2018, 242 businesses), Botswana (Year 2019, 615 businesses) and Benin (Year 2019, 502 businesses). See Annex II for detail.

Companies in the services sector were significantly more likely to say that their green investments did not provide opportunities. This may be because such firms use relatively fewer material inputs, with labour costs more important to their bottom line. As a result, greater efficiency in use of inputs delivers fewer dividends. In addition, as clients may view services firms as less polluting, market pressure and rewards for improved environmental performance are lower.

Many of the firms that invested in reducing their environmental footprint and did not see benefits said they produced according to buyer requirements, but were not certified to a voluntary sustainability standard. This is consistent with evidence that voluntary sustainability standards can enable firms to earn a return on their environmental actions.

These results are in line with data from other sectors indicating that some climate change mitigation measures are not profitable for firms. For example, only half of the measures available for the fashion industry to reduce its greenhouse gas footprint save money.<sup>204</sup> In fact, businesses may have no financial incentive to invest in some of the measures needed to reach the Paris Declaration's climate goals.

### No support, no green transition

SMEs are increasingly attuned to the benefits of improving resource efficiency, being certified to a sustainability standard, connecting to actors within their business ecosystem and continuously innovating. Many of them are also keenly aware of the need to mitigate and adapt to the effects of a changing climate. Showing how competitiveness, resilience and sustainability go hand-in-hand is a first step towards increasing incentives for a green transition.

Some sustainable practices are known, feasible and actionable by SMEs. Implementing these may be a matter of time and entail minimum support. Other measures require additional information and more substantial technical and financial assistance. In the absence of a business case for measures with clear social payoffs, enabling policies, regulations and incentives are also needed.<sup>205</sup>

Those supporting SMEs can and should help foster change while it is not too late. Business support organizations, large companies, national governments and international organizations all have a role to play in creating the right incentives that enable small and medium-sized enterprises to take action for climate change.





## Inger Andersen

Executive Director,  
United Nations Environment  
Programme

United Nations  
Under-Secretary General

### THOUGHT LEADER

## SMEs must embrace circularity for businesses and the planet to survive

**The world has learned many lessons from the COVID-19 pandemic, but none more important than this: we must change the way we run our businesses and economies to work with nature, not against it.**

**W**e brought this devastation upon ourselves by treating nature and its services as an expendable and endless commodity, destroying natural buffers and coming into closer contact with wild animals and the diseases they carry.

This same unsustainable consumption and production is driving climate change, biodiversity loss and pollution – all of which carry greater potential for human misery and economic disruption. To break this cycle, and ensure long-term prosperity, we have to move to circular economies in which we eliminate waste and pollution by keeping products and materials in use and regenerating natural systems.

SMEs will be crucial to – and the biggest beneficiaries of – this shift. Most businesses in the world are SMEs. Given their strong roots in local communities, SMEs can be influential agents of change and innovation. Value chains, like biodiversity, exist in complex and interlinked ecosystems. Small changes in one area can lead to amplified changes elsewhere.

The pandemic has shown how vulnerable SMEs are to global shocks. SMEs are overrepresented in the sectors most affected by the crisis, particularly in wholesale and retail trade, air transport, accommodation and food services, real estate, professional services and other personal services. SMEs are 8% more likely to have shut down temporarily than larger firms. They are 9% more likely to experience a fall in sales than large firms. The longer the crisis persists, the more likely that decreased liquidity will translate into insolvency and firm exit.

## Making the business case

UNEP has helped SMEs face these challenges through our eco-innovation approach. This guides SMEs in incorporating circularity into every aspect of business models, operations, strategy, products and processes to reduce the environmental and social impact of human activity. It results in an agile, reactive and competitive company.

We have seen that businesses tend to benefit significantly by adopting more circular business models. For instance, one personal care product company in Colombia moved to 100% natural products, which increased sales. Employees felt greater loyalty to the company, and worked harder during COVID-19 to ensure the company survived.<sup>1</sup>

When companies transition to circular business models, they protect themselves against regulatory shocks, market changes, inefficient technical capacity, limited revenue streams and narrow financing options. Instrumental to this transition are networks such as the Global Network for Resource Efficient and Cleaner Production, which works with local networks of SMEs to provide training, expertise and skills to implement eco-innovation.

## Deep roots lead to circular systems

SMEs can only transition to circular business models as part of a wider economic shift that values circularity, with governments actively promoting such a transition. UNEP already is working with partners to ensure that the right conditions exist to support circular business models, and the International Trade Centre's efforts in this area are highly appreciated. The *SME Competitiveness Outlook* will be key in furthering this drive and making the business case for resilient, circular and truly eco-innovative SMEs.

It is a joint endeavour. Governments must shape the environment in favour of circular business models and increase public sector funding to leverage private sector resources. Consumers must continue demanding eco-innovative products and services from the market. Multinational enterprises must expand and deepen their work. International organizations such as UNEP must continue to promote initiatives that increase the sustainability and the competitiveness of SMEs.

From the Global Alliance on Circular Economy and Resource Efficiency (launched in February 2021 at the UN Environment Assembly 5.1 with some 39 countries on board) to a one-person SME, all efforts are important.

The benefits are clear. More competitive SMEs. More safe and decent jobs. More resilience to shocks. And more progress towards tackling all three planetary crises.

---

<sup>1</sup> UNEP (2021). *The business case for eco-innovation*. Nairobi: UN Environment Programme. First edition published in 2014. <http://unep.ecoinnovation.org/wp-content/uploads/2021/02/UNEP-Business-Case-for-Eco-innovation.pdf>.

## CHAPTER 4

# The Green Recovery Plan

COVID-19 was a harsh reminder of the economic and social damage that come with being unprepared. Still, it displayed people's ability to adapt if they know what to do – wear a mask, observe physical distance, stay at home – and have the means to do it – loans, tax relief, wage subsidies. It also demonstrated the collective inclination to protect the most vulnerable. Governments around the world scrambled to alleviate the impact of COVID-19 on SMEs, recognizing that they act as a lynchpin connecting crises to broader socio-economic losses.

There is need to act now to prepare for climate change. As small firms seek support to recover from the pandemic, all stakeholders should provide them with the knowledge and means to become more competitive, resilient and sustainable. Small firms must be at the centre of a green transition, as investing in them generates a 'double-dividend' of private and social gains.<sup>206</sup>

This report's Green Recovery Plan is a set of recommendations for key stakeholders to help SMEs embark on a green transition. These stakeholders are business support organizations, governments, lead firms in international value chains and international organizations. They should:

- Embrace environmental sustainability
- Collaborate and coordinate
- Advocate for SMEs
- Facilitate SME access to finance
- Strengthen SME technical capacity

## Green businesses advance the SDGs

An SME-centred green recovery benefits individual enterprises, and society as a whole. Firms that adapt to and mitigate climate change gain economic opportunities. When these SMEs take a greener and more climate-resilient path, they also create broader economic and social benefits, contributing to the drive to achieve the United Nations Sustainable Development Goals (SDGs).






These outcomes go beyond improving employment, economic growth (SDG 8) and industrial development (SDG 9). A green SME transition can help achieve the sustainable production objectives contained in SDG 12. SMEs are responsible for 70% of global pollution and 60% of global industrial carbon emissions.<sup>207</sup> This partially reflects their relatively lower efficiency<sup>208</sup>, as the least efficient quarter of companies are responsible for approximately half of the private sector's negative environmental impact.<sup>209</sup>

A lower carbon footprint of SMEs contributes to meeting commitments under SDG 13 on climate action. SMEs face climate-related risks over which they have no control. Yet, they are not just climate takers, SMEs are also climate makers. Greening SMEs can advance nationally determined contributions and help meet national adaptation plan targets. In the long run, reducing carbon emissions will help moderate the rise in global temperatures and lower the future mitigation and adaptation costs.

It pays to adapt to climate change now, given the enormous impact it will have in coming decades and centuries.<sup>210</sup> Many stakeholders already are determined to 'build back better'.<sup>211</sup> Part of this commitment must be geared towards supporting SMEs to adopt profitable, climate-friendly strategies.



TABLE 1. The Green Recovery Plan to support small businesses

		BUSINESS SUPPORT ORGANIZATIONS	GOVERNMENTS	LEAD FIRMS IN VALUE CHAINS	INTERNATIONAL ORGANIZATIONS
	<b>EMBRACE SUSTAINABILITY</b>	Develop expertise internally/seek it externally	Embed sustainability in recovery plans	Adopt a holistic approach to share and manage risk	Mainstream sustainability in development plans
	<b>COLLABORATE, COORDINATE</b>	Create/join networks to share knowledge	Coordinate to ensure regulatory coherence	Harmonize/recognize sustainability standards	Be a platform for information, best practices
	<b>ADVOCATE FOR SMES</b>	Build the local support ecosystem	'Think small first' in policymaking	Source from non-traditional locations	Bring SMEs to multilateral forums
	<b>FACILITATE SME FINANCE</b>	Be the trusted intermediary	Provide incentives for green finance	Facilitate access to supply chain financing	Promote tailored financial solutions
	<b>STRENGTHEN SME CAPACITY</b>	Train SMEs for green, innovative approaches	Promote innovation with skills and technologies	Build skills and technology base of small suppliers	Increase service offering for SMEs

## The Green Recovery Plan

A holistic approach can enable SMEs to strengthen competitiveness, build resilience to climate hazards and contribute to safeguarding the planet.

Four main groups have a role to play in fostering the green transition of small firms. These are business support organizations, governments, lead firms in value chains and international organizations.

### Business support organizations build bridges

Business support organizations can offer timely, context-specific and trusted solutions to build the resilience of SMEs and help them benefit from the opportunities offered by the green transition. Business support bodies must be proactive, especially during times of change. They can design their interventions along the following five lines:

**Develop internal, or seek external, expertise in environmental sustainability.** Business support organizations embrace environmental sustainability by developing expertise in relevant areas, to the benefit of their members. This can be accomplished by building the organization's internal technical ability to address climate-related issues, and/or by identifying external experts that can provide advice when needed.

**Create or join networks to share knowledge and information.** SME sustainability requires access to a wide variety of support services. These call for resources and

skills that rarely involve a single organization working on its own. Business support organizations should collaborate with peers to support SMEs in their green transition. Creating or joining a network provides business support organizations with a platform to exchange knowledge and information, good practices and experiences. It also gives clients access to more services to address their specific needs.

### Build the local ecosystem of support to SMEs.

Business support bodies can make the local ecosystem more supportive of small sustainable businesses by building the capacity of the local services sector, including climate experts, to serve SMEs.

Business support organizations can identify gaps in available services and facilitate access to foreign providers. Trade opens opportunities for domestic service providers, such as in constructing and maintaining renewable power plants. It also paves the way to train local workers, particularly for new technologies.

**Play the role of trusted intermediary.** Most SMEs require investment to green their business practices. Business support organizations can identify solutions that reduce risk, such as credit guarantee schemes for climate smart initiatives,<sup>212</sup> and help SMEs access financial services under more favourable conditions. Business support organizations can help to develop disaster risk insurance schemes for productive sectors<sup>213</sup> and to raise the awareness and capacity of member companies to use insurance.

In addition to conducting training programmes that improve creditworthiness, such as through good inventory management and bank accounts, business support organizations can act as a trusted intermediary. This allows them to encourage banks to reduce collateral requirements for their members. They can identify promising SMEs and connect them to large buyers able and willing to support their green transformation financially. Finally, business support organizations can help match climate investors and SMEs in need of climate finance, including by developing dedicated platforms.

**Train SMEs to adopt green approaches.** SMEs often lack the ability to identify environmental threats and assess adaptation options and the benefits they bring, such as increased resilience, lower costs and higher productivity, and access to markets. They also need support to understand technical requirements, standards and regulations, and how these apply to their particular circumstances. If business support organizations build such expertise proactively, or provide access to it, they can help close a critical knowledge and awareness gap.

### Governments create incentives

With appropriate incentives, policymakers can help their countries and businesses to deliver simultaneously on economic and environmental objectives. Among actions that governments can take are to:

**Embed environmental sustainability in COVID-19 recovery plans.** Governments increasingly recognize the need to boost the resilience of SMEs in a post COVID-19 world. This report has shown that sustainability can contribute to this goal. While the scope and content of recovery plans depend on the country's capabilities and must be tailored to its circumstances, governments should ensure they contain regulation that supports climate commitments.

They can provide economic incentives to adopt emission-reducing technologies, phase out support for carbon-intensive industries and use of fossil fuels<sup>214</sup> and encourage businesses to adopt nature-based solutions, such as land management that increases carbon storage.

**Coordinate internally and externally to ensure regulatory coherence.** To be effective, regulation must be coherent. Multiple and inconsistent regulation is especially costly to smaller firms. Policymakers need to ensure that legal frameworks and strategies underpinning the green recovery are consistent across agencies, sectors and administrative units. Sub-national regulation should be in line with national policies, which must fit with international commitments.

Aligning development objectives is not easy. For example, policies on whether to produce domestically or import environmental goods, services and technologies are critical to SMEs that rely on such products. Environmental activists, however, may resist cross-border movements of materials intrinsic to the circular economy, such as waste and scrap, even though these allow SMEs to exploit opportunities associated with circularity.<sup>215</sup>

Current and potential WTO rules and deep trade agreements can help to reconcile trade and climate policies so they support sustainable development and avoid protectionism disguised as environmental objectives.

**'Think small first' when designing and implementing regulation.** Governments should 'think small first' when supporting environmental aims. This means assessing how proposed regulation will affect smaller firms, and adopting mechanisms such as longer transition periods that secure benefits and mitigate losses.

Governments can be proactive to ensure that green public procurement standards become widespread, and SME-friendly. For example, they may consider options such as facilitating consortia to ensure sufficient quantity from SMEs, encouraging partnerships with investors or lead firms, ensuring green procurement allocations or providing green technical assistance to meet public procurement needs.

**Provide incentives for green finance.** Countries need frameworks, strategies and green lending policies that encourage climate-smart entrepreneurship and attract investments<sup>216</sup> – while overcoming the high lending cost to smaller firms. Policies can provide tax incentives, such as lower property taxes for green buildings and accelerated depreciation schemes.<sup>217</sup> They can also offer investment subsidies in business activities that reduce emissions, particularly geared towards SMEs.<sup>218</sup>

Policymakers can foster debt markets with climate bonds and green securitization.<sup>219</sup> They can design rules and incentives for the financial industry that promote better valuation of climate investment payoffs. Developing local financial markets is key for firms to access liquidity in local currency and reduce exposure to exchange rate risks. Policies must be transparent and predictable to reduce riskiness of investments in new technologies. For example, renewable energy subsidies need to be stable.

**Promote innovation with access to skills and technologies.** Policymakers should improve access to skills and technologies – to encourage innovation and adopt technology. Governments can invest in infrastructure to adapt to climate change and improve connectivity for SMEs, which often depend on the internet and other communication technologies.



---

Governments can promote recent technologies that provide more efficient and carbon neutral production and transport. These include artificial intelligence algorithms to optimize transport routes to reduce delivery time and CO2 emissions, or smart grid systems that cut energy losses.<sup>220</sup> The experience of Uganda's tech start-up Innovex, featured in this chapter's Business Voices, relates to such grids.

Training and advisory services spread low-carbon technologies and models, energy audits, sustainability standards and other methods to advance the green transition of SMEs. Governments can provide technical assistance to business support organizations on climate-resilient innovations, climate-proofing business infrastructure and managing disaster risks.

Offering such training online, as well as in person, helps extend its reach and scope. Although small entrepreneurs in developing countries may not have easy access to online learning and advisory services, these are particularly useful post COVID-19. Use larger bodies, such as business support organizations, to channel training and reach firms at the local level.

### Lead firms support small suppliers

Lead firms concerned with the resilience of their value chains can support small suppliers and thus strengthen the entire chain:

**Adopt a holistic risk management approach.** COVID-19 has shown that a chain is only as strong as its weakest links. If lead firms adopt a 'whole of chain' strategy to managing climate risk that integrates small suppliers, they support the sustainability of SMEs and the resilience of the entire chain.

**Harmonize or mutually recognize sustainability standards.** Lead firms should aim to define jointly, harmonize or mutually recognize sustainability standards. This will help reduce duplication and lower the cost of compliance and reporting for SMEs. Harmonization also allows SMEs to participate in multiple value chains and reduce reliance on a single buyer, which is detrimental to their resilience.

**Source from SMEs in non-traditional locations.** Entering international value chains can transform small firms. Lead firms and large buyers can build their own resilience by expanding their sourcing strategy to include SME suppliers in non-traditional locations. This is particularly beneficial if accompanied by measures to assist small suppliers to adapt to climate change in the countries it affects most, such as LDCs and small island developing States.

**Facilitate access to supply chain financing.** Lead firms can provide supply chain financing to help suppliers invest in greening their businesses. They can also promote technologies and best practices along value chains.

**Build the skills of small suppliers.** To ensure that demanding buyer requirements do not exclude SMEs, lead firms should incorporate continuous improvement in their environmentally friendly sourcing strategy. This includes diffusing technologies and best practices. It also entails providing sufficient notice and technical and financial assistance when changing standards or requirements. Lead firms also can favour solutions that are sensitive to local, climatic and economic conditions of supplier SMEs.

### International organizations prioritize small business

International organizations and development partners can accelerate SDG progress by putting a priority on small business. SME competitiveness, resilience and sustainability can be fostered by applying the following approaches:

**Mainstream environmental sustainability into development plans.** Explicitly bring environmental and climate change considerations into the design, implementation and assessment of strategies, programmes and projects across all sectors, particularly those targeting SME competitiveness. By taking such an approach, international organizations and donors can encourage their members and partners to embrace sustainability.

**Be a platform for information and best practices.** International organizations can serve as a platform for intergovernmental negotiation on environment and climate change action, and thus foster collaboration and coordination. They offer a neutral forum to share information and best practices. Their technical assistance programmes can support members to design coherent, harmonized policies, standards and regulations.

**Bring SMEs to multilateral forums.** Large firms often find a way to channel their concerns and influence policymaking. SMEs find it harder to be heard. International organizations should reinforce the channels through which SMEs participate in decision-making. They are well positioned to level the playing field for SMEs through public-private partnerships and coordination between large and small players, such as in international value chains and standard setting.

**Promote financial solutions tailored to SMEs.**

International institutions and development partners can ensure availability and accessibility of funding for the green transition, tailored to the needs of SMEs. Such assistance needs to tackle the double challenge<sup>221</sup> of high transaction costs for lending to small companies and low lender expertise on climate projects.

Specific solutions include: designing regulation, labelling and harmonized standards for financial instruments to increase transparency; providing technical assistance and funding to the local financial sector to improve screening and valuation of climate projects; filling financing gaps with investment accelerators,<sup>222</sup> impact investment initiatives and alliances, and specialist funds; and building or facilitating match-making platforms between climate investors, intermediaries and SMEs.

**Increase service offerings for SMEs.** SMEs will not be able to benefit from a green recovery if they cannot identify challenges and articulate needs. International institutions and development partners should increase their portfolio of services for SMEs to better compete, connect and change.

COVID-19 taught the world hard lessons. Without action, climate change will teach even harder ones. By acting now and placing SMEs at the core of a green transition, it is possible simultaneously to address the climate crisis and build the competitiveness and resilience of the businesses on which a large percentage of the global population depend.



**Pedro Beirute Prada**

CEO,  
Export Promotion Agency  
of Costa Rica  
(PROCOMER)

## THOUGHT LEADER

# Making exporters more competitive through environmental sustainability

**As the world rebuilds from the COVID-19 pandemic amid the growing threats brought by climate change, there is even greater urgency to ensure that all economic activity, including exporting, is environmentally sustainable.**

Costa Rica over the past 40 years has pioneered policies to protect its natural habitat. The United Nations recognized our country's efforts with the *Champions of the Earth Award* for policy leadership in 2019. The award singled out the country's drive to combat climate change, as shown by Costa Rica's plan to decarbonize its economy by 2050.

At PROCOMER, we are very much integrated into our country's sustainable development strategy. We encourage environmentally sustainable practices among SMEs, to improve their competitiveness and open new market opportunities. As questions raised by the pandemic lead many people to rethink unsustainable forms of consumption, there is growing demand for environmentally-friendly goods and services, including organic products.

SMEs that develop sustainable strategies can differentiate from others in international markets and contribute to Costa Rica's sustainability drive.

To assist SMEs to develop the needed skills and implement new approaches, PROCOMER uses a 3P strategy – People, Profit, Planet. We begin by identifying the initial level of sustainability in SMEs; follow with services that help companies transform or improve their value; and conclude by measuring the environmental impact.

### Measuring SMEs' environmental performance

We measure the environmental performance of SMEs, using a Unique Diagnosis tool. By understanding requirements, gaps and specific needs of small firms throughout the country, we obtain valuable information that helps to define our institutional services and generate business intelligence. The tool also supplies data on how our services reduce environmental gaps by region and by sector, and identifies regions with the greatest environmental gaps.

The gaps detected help PROCOMER to develop exporter training programmes. Between 2019 and 2020, we have increased the number of training sessions by 10% and the number of people trained by 68%. Moreover, the information has led us to create environmental training sessions on greenhouse emissions, environmental standards and certification, renewable energies and water management.

In addition to bolstering sustainability capacities in companies through training, we provide SMEs with advice on managing sustainability projects and offer funding for their implementation.

### **Green Growth Platform spurs change**

To help Costa Rican SMEs become more environmentally sustainable, productive and competitive, PROCOMER launched the Green Growth Platform in 2018. This aims to benefit 260 SME exporters or potential exporters over four years, representing 10% of the export sector.

Companies compete to take part in the platform, with those chosen obtaining seed capital to carry out transformative projects. These include environmental schemes to reduce water-carbon footprints, cut energy use, adopt clean energy and manage waste. The projects have cut CO2 equivalent emissions by SMEs, led to cost-reducing investments and increased exports of participating SMEs by about 31%.

For example, one women-owned small firm radically transformed its fruit cleaning and packaging, and increased exports. The firm reduced waste by 50% and water use by 97% at its packing plant. Given local water shortages and the challenge of legalizing wells, such results are critical. The company also obtained Rainforest Alliance certification, allowing it to access the European market. Exports rose 35% in one year.

Of the SMEs we support, 41% are in less developed regions and 45% are owned by women, demonstrating our commitment to inclusive development. The Green Growth Platform obtained ITC's global award in 2020 for the *Best Inclusive and Sustainable Trade Initiative* among trade promotion organizations.

### **Promoting green tech start-ups**

PROCOMER also contributes to Costa Rica's sustainability efforts by supporting start-ups in the environmental field. Our GreenTech initiative is an incubation programme for green technology start-ups with high export potential. It prioritizes start-ups that offer technological solutions with a positive ecological impact, have a viable product or service and show highly innovative business models.

The programme strengthens the entrepreneurial capacities of start-ups and accelerates their internationalization. Under it, experts provide company-specific advice on obtaining investment capital.

We at PROCOMER are convinced that export promotion bodies like ours play a key role in the drive to build back better and combat climate change.



### Ayman El Tarabishy

President and CEO,  
International Council for  
Small Business

Deputy Chair, Department  
of Management, George  
Washington School of  
Business



## THOUGHT LEADER

# SMEs and climate change: Establishing patterns of resilience

**Our collective participation in the vitality of SMEs is essential to keeping society functioning and stable.**

Accounting for two-thirds of global employment and half of global gross domestic product, small and medium-sized enterprises (SMEs) are the best indicator of economic and societal health.<sup>1</sup> Throughout the coronavirus pandemic, we have seen just how devastating it is to the global economy when an unexpected crisis shuts down businesses.<sup>2</sup>

In a world that is dominated increasingly by the effects of climate change, SMEs need more support than ever to keep economies running and citizens happy and healthy. SMEs, governments, and industry leaders alike can work together to build a resilient ecosystem through raising awareness, emphasizing proactivity over reactivity and cultivating accountability.

### Need for awareness

It is necessary for people to be aware of an issue, and accept its significance, for there to be collaborative and coordinated efforts to address it. Only 19% of SMEs have been able to work with their governments regarding climate change, according to the UN Environment Programme Finance Incentive.<sup>3</sup>

1 Albaz, A., Mansour, T., Rida, T. & Schubert, J. (2020). *Setting up small and medium-size enterprises for restart and recovery*. McKinsey & Company. <https://www.mckinsey.com/industries/public-and-social-sector/our-insights/setting-up-small-and-medium-size-enterprises-for-restart-and-recovery>.  
2 OECD. (2020). *Coronavirus (COVID-19): SME policy responses*. OECD. <https://www.oecd.org/coronavirus/policy-responses/coronavirus-covid-19-%20sme-policy-responses-04440101/>.  
3 AXA Group & UNEP. (2015). *Business Unusual: Why the climate is changing the rules for our cities and SMEs*. AXA Group and the United Nations Environment Programme Financial Initiative Principles for Sustainable Insurance Initiative.



Although global programmes such as the SME Climate Hub offer a united front against the climate emergency, participation is optional. This puts the onus on SMEs to act, even though the problem is a shared one.

Once the awareness process has started, it becomes self-perpetuating. When researchers and SME advocates successfully lobby governments to address climate change, governments can reach more SMEs. From there, SMEs can spread the word further through their local networks, increasing engagement with governments. Disseminating information leads to a more informed and active population.

### **Proactive vs. reactive**

There also must be a sharp shift in attitude regarding the climate crisis. Presently, only 26% of SMEs have adapted plans for climate change; lack of political backing and monetary support are viewed as the main obstacles.<sup>4</sup> There also is a tendency to consider climate change as an abstract concept when extreme weather conditions have yet to affect day-to-day operations. Yet if support for SMEs only comes after such daily impact, it will be much too late.

Governments can provide incentives for SMEs to be proactive in adapting to climate change, through financial support and educational resources. Financial incentives, including tax breaks and carbon offset programmes, reward entrepreneurs for their time in creating sustainable businesses. In conjunction, small business associations can support SMEs through training materials, published research and best practices for climate adaptation.

### **Accountability**

Positive results depend on ensuring accountability on the part of governments and SMEs. Just as large corporations have a board of directors to supervise their business, a dedicated oversight board on SMEs and climate change can set specific goals and carry out regular checks to monitor participation. Furthermore, designated SME representatives can act on behalf of small businesses and empower business owners to collaborate with the wider ecosystem.

Such oversight helps to encourage and steer actions of SMEs, which must prepare for climate change while struggling to keep up with day-to-day business demands, as well as of governments' balancing other urgent needs.

Action by governments and business leaders will allow SMEs to protect against the risks of climate change and will contribute to the greater good. This is no small feat – the world is increasingly complex and intertwined, with individual industries and countries requiring unique solutions to the challenges they face. Despite the constraints, it is essential that we realize our mandate to ensure a future for the next generation of SMEs and communities.

By fostering widespread awareness, protocols and accountability to address climate change and alleviate its impact on SMEs, we can free them to innovate and create solutions for local and global communities.

---

<sup>4</sup> AXA Group & UNEP (2015). *Business Unusual: Why the climate is changing the rules for our cities and SMEs*. AXA Group and the United Nations Environment Programme Financial Initiative Principles for Sustainable Insurance Initiative.



**Douglas Baguma**

Team leader, Innovex,  
Uganda

## Technology in the service of environment

**This tech start-up wants to transform the distribution of off-grid energy systems and equipment in sub-Saharan Africa. While it is often hard to make a business case for solar energy systems, the COVID-19 pandemic has highlighted their importance for health-care facilities.**

'We believe that renewable energies, and especially solar power, play an important role in the fight against climate change.

Unfortunately, entrepreneurs like us face a big problem in sub-Saharan markets. The small-scale solar system solutions we offer are not financially viable for most companies and households, as it can take up to 20 years for them to pay off. As a result, there is low demand for this technology, which makes it difficult to attract investors and keeps prices high.

But solar power offers security, given that the national power grid can be very unreliable. This is bad for businesses because power outages undermine day-to-day operations. Solar power also improves the quality of life in rural African communities that are not connected to the power grid. Health centres in these regions often are not linked to the grid, so they lack electricity to power their equipment. Access to an off-grid solar system would solve this problem.

During the COVID-19 crisis, such weaknesses in the health-care system became even more critical. To help health-care centres, solar energy investments have increased. As most of our other clients were no longer able to afford our services, this helped our business tremendously.

Joining ITC's NTF IV project allowed us to develop a resilient business model to survive the pandemic. We participated in business development training and attended major trade fairs. This exposed us to our future investors and helped us raise \$600,000 in investments.'

*The Netherlands Trust Fund IV (NTF IV) project in Uganda, funded by the Centre for the Promotion of Imports from Developing Countries, covers the export development of IT and IT enabled services. It supports tech start-ups and SMEs in going international and works with tech hubs and other institutions to develop local technology ecosystems.*



# Endnotes, References and Annexes



---

# Endnotes

---

1. (IMF, 2020).
2. (Gereffi, 2020; ITC, 2020b).
3. (ITC, 2020b).
4. On 21 April 2020 the ITC launched a worldwide online survey to assess the economic impact of COVID-19 on businesses. See Annex II for detail.
5. (Dougherty-Choux et al., 2015; Herbane, 2010; Wishart, 2018).
6. (ITC, 2020b).
7. (Falciola et al., 2021; Lund et al., 2020).
8. (ITC, 2015).
9. (ITC, 2015).
10. (Conz et al., 2017; Holling, 1973; Hynes et al., 2020a).
11. (Arriola et al., 2020; Hynes et al., 2020b).
12. (Battisti et al., 2019).
13. (Bruneau et al., 2003).
14. (Falciola et al., 2020).
15. (Deloitte, 2020; A. Rose & Krausmann, 2013).
16. (Macuzić et al., 2016).
17. (Cowling et al., 2020; Lyons et al., 2020; Pomeroy et al., 2020).
18. See Annex II for detail.
19. Governments around the world launched programmes to support SMEs during the pandemic. Measures to extend a lifeline to firms account for much of the \$11.7 trillion dedicated by governments to COVID-19 relief as of 11 September 2020. These programmes have saved many SMEs from closure, though businesses in wealthier countries have received more support from the government than those in poorer countries ITC 2020b, ITC, 2020c).
20. (Van Biesebroeck et al., 2016).
21. (Williams et al., 2017).
22. (A. Rose & Krausmann, 2013; Volpe Martincus & Carballo, 2009).
23. See Annex II for detail.
24. (Battisti et al., 2019; Lawson & Samson, 2001).
25. (Păunescu & Mátyus, 2020).
26. (Agrawal et al., 2020; ITC, 2020a).
27. (Ungerer & Portugal, 2020).
28. (Thorgren & Williams, 2020).
29. (ITC, 2019a).
30. (Pal et al., 2014).
31. See Annex II for detail.
32. (Falciola et al., 2021).
33. (Borino et al., 2020).
34. (Aghion et al., 2018).
35. (Borino et al., 2020).
36. (Hepburn et al., 2020).
37. (Gates, 2020).
38. (Henderson & Tryggestad, 2021).
39. (AXA Group & UNEP, 2015; ITC, 2019b).
40. <https://climate.nasa.gov/causes/>.
41. (Selelo et al., 2017).
42. (Kuruppu et al., 2013).
43. (Bollinger et al., 2012).
44. (Fujita et al., 2020; Khanna, 2020).
45. (World Bank, 2012).
46. (Swiss Re, 2019).
47. (Pathak & Ahmad, 2018).
48. (IPCC, 2014).
49. (Ashe, 2014; Walshe & Stancioff, 2018; M. Williams, 2014).
50. (Kulp & Strauss, 2019; Lakritz, 2019; Lu & Flavelle, 2019; Oppenheimer & Glavovic, 2019).
51. (World Bank, 2010).
52. (Bollinger et al., 2012; Kjellstrom et al., 2019; Watts et al., 2020; Woetzel et al., 2020).
53. (IPCC, 2014).
54. (Kumar et al., 2011).
55. (Gornall et al., 2010; Li et al., 2013; Ray et al., 2019).
56. (Global Commission on Adaptation, 2019).
57. (Kasterine et al., 2015).
58. (IPBES, 2019).
59. (Anderson, 2010; PwC Switzerland & WWF Switzerland, 2020).
60. (Anderson, 2010; Monnier et al., 2020).
61. (FAO, 2013).
62. (Macdonald et al., 2009; Pittock et al., 2016).
63. (Friedt, 2018; Volpe Martincus & Blyde, 2013).
64. (Cheney, 2021; Robin, 2021; United Nations Environment Programme & International Livestock Research Institute, 2020).
65. (IPBES, 2019).
66. (Cheney, 2021).
67. (ITC, 2020b).
68. (Gupta & et al., 2007; World Bank, 2020).
69. (Kasterine & Vanzetti, 2010; World Bank, 2020).
70. (Crawford & Church, 2019).
71. (UNEP, 2020).
72. <https://eciu.net/analysis/briefings/net-zero/net-zero-the-scorecard>.
73. (Bradford & Fraser, 2008; Conway, 2015; Puppim de Oliveira & Jabbour, 2017).
74. (Liu et al., 2020; WMO, 2020; WMO et al., 2020).
75. (VividEconomics, 2021).
76. (Hepburn et al., 2020).
77. (Government of Japan, 2017).
78. (Bissinger et al., 2020; Mohan, 2014).
79. (Baah et al., 2021).
80. (Feber et al., 2021; Mohd Suki, 2016; Ritter et al., 2015).
81. (The Economist, 2019; Zhu & Sarkis, 2016).
82. (UN Global Compact & Accenture, 2019).
83. (Hahn & Lülfes, 2014).
84. (Ponte, 2019; Topple et al., 2017).
85. (Lamolle et al., 2019).
86. (Lamolle et al., 2019).
87. (Lamolle et al., 2020; OECD, 2017).
88. (UNFSS, 2020).

89. (Lamolle et al., 2019).
90. See [standardsmap.org](http://standardsmap.org).
91. (Meier et al., 2020).
92. (DMCC, 2020).
93. (ITC, 2016).
94. (ITC, 2012; ITC & EUI, 2016; UNFSS, 2018).
95. (ANDE, 2019; Carol & Spalding, 2018).
96. (Ernst & Young, 2017).
97. (Eccles & Klimenko, 2019).
98. [https://www.oecd.org/officialdocuments/blicdisplaydocumentpdf/?doclanguage=en&cote=tad/pg\(2020\)1](https://www.oecd.org/officialdocuments/blicdisplaydocumentpdf/?doclanguage=en&cote=tad/pg(2020)1)
99. (Sedov & Mattison, 2017; Sommer, 2017).
100. (GIIN, 2020).
101. <https://www.europarl.europa.eu/news/en/press-room/20200615IPR81229/green-finance-parliament-adopts-criteria-for-sustainable-investments>.
102. (UNEP, 2016).
103. (ITC, 2019a).
104. (Dettling, 2014).
105. (Anbumozhi et al., 2017).
106. (Sommer, 2017).
107. (Tamminen et al., 2020).
108. (Bakker & Schuit, 2017).
109. (Yamaguchi, 2018).
110. (Shapiro, 2016).
111. (Hamwey & Ok, 2021).
112. (Hamwey & Ok, 2021).
113. (Robertson, 2012; Woetzel et al., 2020).
114. (Bekkers et al., 2018).
115. (Read, 2010; UNCTAD, 2014).
116. (Cavallo & Noy, 2010; Friedt, 2018; Sytsma, 2020).
117. (Boehm et al., 2017; Bollinger et al., 2012).
118. (Tamiotti et al., 2009).
119. (Mehling et al., 2019; Najam et al., 2007).
120. (Mehling et al., 2019; Sinner, 2002).
121. (Lamy et al., 2020; Morgan, 2020; WTO, 2020).
122. (Condon & Ignaciuk, 2013; Cosbey, 2008).
123. (Edwards-Jones et al., 2009; Kasterine & Vanzetti, 2010).
124. (Brandi et al., 2020).
125. (Raza et al., 2020).
126. (ICTSD, ed., 2018).
127. (ITC, 2012).
128. (DMCC, 2020).
129. (Bucher et al., 2014; de Melo & Solleder, 2020; World Energy Council, 2016).
130. (Steenblik et al., 2005).
131. (Kim, 2011).
132. (Tamiotti et al., 2009).
133. (UNCTAD, 2013).
134. (ITC, 2017).
135. (ITC, 2020b).
136. See chapter 1; (Baldwin & Evenett, 2020; Bonadio et al., 2020; OECD, 2020a; Reuters, 2020).
137. (Lund et al., 2020).
138. (Lund et al., 2020).
139. (Lund et al., 2020).
140. (Lund et al., 2020).
141. (Sims et al., 2014).
142. (Sims et al., 2014).
143. (Sims et al., 2014).
144. (Lamy et al., 2019; OECD, 2008).
145. (Bazan et al., 2015).
146. (IMO, 2020).
147. (Carlsson-Kanyama et al., 2002).
148. ITC firm-level survey on global trends and enterprise risks (803 responses globally, November-December 2019).
149. (Cowe, 2002).
150. (James, 2015; Koirala, 2018).
151. (Huaide & Jingrong, 2011; VividEconomics, 2006).
152. See chapter 1 of this report and (ITC, 2015) for more about ITC's competitiveness framework.
153. (OECD, 2015).
154. (Piletic, 2017).
155. (ILO, 2020).
156. (James, 2015).
157. (Stanhill, 1990).
158. (Barrowclough & Birkbeck, 2020).
159. (WEF et al., 2016).
160. (Feber et al., 2020; Humphrey, 2009).
161. (UNEP, 2021).
162. (Feber et al., 2020).
163. See [www.standardsmap.org](http://www.standardsmap.org).
164. See <http://www.ecolabelindex.com/ecolabels/?st=category,carbon> for a selection of carbon footprint certification schemes.
165. (Mohan, 2020; Trienekens, 2011).
166. (Henson et al., 2011; Volpe Martincus et al., 2010).
167. (Elder, 2021).
168. (ITC, 2021).
169. (UNEP & Tuck, 2021).
170. (Carballo et al., 2020).
171. (Deloitte, 2020).
172. (DMCC, 2020).
173. (Tuerk & Soumaré, 2021).
174. (Bazan et al., 2015).
175. (Elder et al., 2013).
176. (OECD, 2019).
177. (Romero-Hernández & Romero, 2018).
178. (Consumers, Health, Agriculture and Food Executive Agency et al., 2018).
179. (Vinogradova & Rakowski, 2018).
180. (James, 2015).
181. (UNEP & Tuck, 2021).
182. <https://www.greenclimate.fund/project/fp114>.
183. (Singh et al., 2016; Symbiotics, 2020).
184. <https://ecosummit.net/>.
185. (Lansigan, 2014; Sibiko et al., 2018; UNFCCC, 2017; World Bank, 2011).
186. (Golnaraghi, 2018).
187. (Nature Conservancy, 2020).
188. (Maccaferri et al., 2012).
189. (Pathak & Ahmad, 2018).



190. In this report, eco-innovation is defined to mean innovation to create new products, processes and services that are environmentally friendly. This is in line with the classic definition of innovation, but differs from broader definitions of eco-innovation that include reorienting business plans and operations for sustainability.
191. (Rodríguez-García et al., 2019).
192. (The Commonwealth, 2018).
193. (Agard & Schipper, 2014).
194. (Schaer, 2018).
195. (AXA Group & UNEP, 2015; Center for Climate and Energy Solutions, 2013; EBRD, 2019).
196. (N. L. Rose, 2020; The Economist, 2020; UNCTAD, 2020).
197. (Adzawla & Baumüller, 2021).
198. (Koirala, 2018).
199. (Huang et al., 2009).
200. For example, converting company land through a tree planting exercise, and selling the carbon sequestered in the trees as carbon credits, could be considered a 'greening' action as it reduces carbon in the atmosphere and earns a return to the firm. However, if that land used to be wild and hosted a variety of different bird, plant and insect species, the investment could undermine local biodiversity and, in the process, local ecosystem services such as pollination of nearby crops.
201. (Cohen-Shacham et al., 2016; Somarakis et al., 2019).
202. Only measures that yielded net financial benefits within ten years were considered under the resource efficiency and circular production interventions.
203. (McKinsey & Company, 2021).
204. (McKinsey & Company, 2020).
205. (Dougherty-Choux et al., 2015).
206. (Science for Environment Policy, 2020).
207. (Marshall, 1998).
208. (ITC, 2015).
209. Jason Clay, Executive Director of WWF's Markets Institute, email communication based on research in progress.
210. For instance, some estimates suggest that investing \$1.8 trillion globally in adaptation between 2020 and 2030 could generate \$7.1 trillion in total net benefits (Global Commission on Adaptation, 2019).
211. (P. Bakker & Elkington, 2020; Mendiluce, 2020; OECD, 2020b).
212. (Verdolini et al., 2018).
213. (UN ESCAP, 2017).
214. Several countries such as Argentina, India, Indonesia, and several MENA countries like Morocco took important steps towards reducing their energy subsidies (OECD/IEA, 2019).
215. (Yamaguchi, 2018).
216. An example is the Framework Act on Low Carbon and Green Growth of the Republic of Korea (UN ESCAP 2012).
217. India's accelerated depreciation policy for renewable energy investors, for example, allowed 100% depreciation in the first year of operation. This policy helped create the largest wind power industry among developing countries (Sud et al., 2014). The Uttar Pradesh Mini-Grid Policy offered capital grants coupled with technical assistance for mini-grid developers to speed up electrification in rural areas through renewable energy (NEDA, 2016).
218. (OECD, 2015).
219. (Dai, 2016).
220. (OECD et al., 2018).
221. (Dettling, 2014).
222. For example the Renewable Energy and Energy Efficiency Partnership (van Veldhuizen & Stewart, 2020).
223. Intergovernmental Panel on Climate Change ([https://archive.ipcc.ch/pdf/assessment-report/ar5/wg2/WGIIAR5-AnnexII\\_FINAL.pdf](https://archive.ipcc.ch/pdf/assessment-report/ar5/wg2/WGIIAR5-AnnexII_FINAL.pdf)).
224. Intergovernmental Platform on Biodiversity and Ecosystem Services (<https://ipbes.net/glossary/biodiversity/>).
225. ITC (<https://www.intracen.org/covid19/Blog/Resilience-and-recovery-for-good-Business-support-organizations-critical-actors-for-business-survival/>).
226. (Condon & Ignaciuk, 2013).
227. European Commission ([https://ec.europa.eu/clima/policies/ets\\_en](https://ec.europa.eu/clima/policies/ets_en)).
228. (Brandt et al., 2017).
229. Merriam-Webster (<https://www.merriam-webster.com/dictionary/carbon%20dioxide>).
230. Britannica (<https://www.britannica.com/technology/carbon-sequestration>).
231. Ellen MacArthur Foundation (<https://www.ellenmacarthurfoundation.org/circular-economy/concept>).
232. Intergovernmental Panel on Climate Change ([https://archive.ipcc.ch/pdf/assessment-report/ar5/wg2/WGIIAR5-AnnexII\\_FINAL.pdf](https://archive.ipcc.ch/pdf/assessment-report/ar5/wg2/WGIIAR5-AnnexII_FINAL.pdf)).
233. (IMF, 2003).
234. World Trade Organization ([https://www.wto.org/english/tratop\\_e/envir\\_e/ega\\_e.htm](https://www.wto.org/english/tratop_e/envir_e/ega_e.htm)).
235. NASA (<https://climate.nasa.gov/resources/global-warming-vs-climate-change/>).
236. United States Environmental Protection Agency (<https://www.epa.gov/ghgemissions/overview-greenhouse-gases>).
237. Intergovernmental Panel on Climate Change ([https://archive.ipcc.ch/pdf/assessment-report/ar5/wg2/WGIIAR5-AnnexII\\_FINAL.pdf](https://archive.ipcc.ch/pdf/assessment-report/ar5/wg2/WGIIAR5-AnnexII_FINAL.pdf)).
238. Intergovernmental Panel on Climate Change ([https://www.ipcc.ch/site/assets/uploads/2018/11/sr15\\_glossary.pdf](https://www.ipcc.ch/site/assets/uploads/2018/11/sr15_glossary.pdf)).
239. United Nations Framework Convention on Climate Change (<https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>).
240. Oxford University Press ([https://www.lexico.com/definition/renewable\\_energy](https://www.lexico.com/definition/renewable_energy)).
241. United Nations Development Programme (<https://www.undp.org/content/undp/en/home/sustainable-development-goals.html>).
242. Britannica (<https://www.britannica.com/science/thermal-expansion>).
243. (Kaplinsky & Morris, n.d.).
244. (Everard et al., 2020).
245. For more information on the SME Competitiveness Survey, see: <http://www.intracen.org/SMEintelligence/>
246. (Falciola et al., 2020)

---

## References

---

- Adzawla, W., & Baumüller, H. (2021). Effects of livelihood diversification on gendered climate vulnerability in Northern Ghana. *Environment, Development and Sustainability*, 23(1), 923-946. <https://doi.org/10.1007/s10668-020-00614-3>
- Agard, J., & Schipper, E. L. F. (2014). Annex II - Glossary. In The Intergovernmental Panel on Climate Change (Eds.) *IPCC Assessment report 5 Working Group 2* (pp. 1757-1776). Cambridge: Cambridge University Press; [https://archive.ipcc.ch/pdf/assessment-report/ar5/wg2/WGIIAR5-AnnexII\\_FINAL.pdf](https://archive.ipcc.ch/pdf/assessment-report/ar5/wg2/WGIIAR5-AnnexII_FINAL.pdf)
- Aghion, P., Bergeaud, A., Lequien, M., & Melitz, M. J. (2018). The Impact of Exports on Innovation: Theory and Evidence. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3171084>
- Agrawal, S., De Smet, A., Lacroix, S., & Reich, A. (2020, May 7). *To emerge stronger from the COVID-19 crisis, companies should start reskilling their workforces now* [McKinsey & Company]. <https://www.mckinsey.com/business-functions/organization/our-insights/to-emerge-stronger-from-the-covid-19-crisis-companies-should-start-reskilling-their-workforces-now>
- Anbumozhi, V., Bak, C., Ruet, J., & Verdolini, E. (2017). Innovative green-technology SMEs as an opportunity to promote financial de-risking. *G20 Insights*. [https://www.g20-insights.org/policy\\_briefs/innovative-green-technology-smes-opportunity-promote-financial-de-risking/](https://www.g20-insights.org/policy_briefs/innovative-green-technology-smes-opportunity-promote-financial-de-risking/)
- ANDE. (2019). *Climate and Environmental Action in the SGB Sector*. Aspen Network of Development Entrepreneurs. [https://cdn.ymaws.com/www.andeglobal.org/resource/resmgr/research\\_library/sgb\\_climate\\_action\\_report.pdf](https://cdn.ymaws.com/www.andeglobal.org/resource/resmgr/research_library/sgb_climate_action_report.pdf)
- Anderson, R. (2010, October 20). Nature's law: Business will pay the costs of depleting natural resources. *BBC News*. <https://www.bbc.com/news/business-11564693>
- Arriola, C., Kowalski, P., & Tongeren, F. van. (2020, November 15). Localising value chains in the post-COVID world would add to the economic losses and make domestic economies more vulnerable. *VoxEU.Org*. <https://voxeu.org/article/localising-value-chains-after-covid-would-add-economic-losses-and-make-domestic-economies-more-vulnerable>
- Ashe, J. (2014, September). Seizing the Moment. *Our Planet, UNEP, Small Island Developing States*, 12–14.
- AXA Group & UNEP (2015). *Business Unusual: Why the climate is changing the rules for our cities and SMEs*. AXA Group and the United Nations Environment Programme Financial Initiative Principles for Sustainable Insurance Initiative.
- Baah, C., Opoku-Agyeman, D., Acquah, I. S. K., Agyabeng-Mensah, Y., Afum, E., Faibil, D., & Abdoulaye, F. A. M. (2021). Examining the correlations between stakeholder pressures, green production practices, firm reputation, environmental and financial performance: Evidence from manufacturing SMEs. *Sustainable Production and Consumption*, 27, 100–114. <https://doi.org/10.1016/j.spc.2020.10.015>
- Bakker, C. A., & Schuit, C. S. C. (2017). *The Long View: Exploring Product Lifetime Extension*. Nairobi: United Nations Environment Programme.
- Bakker, P., & Elkington, J. (2020, July 13). *To build back better, we must reinvent capitalism. Here's how*. <https://www.weforum.org/agenda/2020/07/to-build-back-better-we-must-reinvent-capitalism-heres-how/>
- Baldwin, R., & Evenett, S. (Eds.). (2020). *COVID-19 and Trade Policy: Why Turning Inward Won't Work*. CEPR and VOXEU. <https://voxeu.org/content/covid-19-and-trade-policy-why-turning-inward-won-t-work>
- Barrowclough, D., & Birkbeck, C. D. (2020). *Transforming the Global Plastics Economy: The political economy and governance of plastics production and pollution* [GEG Working Paper 142]. Oxford: Global Economic Governance Programme.
- Battisti, M., Beynon, M., Pickernell, D., & Deakins, D. (2019). Surviving or thriving: The role of learning for the resilient performance of small firms. *Journal of Business Research*, 100, 38–50. <https://doi.org/10.1016/j.jbusres.2019.03.006>
- Bazan, E., Jaber, M. Y., & Zanoni, S. (2015). Supply chain models with greenhouse gases emissions, energy usage and different coordination decisions. *Applied Mathematical Modelling*, 39(17), 5131–5151. <https://doi.org/10.1016/j.apm.2015.03.044>
- Bekkers, E., Francois, J. F., & Rojas-Romagosa, H. (2018). Melting ice caps and the economic impact of opening the Northern Sea Route. *Economic Journal (London)*, 128(610), 1095–1127. <https://doi.org/10.1111/eoj.12460>
- Bissinger, K., Brandi, C., Cabrera de Leicht, S., Fiorini, M., Schleifer, P., Fernandez de Cordova, S., & Ahmed, N. (2020). *Linking Voluntary Standards to Sustainable Development Goals*. Geneva: International Trade Centre.
- Boehm, C. E., Austin, U. T., & Flaaen, A. (2017). *Input Linkages and the Transmission of Shocks: Firm-Level Evidence from the 2011 Tohoku Earthquake*. 72.
- Bollinger, K., Mewes, H., Janssen, A., & Strasser, C. (2012). *Facing the Impacts of Climate Change – Indian MSMEs and Adaptation*. New Delhi: GIZ.
- Bonadio, B., Huo, Z., Levchenko, A. A., & Pandalai-Nayar, N. (2020). Global supply chains in the pandemic. *National Bureau of Economic Research Working Paper Series*, 27224, 1-51. <https://doi.org/10.3386/w27224>
- Borino, F., Carlson, E., Rollo, V., & Solleder, O. (2020). *International firms and COVID-19: Evidence from a global survey* [ITC Working Paper WP-02-2020.E].
- Bradford, J., & Fraser, E. D. G. (2008). Local authorities, climate change and small and medium enterprises: Identifying effective policy instruments to reduce energy use and carbon emissions. *Corporate Social Responsibility and Environmental Management*, 15(3), 156–172. <https://doi.org/10.1002/csr.151>

- Brandi, C., Schwab, J., Berger, A., & Morin, J.-F. (2020). Do environmental provisions in trade agreements make exports from developing countries greener? *World Development*, 129, 104899. <https://doi.org/10.1016/j.worlddev.2020.104899>
- Brandt, M. J., Johnson, K. M., Elphinston, A. J., & Ratnayaka, D. D. (2017). Energy Use, Sustainability and Waste Treatment. In *Twort's Water Supply, 7th edition* (pp. 553-580). Oxford: Butterworth-Heinemann.
- Brauss, A., & Zotz, A.-K. (2020). *Towards climate resilient SMEs in international value chains: A practitioner's handbook*. Geneva: International Trade Centre.
- Bruneau, M., Chang, S. E., Eguchi, R. T., Lee, G. C., O'Rourke, T. D., Reinhorn, A. M., . . . von Winterfeldt, D. (2003). A framework to quantitatively assess and enhance the seismic resilience of communities. *Earthquake Spectra*, 19(4), 733–752. <https://doi.org/10.1193/1.1623497>
- Bucher, H., Drake-Brockman, J., Kasterine, A., & Sugathan, M. (2014). *Trade in Environmental Goods and Services: Opportunities and Challenges* [Technical paper]. Geneva: International Trade Centre.
- Carballo, J., Rodriguez Chatruc, M., Salas Santa, C., & Volpe Martincus, C. (2020). *Online Business Platforms and International Trade* (IDB-WP-01131; IDB Working Paper Series). Inter-American Development Bank. <https://doi.org/10.18235/0002459>
- Carlsson-Kanyama, A., Ekström, P., & Shanahan, H. (2002). Food and life cycle energy inputs: Consequences of diet and ways to increase efficiency. *Ecological Economics*, 44(2-3), 293–307. [https://doi.org/10.1016/S0921-8009\(02\)00261-6](https://doi.org/10.1016/S0921-8009(02)00261-6)
- Carol, D., & Spalding, K. (2018). *Climate Finance Playbook*. Ceres and The Rockefeller Foundation. [https://www.ceres.org/sites/default/files/Climate%20Finance%20Playbook\\_2018.pdf](https://www.ceres.org/sites/default/files/Climate%20Finance%20Playbook_2018.pdf)
- Cavallo, E. A., & Noy, I. (2010). *The Economics of Natural Disasters: A Survey* (IDB-WP-124; IDB WORKING PAPER SERIES). Inter-American Development Bank. <http://www.ssrn.com/abstract=1817217>
- Center for Climate and Energy Solutions. (2013). *Weathering the Storm: Building Business Resilience to Climate Change*. Arlington: Center for Climate and Energy Solutions.
- Cheney, C. (2021, March 4). How the pandemic is connecting environmental conservation and public health. *Devex*. <https://www.devex.com/news/sponsored/how-the-pandemic-is-connecting-environmental-conservation-and-public-health-99127>
- Cohen-Shacham, E., Walters, G., Janzen, C., & Maginnis, S. (Eds.). (2016). *Nature-based solutions to address global societal challenges*. Gland: IUCN International Union for Conservation of Nature; <https://doi.org/10.2305/IUCN.CH.2016.13.en>
- Condon, M., & Ignaciuk, A. (2013). *Border Carbon Adjustment and International Trade: A Literature Review* (OECD Trade and Environment Working Papers No. 2013/06; OECD Trade and Environment Working Papers, Vol. 2013/06). <https://doi.org/10.1787/18166881>
- Consumers, Health, Agriculture and Food Executive Agency, LE Europe., VVA Europe., IPSOS., ConPolicy., & Trinomics. (2018). *Behavioural study on consumers' engagement in the circular economy: Final report*. European Commission. <https://data.europa.eu/doi/10.2818/956512>
- Conway, E. (2015). Engaging small and medium-sized enterprises (SMEs) in the low carbon agenda. *Energy, Sustainability and Society*, 5(1), 1–9. <https://doi.org/10.1186/s13705-015-0060-x>
- Conz, E., Denicolai, S., & Zucchella, A. (2017). The resilience strategies of SMEs in mature clusters. *Journal of Enterprising Communities: People and Places in the Global Economy*, 11(1), 186–210. <https://doi.org/10.1108/JEC-02-2015-0015>
- Cosbey, A. (2008). *Border Carbon Adjustment* (p. 13). Winnipeg: International Institute for Sustainable Development; [https://www.iisd.org/system/files/publications/cph\\_trade\\_climate\\_border\\_carbon.pdf](https://www.iisd.org/system/files/publications/cph_trade_climate_border_carbon.pdf)
- Cowe, R. (2002). *Developing Value: The business case for sustainability in emerging markets*. SustainAbility, International Finance Corporation (IFC) and Ethos Institute. <https://openknowledge.worldbank.org/handle/10986/21784>
- Cowling, M., Brown, R., & Rocha, A. (2020). Did you save some cash for a rainy COVID-19 day? The crisis and SMEs. *International Small Business Journal*, 38(7), 593–604. <https://doi.org/10.1177/0266242620945102>
- Crawford, A., & Church, C. (2019, May 29). What is the business case for private investment in the NAP process? *NAP Global Network Blog*. <http://napglobalnetwork.org/2019/05/what-is-the-business-case-for-private-investment-in-the-nap-process/>
- Dai, W., Kidney, S. & Sonerud, B. (2016). Roadmap for China: Using green securitisation, tax incentives and credit enhancements to scale green bonds. *International Institute for Sustainable Development*, 16.
- de Melo, J., & Solleder, J.-M. (2020). Barriers to trade in environmental goods: How important they are and what should developing countries expect from their removal. *World Development*, 130, 104910. <https://doi.org/10.1016/j.worlddev.2020.104910>
- Deloitte. (2020). *COVID-19: Managing supply chain risk and disruption*. London: Deloitte.
- Dettling, S. (2014, January 28). *Case studies and good practices in green SME finance*. GIZ finance training, Amman.
- DMCC. (2020). *The Future of Trade: A perspective on the decade ahead*. Dubai: DMCC.
- Dougherty-Choux, L., Terpstra, P., Kammila, S., & Kurukulasuriya, P. (2015). *Adapting from the ground up: Enabling small businesses to adapt to climate change*. UN Development Programme and World Resource Institute. <https://doi.org/10.5040/9781350218826>
- EBRD. (2019). *Transition Report 2019-20: Better Governance, better economies*. European Bank for Reconstruction and Development.
- Eccles, R., & Klimenko, S. (2019). The investor revolution. *Harvard Business Review*, May-June 2019, 106-116.

- Edwards-Jones, G., Plassmann, K., York, E. H., Hounsome, B., Jones, D. L., & Milà i Canals, L. (2009). Vulnerability of exporting nations to the development of a carbon label in the United Kingdom. *Environmental Science & Policy*, 12(4), 479–490. <https://doi.org/10.1016/j.envsci.2008.10.005>
- Elder, L., Emdon, H., Fuchs, R., & Petrazzini, B. (2013). *Connecting ICTs to Development: The IDRC Experience*. Anthem Press, IDRC.
- Elder, S. (2021). Coping with COVID-19: Certification supports farmer resilience (State of Sustainability Initiatives). International Institute for Sustainable Development. <https://www.iisd.org/publications/covid-19-certification-farmer-resilience>
- Ernst & Young. (2017). *Climate change: The investment perspective* (p. 20). Ernst & Young LLP. [https://assets.ey.com/content/dam/ey-sites/ey-com/en\\_gl/topics/banking-and-capital-markets/ey-climate-change-and-investment.pdf](https://assets.ey.com/content/dam/ey-sites/ey-com/en_gl/topics/banking-and-capital-markets/ey-climate-change-and-investment.pdf)
- Everard, M., Johnston, P., Santillo, D., & Staddon, C. (2020). The role of ecosystems in mitigation and management of Covid-19 and other zoonoses. *Environmental Science & Policy*, 111, 7–17. <https://doi.org/10.1016/j.envsci.2020.05.017> PMID:32501392
- Falciola, J., Jansen, M., & Rollo, V. (2020). Defining firm competitiveness: A multidimensional framework. *World Development*, 129, 104857. <https://doi.org/10.1016/j.worlddev.2019.104857>
- Falciola, J., Mohan, S., Ramos, B., & Rollo, V. (2021). *Identifying the drivers of SME resilience: evidence from developing countries during the COVID-19 pandemic* [ITC Working Paper WP-03-2020.E].
- FAO. (2013). *Forests, food security and gender: Linkages, disparities and priorities for action* [Background paper for the International Conference on Forests for Food Security and Nutrition, FAO, Rome, 13–15 May, 2013]. UN Food and Agriculture Organization. <http://www.fao.org/forestry/37071-07fcc88f7f1162db37cfea44e99b9f1c4.pdf>
- Feber, D., Granskog, A., Lingqvist, O., & Nordigården, D. (2021). *Sustainability in packaging: Consumer views in emerging Asia*. McKinsey. <https://www.mckinsey.com/~media/McKinsey/Industries/Paper%20and%20Forest%20Products/Our%20Insights/Sustainability%20in%20packaging%20Consumer%20views%20in%20emerging%20Asia/Sustainability-in-packaging-Consumer-views-in-emerging-Asia.pdf?shouldIndex=false>
- Feber, D., Nordigården, D., Granskog, A., Ponkshe, S., & Berg, P. (2020). *The drive toward sustainability in packaging—Beyond the quick wins* (p. 12). New York: McKinsey & Company; <https://www.mckinsey.com/~media/McKinsey/Industries/Paper%20and%20Forest%20Products/Our%20Insights/The%20drive%20toward%20sustainability%20in%20packaging%20beyond%20the%20quick%20wins/The-drive-toward-sustainability-in-packaging-beyond-the-quick-wins.pdf?shouldIndex=false>
- Friedt, F. L. (2018). *Natural Disasters, Aggregate Trade Resilience and Local Disruptions: Evidence From Hurricane Katrina*. 55. <https://doi.org/10.2139/ssrn.3214242>
- Fujita, S., Moscarini, G., & Postel-Vinay, F. (2020, March 30). The labour market policy response to COVID-19 must save aggregate matching capital. *VoxEU.Org*. <https://voxeu.org/article/labour-market-policy-response-covid-19-must-save-aggregate-matching-capital>
- Gates, B. (2020, August 4). COVID-19 is awful. Climate change could be worse. *Gatesnotes.Com*. <https://www.gatesnotes.com/Energy/Climate-and-COVID-19>
- Gereffi, G. (2020). What does the COVID-19 pandemic teach us about global value chains? The case of medical supplies. *Journal of International Business Policy*, 3(3), 287–301. <https://doi.org/10.1057/s42214-020-00062-w>
- GIIN. (2020). *About IRIS+*. Global Impact Investing Network. [https://s3.amazonaws.com/giin-web-assets/iris/assets/files/IRIS\\_2-Page.pdf](https://s3.amazonaws.com/giin-web-assets/iris/assets/files/IRIS_2-Page.pdf)
- Global Commission on Adaptation. (2019). *Adapt Now: A Global Call for Leadership on Climate Resilience*. Rotterdam & Washington, DC: Global Center on Adaptation & World Resources Institute.
- Golnaraghi, M. (2018). *Climate Change and the Insurance Industry: Taking Action as Risk Managers and Investors. Perspectives from C-level executives in the insurance industry* (p. 46). Geneva: The Geneva Association for the Study of Insurance Economics; [https://www.sustainablefinance.ch/upload/cms/user/climate\\_change\\_and\\_the\\_insurance\\_industry\\_-\\_taking\\_action\\_as\\_risk\\_managers\\_and\\_investors.pdf](https://www.sustainablefinance.ch/upload/cms/user/climate_change_and_the_insurance_industry_-_taking_action_as_risk_managers_and_investors.pdf)
- Gornall, J., Betts, R., Burke, E., Clark, R., Camp, J., Willett, K., & Wiltshire, A. (2010). Implications of climate change for agricultural productivity in the early twenty-first century. *Philosophical Transactions of the Royal Society of London. Series B, Biological Sciences*, 365(1554), 2973–2989. <https://doi.org/10.1098/rstb.2010.0158> PMID:20713397
- Government of Japan. (2017). *Subsidies to support energy management in SMEs – Policies*. <https://www.iea.org/policies/7320-subsidies-to-support-energy-management-in-smes>
- Gupta, S., Tirpak, D. A., Burger, N., Gupta, J., H hne, N., Boncheva, A. I., . . . Sari, A. (2007). Policies, instruments, and co-operative arrangements. In B. Metz, . . . (Eds.), *Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge & New York: Cambridge University Press.
- Hahn, R., & Lülfs, R. (2014). Legitimizing negative aspects in GRI-oriented sustainability reporting: A qualitative analysis of corporate disclosure strategies. *Journal of Business Ethics*, 123(3), 401–420. <https://doi.org/10.1007/s10551-013-1801-4>
- Hamwey, R., & Ok, T. (2021). *Trade and Environment Review 2021: Trade-climate readiness for developing countries*. United Nations Conference on Trade and Development. <https://unctad.org/webflyer/trade-and-environment-review-2021>
- Henderson, K., & Tryggestad, C. (2021, January). *A Conversation about Climate Math: A concrete plan to limit global warming to 1.5 degrees Celsius*. | McKinsey [Interview]. <https://www.mckinsey.com/business-functions/sustainability/our-insights/climate-math-what-it-takes-to-limit-warming-to-1-point-5-degrees-c?cid=other-eml-alt-mip-mck&hdpid=f1dbd9bb-1b20-4fe3-a7aa-8c2bee2da3de&hctky=12499710&hlkid=516ef173a0594139a64c26674d0586e0>
- Henson, S., Masakure, O., & Cranfield, J. (2011). Do fresh produce exporters in Sub-Saharan Africa benefit from global GAP certification? *World Development*, 39(3), 375–386. <https://doi.org/10.1016/j.worlddev.2010.06.012>

- Hepburn, C., O'Callaghan, B., Stern, N., Stiglitz, J., & Zenghelis, D. (2020). Will COVID-19 fiscal recovery packages accelerate or retard progress on climate change? *Oxford Review of Economic Policy*, 36(Supplement\_1), S359–S381. <https://doi.org/10.1093/oxrep/graa015>
- Herbane, B. (2010). Small business research: Time for a crisis-based view. *International Small Business Journal*, 28(1), 43–64. <https://doi.org/10.1177/0266242609350804>
- Holling, C. S. (1973). Resilience and stability of ecological systems. *Annual Review of Ecology and Systematics*, 4(1), 1–23. <https://doi.org/10.1146/annurev.es.04.110173.000245>
- Huaide, W., & Jingrong, T. (2011). Low-Carbon Strategy with Chinese SMEs. *Energy Procedia*, 5, 613–618. <https://doi.org/10.1016/j.egypro.2011.03.107>
- Huang, Y.-C., Ding, H.-B., & Kao, M.-R. (2009). Salient stakeholder voices: Family business and green innovation adoption. *Journal of Management & Organization*, 15(3), 309–326. <https://doi.org/10.5172/jmo.2009.15.3.309>
- Humphrey, R. (2009, February 4). *Sustainable Packaging Initiatives Are a Viable Cost-Reduction Solution in a Downward Economy*. IndustryWeek. <https://www.industryweek.com/finance/software-systems/article/21949610/sustainable-packaging-initiatives-are-a-viable-costreduction-solution-in-a-downward-economy>
- Hynes, W., Trump, B., Love, P., & Linkov, I. (2020a). Bouncing forward: A resilience approach to dealing with COVID-19 and future systemic shocks. *Environment Systems & Decisions*, 40(2), 1–11. <https://doi.org/10.1007/s10669-020-09776-x> PMID:32837818
- Hynes, W., Linkov, I. & Trump, B. D. (2020b). Combine resilience and efficiency in post-COVID societies. *Nature*, 588(7837), 220–220. <https://doi.org/10.1038/d41586-020-03482-z>
- ICTSD, ed. (2018). *Fisheries Subsidies Rules at the WTO*. International Centre for Trade and Sustainable Development. <https://www.greengrowthknowledge.org/sites/default/files/downloads/resource/Fisheries%20Subsidies%20Rules%20at%20the%20WTO.pdf>
- ILO. (2020). *Safety and health in micro-, small and medium-sized enterprises: A collection of five case studies* (1st ed.). ILO. [https://www.ilo.org/wcmsp5/groups/public/---ed\\_dialogue/---lab\\_admin/documents/publication/wcms\\_746168.pdf](https://www.ilo.org/wcmsp5/groups/public/---ed_dialogue/---lab_admin/documents/publication/wcms_746168.pdf)
- IMF. (2003). *External debt statistics: Guide for compilers and users*. Washington DC: International Monetary Fund.
- IMF. (2020). *World Economic Outlook, October 2020: A Long and Difficult Ascent*. International Monetary Fund. <https://www.imf.org/en/Publications/WEO/Issues/2020/09/30/world-economic-outlook-october-2020>
- IMO. (2020). *Fourth IMO GHG Study: Final Report* (MEPC 75/7/15 Annex 2). International Maritime Organization. <https://safety4sea.com/wp-content/uploads/2020/08/MEPC-75-7-15-Fourth-IMO-GHG-Study-2020-Final-report-Secretariat.pdf>
- IPBES. (2019). *Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services* (p. 60). Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES). <https://ipbes.net/global-assessment>
- IPCC. (2014). *Climate Change 2014: Synthesis Report Summary for Policymakers* (Assessment Report 5). Intergovernmental Panel on Climate Change. [https://www.ipcc.ch/site/assets/uploads/2018/02/AR5\\_SYR\\_FINAL\\_SPM.pdf](https://www.ipcc.ch/site/assets/uploads/2018/02/AR5_SYR_FINAL_SPM.pdf)
- ITC. (2012). *Product carbon footprinting standards in the agri-food sector*. International Trade Centre. <http://www.intracen.org/Product-Carbon-Footprinting-Standards-in-the-Agri-Food-Sector/>
- ITC. (2015). *SME Competitiveness Outlook 2015: Compete, connect and change for inclusive growth*. International Trade Centre. <http://www.intracen.org/publication/SME-Competitiveness-Outlook-2015/>
- ITC. (2016). *SME Competitiveness Outlook 2016: Meeting the Standard for Trade*. International Trade Centre. [www.intracen.org/uploadedFiles/SMECO2016.pdf](http://www.intracen.org/uploadedFiles/SMECO2016.pdf)
- ITC. (2017). *SME Competitiveness Outlook 2017—The region: A door to global trade*. International Trade Centre. <http://www.intracen.org/uploadedFiles/intracenorg/Content/Publications/smeco17.pdf>
- ITC. (2019a). *SME Competitiveness Outlook 2019: Big money for small business—Financing the sustainable development goals*. Geneva: International Trade Centre. <https://www.intracen.org/uploadedFiles/intracenorg/Content/Publications/SMECO2019.pdf>
- ITC. (2019b). *Promoting SME Competitiveness in Botswana: A bottom-up approach to economic diversification*. International Trade Centre. <http://www.intracen.org/publication/Botswana-Competitiveness/>
- ITC. (2020a). *Promoting SME competitiveness in Benin: COVID-19: An inclusive path towards resilience*. International Trade Centre. [https://www.intracen.org/uploadedFiles/intracenorg/Content/Publications/Benin\\_SME\\_EN\\_WEB\\_v1.3.pdf](https://www.intracen.org/uploadedFiles/intracenorg/Content/Publications/Benin_SME_EN_WEB_v1.3.pdf)
- ITC. (2020b). *SME Competitiveness Outlook 2020: COVID-19: The Great Lockdown and its Impact on Small Business*. International Trade Centre. <https://www.intracen.org/SMEOutlook/>
- ITC. (2020c). *Promoting SME competitiveness in the Philippines: Compete, connect and change to build resilience to crises*. International Trade Centre. <http://www.intracen.org/publication/sME-competitiveness-Philippines>
- ITC. (2021). *Promoting SME Competitiveness in Togo: A resilient foundation for transformative growth*. Geneva: International Trade Centre.
- ITC, & EUI. (2016). *Social and Environmental Standards: Contributing to More Sustainable Value Chains*. International Trade Centre and European University Institute. <https://www.intracen.org/publication/Social-and-Environmental-Standards-Contributing-to-More-Sustainable-Value-Chains/>
- James, L. (2015). *Sustainability Footprints in SMEs: Strategy and Case Studies for Entrepreneurs and Small Business*. Hoboken: Wiley.
- Kaplan, R. S., Leonard, H. B., & Mikes, A. (2020). The Risks You Can't Foresee. *Harvard Business Review*, 98(6), 40–46.



- Kaplinsky, R., & Morris, M. (n.d.). *A HANDBOOK FOR VALUE CHAIN RESEARCH*. 113.
- Kasterine, A., Butt, A., de Beule, H., Karami-Dekens, J., Keller, M., Mebratu, S., . . . Yearwood, J. (2015). *Climate change and the agri-food trade: Perceptions of exporters in Peru and Uganda*. Geneva: International Trade Centre.
- Kasterine, A., & Vanzetti, D. (2010). The Effectiveness, Efficiency and Equity of Market Based and Voluntary Measures to Mitigate Greenhouse Gas Emissions from the Agri-Food Sector. In *UNCTAD Trade and Environment Review*. United Nations Conference on Trade and Development.
- Khanna, A. (2020). Impact of migration of labour force due to global COVID-19 pandemic with reference to India. *Journal of Health Management*, 22(2), 181–191. <https://doi.org/10.1177/0972063420935542>
- Kim, J. A. (2011). *Facilitating Trade in Services Complementary to Climate-friendly Technologies* (Issue Paper No. 15; ICTSD Global Platform on Climate Change, Trade and Sustainable Energy). International Centre for Trade and Sustainable Development. [https://doi.org/10.7215/NR\\_IP\\_20111012](https://doi.org/10.7215/NR_IP_20111012)
- Kjellstrom, T., Maitre, N., Saget, C., Otto, M., & Karimova, T. (2019). *Working on a warmer planet. The impact of heat stress on labour productivity and decent work*. ILO. [https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms\\_711919.pdf](https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_711919.pdf)
- Koirala, S. (2018). *SMEs: Key Drivers of Green and Inclusive Growth*. OECD. [https://www.oecd.org/greengrowth/GGSD\\_2018\\_SME%20Issue%20Paper\\_WEB.pdf](https://www.oecd.org/greengrowth/GGSD_2018_SME%20Issue%20Paper_WEB.pdf)
- Kulp, S. A., & Strauss, B. H. (2019). New elevation data triple estimates of global vulnerability to sea-level rise and coastal flooding. *Nature Communications*, 10(1), 4844. <https://doi.org/10.1038/s41467-019-12808-z> PMID:31664024
- Kumar, A., Schei, T., Ahenkorah, A., Rodriguez, R. C., Salvador, E., Devernay, J.-M., . . . Krug, T. (2011). Hydropower. In Edenhoger, O., . . . (Eds.), *IPCC Special Report on Renewable Energy Sources and Climate Change Mitigation* (pp. 437-496). Cambridge: Cambridge University Press.
- Kuruppu, N., Murta, J., Mukheibir, P., Chong, J., & Brennan, T. (2013). *Enhancing the adaptive capacity of small-to-medium enterprises (SMEs) to climate change and variability*. National Climate Change Adaptation Research Facility.
- Lakritz, T. (2019, September 10). *These 11 sinking cities could disappear by 2100*. World Economic Forum. <https://www.weforum.org/agenda/2019/09/11-sinking-cities-that-could-soon-be-underwater/>
- Lamolle, M., Cabrera de Leicht, S., Taimasova, R., & Russillo, A. (2019). Future Role of Voluntary Sustainability Standards: Towards Generation 3.0? In Schmidt, M., Giovannucci, D., Palekhov, D. & Hansmann, B. (Eds.), *Sustainable Global Value Chains* (pp. 265-286). Cham: Springer International Publishing; <https://www.springerprofessional.de/en/future-role-of-voluntary-sustainability-standards-towards-genera/17431374> [https://doi.org/10.1007/978-3-319-14877-9\\_15](https://doi.org/10.1007/978-3-319-14877-9_15)
- Lamolle, M., Taimasova, R., Mooser, F., & Limaye, A. (2020). Monitoring Sustainability In Complex Global Value Chains. In *Schwerpunkt Außenwirtschaft 2019/2020*. Austrian National Bank. <https://news.wko.at/news/oesterreich/Schwerpunkt-Aussenwirtschaft-2019-2020.pdf>
- Lamy, P., Pons, G., & Leturcq, P. (2019). *Greening the European Union's Trade Policy: The Economics of Trade and the Environment* [Policy Paper No. 245]. Paris: Jacques Delors Institut.
- Lamy, P., Pons, G., & Leturcq, P. (2020). *Greening EU trade 3: A European Border Carbon Adjustment proposal* [Policy Paper]. Paris: Jacques Delors Institut.
- Lansigan, F. P. (2014). *Implementation issues in weather index-based insurance for agricultural production: A Philippine Case Study*. Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA). <https://www.searca.org/pubs/briefs-notes?pid=288>
- Lawson, B., & Samson, D. (2001). Developing innovation capability in organisations: a dynamic capabilities approach. *International Journal of Innovation Management*, 05(03), 377–400. <https://doi.org/10.1142/S1363919601000427>
- Li, Y., Conway, D., Wu, Y., Gao, Q., Rothausen, S., Xiong, W., . . . Lin, E. (2013). Rural livelihoods and climate variability in Ningxia, Northwest China. *Climatic Change*, 119(3-4), 891–904. <https://doi.org/10.1007/s10584-013-0765-9>
- Liu, Z., Ciaia, P., Deng, Z., Lei, R., Davis, S. J., Feng, S., . . . Schellnhuber, H. J. (2020). Near-real-time monitoring of global CO<sub>2</sub> emissions reveals the effects of the COVID-19 pandemic. *Nature Communications*, 11(1), 5172. <https://doi.org/10.1038/s41467-020-18922-7> PMID:33057164
- Lu, D., & Flavelle, C. (2019, October 29). Rising Seas Will Erase More Cities by 2050, New Research Shows (Published 2019). *The New York Times*. <https://www.nytimes.com/interactive/2019/10/29/climate/coastal-cities-underwater.html>
- Lund, S., Manyika, J., Woetzel, J., Barriball, E., Krishnan, M., & Aliche, K. (2020). *Risk, resilience and rebalancing in global value chains*. McKinsey Global Institute. <https://www.mckinsey.com/business-functions/operations/our-insights/risk-resilience-and-rebalancing-in-global-value-chains>
- Lyons, A., Kass-Hanna, J., Liu, F., Greenlee, A., & Zeng, L. (2020). *Building Financial Resilience Through Financial and Digital Literacy in South Asia and Sub-Saharan Africa* (SSRN Scholarly Paper ID 3496562). Social Science Research Network. <https://papers.ssrn.com/abstract=3496562>
- Maccafferri, S., Cariboni, F., & Campolongo, F. (2012). *Natural Catastrophes: Risk relevance and Insurance Coverage in the EU*. European Commission Joint Research Centre. [https://ec.europa.eu/info/sites/info/files/jrc-report-on-natural-catastrophes\\_en.pdf](https://ec.europa.eu/info/sites/info/files/jrc-report-on-natural-catastrophes_en.pdf)
- Macdonald, A. M., Calow, R. C., Macdonald, D. M. J., Darling, W. G., & Dochartaigh, B. É. Ó. (2009). What impact will climate change have on rural groundwater supplies in Africa? *Hydrological Sciences Journal*, 54(4), 690–703. <https://doi.org/10.1623/hysj.54.4.690>
- Macuzić, I., Tadić, D., Aleksić, A., & Stefanović, M. (2016). A two step fuzzy model for the assessment and ranking of organizational resilience factors in the process industry. *Journal of Loss Prevention in the Process Industries*, 40, 122–130. <https://doi.org/10.1016/j.jlp.2015.12.013>



- 
- Madni, A. M., & Jackson, S. (2009). Towards a conceptual framework for resilience engineering. *IEEE Systems Journal*, 3(2), 181–191. <https://doi.org/10.1109/JSYST.2009.2017397>
- Marshall, Lord. (1998). *Economic instruments and the business use of energy*. Government of UK. <https://webarchive.nationalarchives.gov.uk/20120704144437/>, <http://www.hm-treasury.gov.uk/d/EconomicInstruments.pdf>
- McKinsey & Company (2020). *Fashion on Climate: How the fashion industry can urgently act to reduce its greenhouse gas emissions*. McKinsey & Company. <https://www.mckinsey.com/~/media/mckinsey/industries/retail/our%20insights/fashion%20on%20climate/fashion-on-climate-full-report.pdf>
- McKinsey & Company. (2021). *How companies capture the value of sustainability: Survey findings* (p. 9). McKinsey & Company. <https://www.mckinsey.com/business-functions/sustainability/our-insights/how-companies-capture-the-value-of-sustainability-survey-findings>
- Mehling, M. A., van Asselt, H., Das, K., Droege, S., & Verkuil, C. (2019). Designing border carbon adjustments for enhanced climate action. *The American Journal of International Law*, 113(3), 433–481. <https://doi.org/10.1017/ajil.2019.22>
- Meier, C., Sampson, G., Larrea, C., Schlatter, B., Voora, V., Dang, D., . . . Willer, H. (2020). *The State of Sustainable Markets 2020: Statistics and Emerging Trends*. Geneva: ITC.
- Mendiluce, M. (2020, April 3). *How to build back better after COVID-19*. <https://www.weforum.org/agenda/2020/04/how-to-build-back-better-after-covid-19/>
- Mohan, S. (2014). Rethinking governance of complex commodity systems: Evidence from the Nepali tea value chain. In Padt, F., Opdam, P., Polman, N. & Termeer, C. (Eds.) *Scale-Sensitive Governance of the Environment* (pp. 220-240). Hoboken: Wiley Blackwell. <https://www.wiley.com/en-us/Scale+Sensitive+Governance+of+the+Environment-p-9781118567159> <https://doi.org/10.1002/9781118567135.ch14>
- Mohan, S. (2020). Risk aversion and certification: Evidence from the Nepali tea fields. *World Development*, 129, 104903. <https://doi.org/10.1016/j.worlddev.2020.104903>
- Mohd Suki, N. (2016). Consumer environmental concern and green product purchase in Malaysia: Structural effects of consumption values. *Journal of Cleaner Production*, 132, 204–214. <https://doi.org/10.1016/j.jclepro.2015.09.087>
- Monnier, L., Gascuel, D., Alava, J. J., Cheung, W., Barragan, M. J., Ramirez, J., Gaibor, N., Kanstinger, P., & Niedermueller, S. (2020). *Small-Scale Fisheries in a Warming Ocean: Exploring Adaptation to Climate Change*. WWF Germany. [https://www.fishforward.eu/wp-content/uploads/2020/09/WWF\\_small-scale-fisheries-in-a-warming-ocean\\_exploring-adaptation-to-climate-change\\_FishForward\\_2020\\_EN\\_WEB.pdf](https://www.fishforward.eu/wp-content/uploads/2020/09/WWF_small-scale-fisheries-in-a-warming-ocean_exploring-adaptation-to-climate-change_FishForward_2020_EN_WEB.pdf)
- Morgan, S. (2020, November 19). Taxing times as EU mulls best way to price carbon at the border. <https://www.euractiv.com/section/energy-environment/news/taxing-times-as-eu-mulls-best-way-to-price-carbon-at-the-border/>
- Najam, A., Halle, M., & Meléndez-Ortiz, R. (Eds.). (2007). *Trade and Environment: A Resource Book*. International Institute for Sustainable Development, International Centre for Trade and Sustainable Development, The Regional and International Networking Group. [https://www.iisd.org/system/files/publications/trade\\_and\\_env.pdf](https://www.iisd.org/system/files/publications/trade_and_env.pdf)
- Nature Conservancy. (2020, December 7). *World's First Coral Reef Insurance Policy Triggered by Hurricane Delta*. The Nature Conservancy. <https://www.nature.org/en-us/newsroom/coral-reef-insurance-policy-triggered/>
- NEDA. (2016). *Uttar Pradesh Mini-Grid Policy*. UP New and Renewable Energy Development Agency. <http://upneda.org.in/policies.aspx>
- OECD. (2008). Sea fairer: Maritime transport and CO<sub>2</sub> emissions. *The OECD Observer*, 267, 58-60; [https://oecdoobserver.org/news/fullstory.php/aid/2600/Sea\\_fairer:\\_Maritime\\_transport\\_and\\_CO2\\_emissions.html](https://oecdoobserver.org/news/fullstory.php/aid/2600/Sea_fairer:_Maritime_transport_and_CO2_emissions.html)
- OECD. (2015). *Environmental Policy Toolkit for Greening SMEs in the EU Eastern Partnership countries*. Paris: Organisation for Economic Co-operation and Development.
- OECD. (2017). *Promoting sustainable global supply chains: International standards, due diligence and grievance mechanisms* [Report]. Paper presented at the 2nd Meeting of the G20 Employment Working Group. [http://www.ilo.org/global/about-the-ilo/how-the-ilo-works/multilateral-system/g20/reports/WCMS\\_559146/lang-en/index.htm](http://www.ilo.org/global/about-the-ilo/how-the-ilo-works/multilateral-system/g20/reports/WCMS_559146/lang-en/index.htm)
- OECD. (2019). *Business Models for the Circular Economy: Opportunities and Challenges for Policy*. Paris: OECD; <https://doi.org/10.1787/g2g9dd62-en>
- OECD. (2020a). *Shocks, risks and global value chains: Insights from the OECD METRO model*. Paris: OECD.
- OECD. (2020b). *Building Back Better: A Sustainable, Resilient Recovery after Covid-19* (OECD Policy Responses to Coronavirus (COVID-19)) [Policy Brief]. OECD. <http://www.oecd.org/coronavirus/policy-responses/responding-to-the-covid-19-and-pandemic-protection-gap-in-insurance-35e74736/>
- OECD, The World Bank, & United Nations Environment Programme. (2018). *Financing Climate Futures: Rethinking Infrastructure*. OECD. <https://doi.org/10.1787/9789264308114-en>
- OECD/IEA. (2019). Update on recent progress in reform of inefficient fossil-fuel subsidies that encourage wasteful consumption. 44.
- Oppenheimer, M., & Glavovic, B. (2019). Sea Level Rise and Implications for Low Lying Islands, Coasts and Communities. In *IPCC SR Ocean and Cryosphere*. Intergovernmental Panel on Climate Change. [https://report.ipcc.ch/srocc/pdf/SROCC\\_FinalDraft\\_Chapter4.pdf](https://report.ipcc.ch/srocc/pdf/SROCC_FinalDraft_Chapter4.pdf)
- Pal, R., Torstensson, H., & Mattila, H. (2014). Antecedents of organizational resilience in economic crises—An empirical study of Swedish textile and clothing SMEs. *International Journal of Production Economics*, 147, 410–428. <https://doi.org/10.1016/j.ijpe.2013.02.031>
- Pathak, S., & Ahmad, M. M. (2018). Flood risk reduction through insurance for SMEs in Pathumthani province, Thailand. *Development in Practice*, 28(2), 303–310. <https://doi.org/10.1080/09614524.2018.1425375>

- Păunescu, C., & Mátyus, E. (2020). Resilience measures to dealing with the COVID-19 pandemic Evidence from Romanian micro and small enterprises. *Challenges for the Knowledge Society*, 15(s1), 439–457. <https://doi.org/10.2478/mmcks-2020-0026>
- Piletic, P. (2017). *Expansion of Green Buildings in Small Business Sector* | *Smart Cities Dive*. <https://www.smartcitiesdive.com/ex/sustainablecitiescollective/expansion-green-buildings-small-business-sector/1295452/>
- Pittock, J., Hussey, K., & Stone, A. (2016). Groundwater Management Under Global Change: Sustaining Biodiversity, Energy and Food Supplies. In A. J. Jakeman, O. Barreteau, R. J. Hunt, J.-D. Rinaudo, & A. Ross (Eds.), *Integrated Groundwater Management: Concepts, Approaches and Challenges* (pp. 75–96). Cham: Springer International Publishing; [https://doi.org/10.1007/978-3-319-23576-9\\_4](https://doi.org/10.1007/978-3-319-23576-9_4)
- Pomeroy, R., Arango, C., Lomboy, C. G., & Box, S. (2020). Financial inclusion to build economic resilience in small-scale fisheries. *Marine Policy*, 118, 103982. <https://doi.org/10.1016/j.marpol.2020.103982>
- Ponte, S. (2019). *Business, Power and Sustainability in a World of Global Value Chains*. Zed Books.
- Puppim de Oliveira, J. A., & Jabbour, C. J. C. (2017). Environmental management, climate change, CSR, and governance in clusters of small firms in developing countries: Toward an integrated analytical framework. *Business & Society*, 56(1), 130–151. <https://doi.org/10.1177/0007650315575470>
- PwC Switzerland, & WWF Switzerland. (2020). *Nature is too big to fail – Biodiversity: The next frontier in financial risk management*. WWF and PwC. <https://www.pwc.ch/en/insights/regulation/nature-is-too-big-to-fail.html>
- Ray, D. K., West, P. C., Clark, M., Gerber, J. S., Prishchepov, A. V., & Chatterjee, S. (2019). Climate change has likely already affected global food production. *PLoS One*, 14(5), e0217148. <https://doi.org/10.1371/journal.pone.0217148> PMID:31150427
- Raza, W., Tröster, B., Wolfslehner, B., & Krajewski, M. (2020). *How can international trade contribute to sustainable forestry and the preservation of the world's forests through the Green Deal?* (p. 48). Brussels: European Parliament.
- Read, R. (2010). *Trade, Economic Vulnerability, Resilience and the Implications of Climate Change in Small Island and Littoral Developing Economies*. Geneva: International Centre for Trade and Sustainable Development. [https://doi.org/10.7215/CO\\_IP\\_20100702](https://doi.org/10.7215/CO_IP_20100702)
- Reuters. (2020, February 21). UPDATE 1-France urges business to rethink supply chains as coronavirus hits Asia. Reuters. <https://www.reuters.com/article/china-health-france-idUKL8N2AL3KZ>
- Ritter, Á. M., Borchardt, M., Vaccaro, G. L. R., Pereira, G. M., & Almeida, F. (2015). Motivations for promoting the consumption of green products in an emerging country: Exploring attitudes of Brazilian consumers. *Journal of Cleaner Production*, 106, 507–520. <https://doi.org/10.1016/j.jclepro.2014.11.066>
- Robertson, S. (2012). *A Spatial Model of Agricultural Land Use with Climate Change for the Canadian Prairies* [University of Alberta]. <https://era.library.ualberta.ca/items/e30d64b1-2e27-4db9-b867-54659c7f0936>
- Robin, M.-M. (2021). *La fabrique des pandémies: Préserver la biodiversité, un impératif pour la santé planétaire*. Paris: La Découverte.
- Rodríguez García, M., Guijarro-García, M., & Carrilero-Castillo, A. (2019). An overview of ecopreneurship, eco-innovation, and the ecological sector. *Sustainability*, 11(10), 1-16. <https://doi.org/10.3390/su11102909>
- Romero-Hernández, O., & Romero, S. (2018). Maximizing the value of waste: From waste management to the circular economy. *Thunderbird International Business Review*, 60(5), 757–764. <https://doi.org/10.1002/tie.21968>
- Rose, A., & Krausmann, E. (2013). An economic framework for the development of a resilience index for business recovery. *International Journal of Disaster Risk Reduction*, 5, 73–83. <https://doi.org/10.1016/j.ijdr.2013.08.003>
- Rose, N. L. (2020). *Will Competition Be Another COVID-19 Casualty?* 15. [https://www.brookings.edu/wp-content/uploads/2020/07/Rose\\_LO\\_FINAL.pdf](https://www.brookings.edu/wp-content/uploads/2020/07/Rose_LO_FINAL.pdf)
- Schaer, C. (2018). Editorial: Private-sector action in adaptation: Perspectives on the role of micro, small and medium size enterprises. In *Private-sector action in adaptation: Perspectives on the role of micro, small and medium size enterprises*. UNEP DTU. <http://www.unepdtu.org/PUBLICATIONS/Perspective-Series-2018>
- Schäfer, F. (2013). *Carbon Footprint ausgesuchter gartenbaulicher Kulturen im Rahmen eines Pilotprojektes zur neuen PAS 2050-1* [Rheinische Friedrich-Wilhelms-Universität Bonn]. <https://bonndoc.ulb.uni-bonn.de/xmlui/handle/20.500.11811/5834>
- Science for Environment Policy. (2020). *Eco-innovation in SMEs*. Future Brief 22. European Commission DG Environment. [https://ec.europa.eu/environment/integration/research/newsalert/pdf/eco\\_innovations\\_in\\_sme\\_FB22\\_en.pdf](https://ec.europa.eu/environment/integration/research/newsalert/pdf/eco_innovations_in_sme_FB22_en.pdf)
- Sedov, D., & Mattison, R. (2017). *Green Finance: The Next Driver of Real Growth?* [S&P Global]. <https://www.spglobal.com/en/research-insights/articles/green-finance-the-next-driver-of-real-growth>
- Selelo, L. R., Madigele, P. K., Ntaka, P., & Moetedi, K. (2017). The effects of extended water supply disruptions on the operations of SMEs. *Southern African Business Review*, 21(1), 480–500.
- Shapiro, J. S. (2016). Trade costs, CO<sub>2</sub>, and the environment. *American Economic Journal. Economic Policy*, 8(4), 220–254. <https://doi.org/10.1257/pol.20150168>
- Sibiko, K. W., Veettil, P. C., & Qaim, M. (2018). Small farmers' preferences for weather index insurance: Insights from Kenya. *Agriculture & Food Security*, 7(1), 1-14. <https://doi.org/10.1186/s40066-018-0200-6>
- Sims, R., Schaeffer, R., Creutzig, F., & et al. (2014). Transport. In *Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. IPCC. [https://www.ipcc.ch/site/assets/uploads/2018/02/ipcc\\_wg3\\_ar5\\_chapter8.pdf](https://www.ipcc.ch/site/assets/uploads/2018/02/ipcc_wg3_ar5_chapter8.pdf)
- Singh, D., Shrimali, S., & Shrimali, G. (2016). *Solar Investment Trusts (SEITs)*. Climate Policy Initiative. <https://www.climatepolicyinitiative.org/publication/solar-investment-trusts-seits/>

- Sinner, J. (2002). *Addressing Competitiveness Impacts of Climate Change Policies*. A Report to New Zealand's Ministry of Economic Development.
- Somarakis, G., Stagakis, S., & Chrysoulakis, N. (Eds.). (2019). *ThinkNature Nature-Based Solutions Handbook*. ThinkNature. [https://platform.think-nature.eu/system/files/thinknature\\_handbook\\_final\\_print\\_0.pdf](https://platform.think-nature.eu/system/files/thinknature_handbook_final_print_0.pdf)
- Sommer, T. (2017). *Greening the Financial System: Enhancing Competitiveness Through Economic Development* (p. 5). Nairobi: United Nations Environment Programme; <https://unepinquiry.org/publication/greening-the-financial-system-enhancing-competitiveness-through-economic-development/>
- Stanhill, G. (1990). The comparative productivity of organic agriculture. *Agriculture, Ecosystems & Environment*, 30(1-2), 1–26. [https://doi.org/10.1016/0167-8809\(90\)90179-H](https://doi.org/10.1016/0167-8809(90)90179-H)
- Steenblik, R., Drouet, D., & Stubbs, G. (2005). *Synergies Between Trade in Environmental Services and Trade in Environmental Goods* (OECD Trade and Environment Working Papers No. 2005/01; OECD Trade and Environment Working Papers, Vol. 2005/01). <https://doi.org/10.1787/18166881>
- Suarez, F. F., & Montes, J. S. (2020). Building Organizational Resilience. *Harvard Business Review*, 98(6), 47–52.
- Sud, T., Sharma, R., Sharma, R., India, T., & Kitson, L. (2014). *CASE STUDY India's Accelerated Depreciation Policy for Wind Energy*. 38.
- Sullivan-Taylor, B., & Branicki, L. (2011). Creating resilient SMEs: Why one size might not fit all. *International Journal of Production Research*, 49(18), 5565–5579. <https://doi.org/10.1080/00207543.2011.563837>
- Swiss Re. (2019). *Natural catastrophes and man-made disasters in 2018: Secondary perils on the front line* (Sigma No. 2/2019). <https://www.swissre.com/institute/research/sigma-research/sigma-2019-02.html>
- Symbiotics. (2020, September). *Symbiotics—Press release: Symbiotics launches USD 17.14 million (INR 1,260,000,000) Bond to finance Indian C&I Solar developer Fourth Partner Energy Limited*. <https://symbioticsgroup.com/news/press-release-symbiotics-launches-inr-1260-million-bond-to-finance-indian-ci-solar-developer-fourth-partner-energy-limited/>
- Sytsma, T. (2020). The impact of hurricanes on trade and welfare: Evidence from US port-level exports. *Economics of Disasters and Climate Change*, 4(3), 625–655. <https://doi.org/10.1007/s41885-020-00067-y>
- Tamiotti, L., Teh, R., Kulacoglu, V., Olhoff, A., Simmons, B., & Hussein Abaza. (2009). *Trade and Climate Change: A WTO-UNEP report*. World Trade Organization and United Nations Environment Programme. [https://www.wto.org/english/res\\_e/booksp\\_e/trade\\_climate\\_change\\_e.pdf](https://www.wto.org/english/res_e/booksp_e/trade_climate_change_e.pdf)
- Tamminen, S., Sell, M., Forslund, T., Tipping, A., Soprana, M., & Bellmann, C. (2020). *Trading Services for a Circular Economy* (p. 87). The Finnish Innovation Fund Sitra & International Institute for Sustainable Development.
- The Commonwealth. (2018). *Youth Entrepreneurship for the Green and Blue Economy*. The Commonwealth. [https://thecommonwealth.org/sites/default/files/inline/EYSSD\\_YTH\\_Youth\\_Entrepreneurship\\_Informal\\_Toolkit\\_0.pdf](https://thecommonwealth.org/sites/default/files/inline/EYSSD_YTH_Youth_Entrepreneurship_Informal_Toolkit_0.pdf)
- The Economist. (2019, December 12). Green with shame. *The Economist*. <https://www.economist.com/business/2019/12/12/green-with-shame>
- The Economist. (2020). *Survival of the fittest: Could the pandemic leave markets more concentrated?* <https://www.economist.com/special-report/2020/10/08/survival-of-the-fittest>
- Thorgren, S., & Williams, T. A. (2020). Staying alive during an unfolding crisis: How SMEs ward off impending disaster. *Journal of Business Venturing Insights*, 14, e00187. <https://doi.org/10.1016/j.jbvi.2020.e00187>
- Topple, C., Donovan, J. D., Masli, E. K., & Borgert, T. (2017). Corporate sustainability assessments: MNE engagement with sustainable development and the SDGs. *Transnational Corporations*, 24(3), 61–71. <https://doi.org/10.18356/2ae5911c-en>
- Torres, A. P., Marshall, M. I., & Sydnor, S. (2019). Does social capital pay off? The case of small business resilience after Hurricane Katrina. *Journal of Contingencies and Crisis Management*, 27(2), 168–181. <https://doi.org/10.1111/1468-5973.12248>
- Trienekens, J. H. (2011). Agricultural value chains in developing countries: A framework for analysis. *The International Food and Agribusiness Management Review*, 14(2), 51–82.
- Tuerk, E., & Soumaré, M. (2021). Harnessing the Power of Digitalization for Trade and the Environment. *Trade and Sustainability Review*, 1(2), 16–22.
- UNDRR. (2020). *Reducing Risk & Building Resilience of SMEs to Disasters*. UN Office for Disaster Risk Reduction. <https://www.undrr.org/publication/resilience-smes>
- UN ESCAP (Ed.). (2012). *Low carbon green growth roadmap for asia and the pacific: Turning resource constraints and the climate crisis into economic growth opportunities*. Bangkok: United Nations Economic and Social Commission for Asia and the Pacific.
- UN ESCAP. (2017). *Disaster risk transfer mechanisms: Issues and considerations for the Asia-Pacific region*. 13.
- UN Global Compact, & Accenture. (2019). *The Decade to Deliver: A Call to Business Action* [2019 CEO Study on Sustainability]. UN Global Compact. <https://www.unglobalcompact.org/library/5715>
- UNCTAD. (2013). *World Investment Report 2013: Global Value Chains - Investment and Trade for Development*. United Nations Conference on Trade and Development. <https://doi.org/10.18356/a3836fcc-en>
- UNCTAD. (2014). *Small island developing States: Challenges in transport and trade logistics*. Trade and Development Board, UNCTAD.
- UNCTAD. (2020). *Impact of the COVID-19 Pandemic on Trade and Development*. United Nations Conference on Trade and Development. [https://unctad.org/system/files/official-document/osg2020d1\\_en.pdf](https://unctad.org/system/files/official-document/osg2020d1_en.pdf)

- UNEP. (2016). *Green Finance for Developing Countries: Needs, Concerns and Innovations* (p. 48). Nairobi: UN Environment Programme.
- UNEP. (2020). *Emissions Gap Report 2020*. UN Environment Programme. <https://www.unenvironment.org/emissions-gap-report-2020>
- UNEP. (2021). *Addressing Single-use Plastic Products Pollution Using a Life Cycle Approach*. UN Environment Programme. [https://www.lifecycleinitiative.org/wp-content/uploads/2021/02/Addressing-SUP-Products-using-LCA\\_UNEP-2021\\_FINAL-Report-sml.pdf](https://www.lifecycleinitiative.org/wp-content/uploads/2021/02/Addressing-SUP-Products-using-LCA_UNEP-2021_FINAL-Report-sml.pdf)
- UNEP, & Tuck, K. (2021). *The business case for eco-innovation*. United Nations Environment Programme. <http://unep.ecoinnovation.org/wp-content/uploads/2021/02/UNEP-Business-Case-for-Eco-innovation.pdf>
- UNFCCC. (2017). *Advancing the engagement of the private sector in adaptation. Initial draft report of a literature review undertaken by the secretariat*. (UNFCCC Adaptation Committee AC/2017/17/Add.1). United Nations Framework Convention on Climate Change.
- UNFSS. (2018). *Voluntary Sustainability Standards, Trade and Sustainable Development*. United Nations Forum on Sustainability Standards. <https://unfss.org/wp-content/uploads/2018/09/UNFSS-3rd-Flagship-Report-FINAL-for-upload.pdf>
- UNFSS. (2020). *Scaling up Voluntary Sustainability Standards through Sustainable Public Procurement and Trade Policy*. United Nations Forum on Sustainability Standards. [https://unfss.org/wp-content/uploads/2020/10/UNFSS-4th-Report\\_revised\\_12Oct2020.pdf](https://unfss.org/wp-content/uploads/2020/10/UNFSS-4th-Report_revised_12Oct2020.pdf)
- Ungerer, C., & Portugal, A. (2020, April 27). Leveraging e-commerce in the fight against COVID-19. *Brookings*. <https://www.brookings.edu/blog/future-development/2020/04/27/leveraging-e-commerce-in-the-fight-against-covid-19/>
- Van Biesebeek, J., Konings, J., & Volpe Martincus, C. (2016). Did export promotion help firms weather the crisis? *Economic Policy*, 31(88), 653–702. <https://doi.org/10.1093/epolic/eiw014>
- van der Vegt, G. S., Essens, P., Wahlström, M., & George, G. (2015). Managing risk and resilience. *Academy of Management Journal*, 58(4), 971–980. <https://doi.org/10.5465/amj.2015.4004>
- van Veldhuizen, M., & Stewart, E. (2020). *REEEP Annual Report 2020*. [https://www.reeep.org/sites/default/files/REEEP%20Annual%20Report%202020%20pages\\_0.pdf](https://www.reeep.org/sites/default/files/REEEP%20Annual%20Report%202020%20pages_0.pdf)
- Verdolini, E., Bak, C., Ruet, J., & Venkatachalam, A. (2018). Innovative green-technology SMEs as an opportunity to promote financial de-risking. *Economics: The Open-Access E-Journal*, 12(2018-14), 1-12; <https://doi.org/10.5018/economics-ejournal.ja.2018-14>
- Vinogradova, A., & Rakowski, D. (2018). *Keeping Customer Connections*. Cowes: Ellen MacArthur Foundation.
- VividEconomics. (2006). *The business opportunities for SMEs in tackling the causes of climate change*. VividEconomics. <https://www.vivideconomics.com/wp-content/uploads/2019/05/SMEs.pdf>
- VividEconomics. (2021). *Greenness of Stimulus Index*. VividEconomics. <https://www.vivideconomics.com/wp-content/uploads/2021/02/Greenness-of-Stimulus-Index-5th-Edition-FINAL-VERSION-09.02.21.pdf>
- Volpe Martincus, C., & Blyde, J. (2013). Shaky roads and trembling exports: Assessing the trade effects of domestic infrastructure using a natural experiment. *Journal of International Economics*, 90(1), 148–161. <https://doi.org/10.1016/j.jinteco.2012.11.001>
- Volpe Martincus, C., & Carballo, J. (2009). *Survival of New Exporters in Developing Countries: Does it Matter how they Diversify?* (IDB-WP-140; IDB Working Paper Series). Inter-American Development Bank.
- Volpe Martincus, C., Castresana, S., & Castagnino, T. (2010). ISO Standards: A certificate to expand exports? Firm-level evidence from Argentina. *Review of International Economics*, 18(5), 896–912. <https://doi.org/10.1111/j.1467-9396.2010.00915.x>
- Walshe, R. A., & Stancioff, C. E. (2018). Small island perspectives on climate change. *Island Studies Journal*, 13(1), 13–24. <https://doi.org/10.24043/isj.56>
- Watts, N., Amann, M., Arnell, N., Ayeb-Karlsson, S., Beagley, J., Belesova, K., Costello, A. (2020). The 2020 report of The Lancet Countdown on health and climate change: Responding to converging crises. *Lancet (London, England)*, 397(10269), 129–170. PMID:33278353
- WEF. (2013). *Global Risks 2013: Eighth Edition*. World Economic Forum.
- WEF, Ellen Macarthur Foundation, & McKinsey & Co. (2016). *A New Plastics Economy: Rethinking the Future of Plastics*. Ellen Macarthur Foundation.
- Weick, K. E., & Sutcliffe, K. M. (2007). *Managing the unexpected: Resilient performance in an age of uncertainty*. Hoboken: Wiley.
- Williams, M. (2014, September). From Apia to Paris. *Our Planet, UNEP Small Island Developing States*, 36–39.
- Williams, T. A., Gruber, D. A., Sutcliffe, K. M., Shepherd, D. A., & Zhao, E. Y. (2017). Organizational response to adversity: Fusing crisis management and resilience research streams. *The Academy of Management Annals*, 11(2), 733–769. <https://doi.org/10.5465/annals.2015.0134>
- Wishart, M. (2018). *Business resilience in an SME context: A literature review*. Coventry: Enterprise Research Centre, Warwick Business School.
- WMO. (2020, November 20). *Carbon dioxide levels continue at record levels, despite COVID-19 lockdown*. World Meteorological Organization. <https://public.wmo.int/en/media/press-release/carbon-dioxide-levels-continue-record-levels-despite-covid-19-lockdown>
- WMO, UNEP, IPCC, UNESCO-IOC, Global Carbon Project, & Met Office. (2020). *United in Science 2020*. World Meteorological Organization. [https://public.wmo.int/en/resources/united\\_in\\_science](https://public.wmo.int/en/resources/united_in_science)

---

Woetzel, J., Pinner, D., Samandari, H., Engel, H., Krishnan, M., Boland, B., & Powis, C. (2020). *Climate risk and response: Physical hazards and socioeconomic impacts*. McKinsey Global Institute. <https://www.mckinsey.com/business-functions/sustainability/our-insights/climate-risk-and-response-physical-hazards-and-socioeconomic-impacts>

World Bank. (2010, April 6). *Climate Change in the Maldives*. World Bank; <https://www.worldbank.org/en/news/feature/2010/04/06/climate-change-in-the-maldives>

World Bank. (2011). *Weather Index Insurance for Agriculture*. Washington, DC: World Bank; <https://doi.org/10.1596/26889>

World Bank. (2012). *Thailand Flooding 2554 Rapid Assessment for Resilient Recovery and Reconstruction Planning*. Bangkok & Washington, DC: Ministry of Finance, Royal Thai Government and The World Bank.

World Bank. (2020). *State and Trends of Carbon Pricing 2020*. World Bank. <https://openknowledge.worldbank.org/bitstream/handle/10986/33809/9781464815867.pdf?sequence=4&isAllowed=y>

World Energy Council. (2016). *Non-tariff measures: Next steps for catalysing the low-carbon economy*. World Energy Council. [https://www.worldenergy.org/assets/downloads/Full-report\\_\\_Non-tariff-measures\\_next-steps-for-catalysing-the-low-carbon-economy.pdf](https://www.worldenergy.org/assets/downloads/Full-report__Non-tariff-measures_next-steps-for-catalysing-the-low-carbon-economy.pdf)

WTO. (2020, November). *Future WTO environment work in the spotlight, as members report on two new initiatives*. [https://www.wto.org/english/news\\_e/news20\\_e/envir\\_20nov20\\_e.htm](https://www.wto.org/english/news_e/news20_e/envir_20nov20_e.htm)

Yamaguchi, S. (2018). *International Trade and the Transition to a More Resource Efficient and Circular Economy: A Concept Paper* (OECD Trade and Environment Working Papers No. 2018/03; OECD Trade and Environment Working Papers, Vol. 2018/03). OECD Publishing. <https://doi.org/10.1787/18166881>

Zhu, Q., & Sarkis, J. (2016). Green marketing and consumerism as social change in China: Analyzing the literature. *International Journal of Production Economics*, 181, 289–302. <https://doi.org/10.1016/j.ijpe.2016.06.006>



# Annex I: Glossary

<b>Amortization</b>	Gradual repayment or writing off the cost or value.
<b>Adaptation</b>	The process of adjustment to actual or expected effects of climate change. Adaptation activities seek to minimize the risk of harm or take advantage of opportunities arising from climate change. <sup>223</sup>
<b>2030 Agenda for Sustainable Development</b>	A plan of action adopted by 193 countries in 2015 to eradicate poverty and achieve sustainable development by 2030. At its heart are the Sustainable Development Goals (SDGs), 17 interconnected objectives in areas such as poverty, education, health, job opportunities, climate change and the environment. The United Nations supports a programme which measures progress in achieving the 169 targets associated with the SDGs and in the process tracks action required to achieve the vision set out in Agenda 2030.
<b>Biodiversity</b>	The variability among living organisms from all sources including terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part. <sup>224</sup>
<b>Business support organization</b>	An institution created by governmental or non-governmental actors to promote enterprise success. Usually of a non-profit nature, BSOs promote the interests of businesses they represent in relevant forums with a view to establishing policies and procedures that support the growth of firms. Many of them also provide business services such as technical assistance, training and coordination. Examples of BSOs are chambers of commerce, sector associations, trade promotion organizations and investment promotion agencies. <sup>225</sup>
<b>Border carbon adjustments</b>	Climate legislation levying a border tax or requiring importers to surrender a quantity of carbon permits to prevent carbon leakage – a situation where domestic climate policies result in increased emissions elsewhere in the world. <sup>226</sup>
<b>Business continuity</b>	The regular and uninterrupted functioning of business operations and core functions.
<b>Cap-and-trade scheme</b>	A system designed to lower greenhouse gas emissions, where a regulatory body decides on the limit to these emissions. Companies receive or buy emission allowances that they can then trade with one another. <sup>227</sup>
<b>Carbon accounting</b>	A means of measuring the direct and indirect emissions to the Earth's biosphere of carbon dioxide and its equivalent gasses from industrial activities. <sup>228</sup>
<b>Carbon dioxide</b>	A colourless, odourless greenhouse gas which is generated by the burning of hydrocarbon fuels, burning of plant matter such as wood, and other natural processes. <sup>229</sup>
<b>Carbon footprint</b>	The quantity of carbon dioxide and other greenhouse gasses emitted by an individual, company, organization, event, product or service, over a given time period, such as a product's full life cycle or a company's annual operations.
<b>Carbon leakage</b>	See border carbon adjustments.
<b>Carbon tax</b>	A fee charged on sources of energy and production processes which emit carbon dioxide (and often other greenhouse gasses, calculated in terms of CO <sub>2</sub> equivalent) into the atmosphere and thereby worsen global warming.
<b>Carbon storage</b>	The long-term storing of carbon in plants, soils, geologic formations and the ocean. Also called carbon sequestration. <sup>230</sup>
<b>Cash flow</b>	Payments into or out of a business, project, or financial product. An enterprises' management of its cash flow ensures that there is cash on hand to pay operating costs and maintain assets.
<b>Circular Production</b>	A restorative and regenerative economic system that aims to create a closed-loop system of material use by reusing and recycling already existing resources, and repairing, refurbishing and sharing products. This process decouples economic activity and the concept of growth from the linear throughput model of resource consumption. It builds economic, social and natural capital. <sup>231</sup>
<b>Climate Change</b>	A long-term change in average weather patterns. Shifts in the mean and variability of temperature, precipitation and other measures can be the result of natural environmental processes or human activities. Significant alterations in climate since the industrial revolution are largely attributed to human activities ('anthropogenic') such as land use changes and the emissions of gasses that affect the composition of the Earth's atmosphere. Burning of fossil fuels, deforestation and other human activities have emitted carbon dioxide, methane, nitrous oxide and other gasses that remain in the Earth's atmosphere, trapping the sun's rays and warming the Earth's surface temperature higher than historic levels. <sup>232</sup> This leads to large-scale shifts in weather patterns.
<b>Concessional loan</b>	Loans that are extended on terms substantially more generous than market loans. The concessionality is achieved either through interest rates below those available on the market or by grace periods, or a combination of both. <sup>233</sup>



---

<b>Competitiveness</b>	Competitiveness is the demonstrated ability to design, produce and commercialize an offer that fully, uniquely and continuously fulfils the needs of targeted market segments, while connecting with and drawing resources from the business environment, and achieving a sustainable return on the resources employed.
<b>Debt</b>	Funds borrowed by a company through loans or other financial instruments that the company promises to repay.
<b>Eco-innovation</b>	The process of creating new products, processes and services that are aimed at reducing the environmental impact of human activities.
<b>Ecosystem (natural)</b>	A community of living organisms that live together in a specific geographic area where they interact with one another and with non-living things. Plants, animals and bacteria cooperate and compete in forest, marine, dryland and other ecosystems in interdependent systems that enable their survival, growth and decay.
<b>Ecosystem (business)</b>	The context external to enterprises that influences their competitiveness at the meso-level, closer than national or international policies. The availability of skilled workers, local infrastructure, access to finance, business support organizations, and the nature and extent of cooperation with other businesses in their sector and value chain are important elements in the business ecosystem.
<b>Ecopreneurship</b>	The creation and management of new businesses focused on the production, marketing and use of environmental goods and services.
<b>Energy efficiency</b>	Using fewer energy inputs (in the form of fossil fuels, electricity, steam or heat) to attain the same amount of useful output. Methods to improve energy efficiency lower the amount of energy feedstocks used by households and businesses, and in so doing reduce costs, and the emission of greenhouse gasses associated with energy use.
<b>Environmental goods</b>	Products that can help achieve environmental goals such as climate change mitigation, for example by generating clean and renewable energy, improving energy and resource efficiency, controlling air pollution, managing waste, treating waste water, monitoring the quality of the environment, and combatting noise pollution. <sup>234</sup>
<b>Equity (finance)</b>	Funds obtained by a company through the sale of shares in the future profits earned by the firm.
<b>Exposure to climate change</b>	The degree to which an enterprise's assets, operations and processes stand to be affected by climate change-induced alterations to the mean and variation in temperature, precipitation, storms and other weather-related metrics. Often also expanded to include exposure to the impacts of policies to address climate change.
<b>Fossil fuel feedstock</b>	Raw materials such as petroleum, coal and natural gas that were formed in the geological past from the remains of living organisms and are used as an energy source.
<b>Global warming</b>	The long-term heating of Earth's atmosphere, surface and oceans incited by the greenhouse effect. Human activities that emit carbon dioxide, methane and other gasses that remain in the Earth's atmosphere trap heat in the Earth's atmosphere, leading to increases in global surface temperatures. <sup>235</sup> Global warming, and the large-scale shifts in weather patterns it produces, comprise climate change.
<b>Greenhouse gasses</b>	Gasses whose release into the atmosphere contributes to global warming and climate change because they absorb infrared light and thereby incite increased global surface temperatures. Examples include carbon dioxide, methane and nitrous oxide.
<b>Green energy transition</b>	A process under which fossil fuels are replaced by renewable energy sources for energy generation.
<b>Industry 4.0</b>	The transformation of how products are made through the automation and the use of smart machines and cloud computing that connect data to physical systems. Also referred to as the Fourth Industrial Revolution, this combination of traditional computing with digital, big data and robotic technologies is leading to far-reaching changes in how manufacturing industries operate.
<b>Intergovernmental Panel on Climate Change</b>	The United Nations body tasked with assessing the science related to climate change. The IPCC provides regular assessments of the scientific basis of climate change, its impacts and future risks, and options for adaptation and mitigation.
<b>Inventory</b>	The inputs and outputs that a business holds in stock for production use and sales. Inventory management is the process by which a company assesses how many production inputs they have in stock, whether that stock is sufficient for production processes, acquires more inputs to replace shortfalls, and maintains sufficient stocks of firm output for sales to satisfy consumer purchase requests.
<b>Liquidity</b>	The extent to which a business has cash, and assets that can be readily converted into cash, on hand and available to finance ongoing enterprise needs.
<b>Market share</b>	The percentage of total sales in an industry that are generated by a specific company or country.
<b>Methane</b>	A powerful greenhouse gas emitted during the extraction and processing of coal, natural gas and oil, as well as by agricultural activities, such as livestock rearing, rice growing and land conversion, and the decay of organic waste in landfills. <sup>236</sup>
<b>Mitigation</b>	Actions taken to lessen the risk posed by climate change by reducing greenhouse gas emissions. Mitigation efforts either reduce the sources (e.g. fossil fuel burning) or enhance the sinks (e.g. forests) of greenhouse gasses, lowering their concentration in the atmosphere and thereby reducing the future extent of global warming. <sup>237</sup>

---

---

<b>Natural resources</b>	Renewable or non-renewable stocks of capital endowed naturally to planet earth. Renewable natural resources, such as timber in forests and fish stocks can re-create themselves over time. Non-renewable natural resources such as fossil fuels do not re-generate in human timescales, and can no longer be accessed once a stock is exhausted.
<b>Nature-based solutions</b>	The strategic conservation and use of plants, animals and other natural resources to adapt to and mitigate climate change. Strategies build upon an understanding of ecosystem functioning and the planet's own dynamic systems for balancing climate to address specific climate issues. For example, planting mangrove trees in coastal regions can reduce flooding.
<b>Net-zero emissions</b>	The result of balancing emissions of greenhouse gasses to the atmosphere with the removal of greenhouse gasses from the atmosphere as a result of deliberate human activities. <sup>238</sup>
<b>Nearshoring</b>	The practice of moving business operations to an adjacent country, especially in preference to a more distant one.
<b>Onshoring</b>	The practice of transferring a business operation that was moved overseas back to the country from which it was originally relocated.
<b>Paris Agreement</b>	Global climate change treaty adopted at the 21 <sup>st</sup> Conference of the Parties to the UN Framework Convention on Climate Change, held in Paris in 2015, to which 191 countries are party. It sets out a framework within which each country is required to declare its own emission targets, and thus their contribution to fighting global warming, as well as adaptation actions, through so-called nationally determined contributions (NDCs). The treaty also provides a framework for financial, technical and capacity building support for countries that need it. The Treaty aims to limit global average temperature increase to well below 2°C warming compared to pre-industrial levels, with efforts to limit it to 1.5°C. <sup>239</sup>
<b>Productivity</b>	How efficiently production inputs, such as labour and capital, are being transformed into outputs. It can be measured as how much output is made per unit of inputs.
<b>Renewable energy</b>	Energy from a source that is not depleted when used, such as wind or solar power. <sup>240</sup>
<b>Resilience</b>	Resilience is the capacity and practice of withstanding disruption. It is the ability to absorb shocks and react to new conditions through the development of situation-specific responses.
<b>Small and medium-size enterprise</b>	Companies with fewer than 100 employees. The term 'SME' thus includes micro-sized firms, understood as those with fewer than five employees. It also covers small companies with 5–19 employees and medium-sized ones with 20–99 employees.
<b>Subsidies</b>	Government payments to support activities believed to be important for the country's culture, history, values, economy or political structure, but that would otherwise either not take place or be severely compromised.
<b>Sustainable development goals</b>	The 17 overarching objectives prioritized by the international community through the adoption of the 2030 Agenda for Sustainable Development. They highlight the most important global issues that need to be addressed in order to eradicate poverty, protect the planet and ensure that all people enjoy peace and prosperity by 2030. <sup>241</sup>
<b>Supply chain</b>	The set of actors external to an enterprise that provide important inputs into each phase of an enterprises' functioning, including its product development, operations, distribution, finance, marketing and customer service. An enterprise's supply chain spans firms that source and procure inputs to suppliers of intermediate outputs, transport and logistics agencies, and export-import agents.
<b>Tariff</b>	Customs duties on merchandise imports.
<b>Thermal expansion</b>	The general increase in the volume of a material as its temperature is increased. <sup>242</sup>
<b>United Nations Framework Convention on Climate Change</b>	Multilateral environmental agreement, ratified by 197 countries, which entered into force in 1994 with the objective of stabilizing greenhouse gas concentrations in the atmosphere at a level preventing dangerous human interference with the climate system. It is the parent treaty, and was the negotiating forum, for the 1997 Kyoto Protocol and the 2015 Paris Agreement.
<b>Value chain</b>	The full range of activities required to bring a product or service from conception, through the different phases of production, delivery to final consumers, and final disposal after use. <sup>243</sup>
<b>Voluntary Sustainability Standards</b>	Sets of rules that specify the production processes required to attain environmental, economic and/or social objectives. They are developed at local, national or international levels by organizations from the public and private sectors as well as non-governmental organizations. Particularly prevalent in the agricultural sector, these standards sometimes cover a single product or a whole sector, but some of them can be applied in any context.
<b>Vulnerability</b>	The degree to which an entity such as a business is susceptible to being strongly affected by crisis. A businesses' vulnerability is a function of the severity of the crisis, the degree to which the business is exposed to its impacts, its sensitivity to harm, and its capacity to adapt to the new situation.
<b>Zoonotic disease</b>	An illness that originated in an animal but has spread to humans. Ebola, HIV-AIDS and COVID-19 are examples of zoonotic diseases. <sup>244</sup>

---

---

## Annex II: Methodology note and data sources

---

This annex provides details for all figures and calculations in the report. It includes definitions, sampling, econometric and statistical methods, and data sources. Additional detail can be requested by email to the ITC Research team at [SMEcompetitiveness@intracen.org](mailto:SMEcompetitiveness@intracen.org).

### Definitions

---

#### Micro, small and medium-sized enterprises

There is no internationally harmonized definition of micro, small and medium-sized enterprises. For feasibility and comparability reasons, this report classifies companies based on the number of full-time employees:

- Micro: 0 to 4 employees
- Small: 5 to 19 employees
- Medium: 20 to 99 employees
- Large: 100 or more employees.

SMEs are therefore companies with less than 100 employees. Micro firms are implicitly included in the definition.

#### Sectors

This report classifies companies in sectors based on the International Standard Industrial Classification of all Economic Activities (ISIC), Revision 4:

- The primary sector includes agriculture, forestry, fishing, mining, and quarrying (ISIC divisions 01-09);
- The manufacturing sector includes all activities related to the transformation of raw materials into products (ISIC divisions 10 and 33);
- The services sector includes wholesale and retail trade, transportation and storage, accommodation and food service activities, information and communication, financial and insurance activities, real estate activities, and other services (ISIC divisions 35-99).

#### Women-led enterprises

Women-led firms are defined as those managed by a woman and at least 30% owned by women. Otherwise, firms are defined as men-led.

#### Youth-led enterprises

Youth-led firms are defined as being run by a top manager under the age of 35. Otherwise, firms are defined as non-youth-led.

#### Exporters

Exporters include firms that export regularly and firms that export in an irregular and intermittent manner.

#### Internationally-trading firms

Internationally-trading firms are companies that operate internationally either through imports, exports or both.

## ITC COVID-19 Business Impact Survey

### Content and sample

The ITC COVID-19 Business Impact Survey is a global online survey aimed at assessing the economic impact of the pandemic on businesses. It contains data on 13,884 companies in 138 countries, collected between April and August 2020.

The analysis in this report is based on a subsample of 4,694 firms in 136 countries. The sample is well spread across regions (Africa, Americas, Asia, Europe and Oceania), sectors (agriculture, manufacturing and

services) and size (micro, small, medium and large). It includes both internationally- trading and domestic firms. The sample is not representative in all countries and response rates vary across countries and sectors (Table A1).

The survey includes questions about firm characteristics such as size, sector and trade status, as well as age and gender of the manager. It also includes questions about the effects of the COVID-19 restrictions, and the coping mechanisms adopted by companies (Table A2).

**TABLE A.1.** Sample size of ITC COVID-19 Business Impact Survey, by country

Country	Number of respondents	Country	Number of respondents	Country	Number of respondents
Afghanistan	5	Georgia	2	Pakistan	439
Albania	4	Germany	7	State of Palestine	38
Algeria	7	Ghana	27	Panama	8
Angola	1	Greece	2	Paraguay	1
Anguilla	1	Guatemala	17	Peru	68
Argentina	7	Guinea	43	Philippines	495
Armenia	1	Haiti	1	Poland	4
Australia	10	Honduras	5	Portugal	6
Austria	1	Hong Kong SAR	1	Qatar	2
Azerbaijan	3	Hungary	5	Republic of Korea	9
Bangladesh	16	India	76	Romania	3
Belarus	1	Indonesia	20	Russian Federation	5
Belgium	3	Iran	11	Rwanda	8
Benin	61	Iraq	893	Saint Lucia	6
Bhutan	42	Italy	20	Samoa	1
Bolivia	10	Jamaica	4	Saudi Arabia	5
Bosnia and Herzegovina	2	Japan	5	Senegal	31
Botswana	11	Jordan	26	Serbia	2
Brazil	43	Kazakhstan	21	Sierra Leone	2
Burkina Faso	30	Kenya	70	Slovenia	4
Cambodia	286	Kyrgyzstan	73	Somalia	6
Cameroon	16	Lao People's Democratic Republic	43	South Africa	25
Canada	4	Lebanon	2	Spain	25
Central African Republic	1	Liberia	2	Sri Lanka	76
Chad	3	Lithuania	1	Sweden	1
Chile	2	Madagascar	7	Switzerland	7
China	169	Malaysia	5	Tajikistan	10
Chinese Taipei	5	Mali	7	United Republic of Tanzania	10

Colombia	115	Malta	2	Thailand	6
Comoros	1	Mauritania	1	Togo	8
Congo	6	Mauritius	3	Tunisia	12
Costa Rica	20	Mexico	28	Turkey	97
Côte d'Ivoire	162	Moldova	3	Turkmenistan	1
Croatia	1	Mongolia	4	Uganda	31
Cuba	1	Morocco	27	Ukraine	5
Czech Republic	1	Mozambique	5	United Arab Emirates	10
Democratic Republic of Congo	5	Myanmar	343	United Kingdom	15
Denmark	1	Namibia	2	United States	12
Dominican Republic	4	Nepal	36	Uruguay	3
Ecuador	11	Netherland Antilles	3	Uzbekistan	17
Egypt	28	Netherlands	5	Venezuela	5
El Salvador	12	New Zealand	3	Viet Nam	10
Ethiopia	9	Nicaragua	16	Zambia	17
Fiji	2	Niger	2	Zimbabwe	16
France	10	Nigeria	89	Total	4,694
Gambia	29	North Macedonia	1		

**TABLE A.2.** Questionnaire for the ITC COVID-19 Business Impact Survey

How is your company affected by the coronavirus pandemic? Your feedback matters and will help inform assistance from Governments and Donors. This anonymous survey will take less than 10 minutes to complete. The International Trade Centre, a United Nations agency, appreciates your participation during this difficult time.

Q1. Which country is your company based in? (single select from the list of countries)

Q2. How have your business operations been affected by the coronavirus (COVID-19) pandemic?

- Not affected
- Slightly affected
- Moderately affected
- Strongly affected

Q3. Do you think there is a risk that your business will permanently shut down because of this crisis, and if so, when could this closure occur? (single select)

- 1 month or less
- 3 months
- 6 months or more
- Business closure not envisaged

Q4. Has the coronavirus (COVID-19) pandemic affected the ability to purchase inputs for your enterprise and/or sell outputs? (multi-select)

- Difficulty accessing inputs domestically
- Difficulty importing inputs from abroad
- Lower domestic sales to consumers
- Lower domestic sales to businesses
- Increased domestic sales
- Difficulty exporting
- Improved exporting
- Don't know



---

Q5. Has the coronavirus (COVID-19) pandemic affected your enterprise in any of the following ways? (multi-select)

---

- Temporary shutdown
  - Employee absences due to sickness or childcare
  - Clients not paying their bills
  - Reduced logistics services
  - Reduced certification services
  - New problems with infrastructure, e.g. internet or roads
  - Increased administrative bottlenecks
  - Reduced investment
  - None of the above
  - Other
  - Don't know
- 

Q6. Please specify which other effect. (open ended question)

---

Q7. Have you adopted any of the following strategies to cope with the crisis? (multi-select)

---

- Temporarily reduced employment
  - Laid off employees
  - Loaned employees to other enterprises
  - Teleworking
  - Rescheduling of bank loans
  - Increased marketing efforts
  - Online sales
  - Customized / new products
  - Started sourcing from new suppliers
  - Filed for bankruptcy
  - Other
- 

Q8. Please select the top three government measures that would be most helpful as you cope with the COVID-19 crisis

---

- Employment programmes (i.e. temporary unemployment programmes or social security waivers)
  - Financial programmes, such as low interest credit line or credit guarantees
  - Tax waivers or temporary tax breaks
  - Reduction of tariffs on imported inputs
  - Rent subsidies
  - Cash transfers
  - Support to self-employed people
  - Other
- 

Q9. Please specify which other measure. (open ended question)

---

Q10. How easy is it to access information and benefits from government COVID-related SME assistance programmes?

---

- Very easy
  - Easy
  - Standard
  - Difficult
  - Very difficult
- 

Q11. How many full-time employees does the business have? (single select)

---

- 0
  - 1-4
  - 5-19
  - 20-99
  - 100-249
  - 250 and more
-

---

Q12. What is the main sector of activity of the business? (single select)

- Agriculture
- Mining and natural resources
- Agri-food processing
- Non-food manufacturing
- Retail and wholesale
- Travel and transport
- Accommodation and food services
- Information technology
- Finance
- Other services

---

Q13. What is the gender of the top manager of the business? (single select)

- Female
- Male
- Don't know

---

Q14. What is the age of the top manager of the business?

- 34 years and younger
- 35 years of age and older
- Don't know

---

Q15. Is this establishment currently registered with or licenced by a national authority? (single select)

- Yes, registered business
- Freelancing/independent/consultant
- No, unregistered business
- Do not know

---

Q16. Does the business participate in international trade? (single select)

- No, we buy and sell within our country only
- We import but do not export
- We export but do not import
- We export and import

---

Q17. Please provide your email address if you would like to receive a copy of the report based on the responses to this survey and agree to be contacted by the International Trade Centre about future opportunities in your country. Your data will be kept confidential. (open-ended)

---

## ITC SME Competitiveness Surveys

### Content and sample

The SME Competitiveness Survey (SMECS) is a national firm-level survey of a representative sample of an economy's private sector. Data are gathered, to the extent possible, from firms across all regions of the country, of all sectors (agriculture, manufacturing and services), of differing sizes (micro, small, medium-sized and large) and export status (exporting and non-exporting firms).<sup>245</sup>

Typically carried out in partnership with business support organizations, the SMECS is designed to combine information at the micro (firm capabilities) and meso (business ecosystem) levels to provide a holistic picture of the capacity of a country's private sector to compete in international markets. As of March 2021, more than 18,400 companies had been surveyed in 50 countries.

The baseline questionnaire of SMECS is based on ITC's competitiveness framework,<sup>246</sup> which is composed of three pillars – compete, connect and change – and three levels – firm capabilities, business ecosystem and national environment.

### SME competitiveness scores

Based on ITC SME Competitiveness Survey responses, classified by pillar, theme and level according to the SME competitiveness framework (Figure A1), ITC computes a "capacity to compete", "capacity to connect" and "capacity to change" score for each firm, as well as an overall competitiveness score. Each score has a value between 0 and 100, with 100 representing the best score.

Questions in the SMECS questionnaire have different structures (from dichotomous to Likert scale). Each response option is transformed on a 0-100 scale, with 100 representing the best possible outcome. As such, for each surveyed firm it is possible to calculate a score for each theme and level as a simple average of the transformed answers from relevant questions (see the list of questions included in each theme-level in Table A3, Table A4 and Table A5 for the compete, connect and change pillars respectively). Pillar scores (compete, connect and change) are computed at a firm level as the average of the scores of each of their three component themes and two levels (firm capabilities and business ecosystem). Finally, for each interviewed firm, the competitiveness score is the simple average of the scores of the three pillars.

FIGURE A1 SME competitiveness framework



## Capacity to compete

The capacity to compete score is calculated as the average of firm capabilities and business ecosystem competitiveness scores in meeting market quantity, cost, time and quality requirements.

TABLE A.3. Questions by theme and level in the compete pillar

	Themes	Levels of competitiveness	
		Firm capabilities	Business ecosystem
Compete	Meeting quantity and cost requirements	<ul style="list-style-type: none"> <li>▪ Capacity utilization</li> <li>▪ Economic records: Revenues</li> <li>▪ Economic records: Expenses</li> <li>▪ Economic records: Liabilities</li> <li>▪ Economic records: Assets</li> </ul>	<ul style="list-style-type: none"> <li>▪ Access to electricity</li> <li>▪ Access to water</li> </ul>
	Time requirements	<ul style="list-style-type: none"> <li>▪ Quantity delivered on time</li> <li>▪ Inventory management system efficiency</li> </ul>	<ul style="list-style-type: none"> <li>▪ Quality of the logistics services</li> <li>▪ Cost of the logistics services</li> </ul>
	Quality requirements	<ul style="list-style-type: none"> <li>▪ International certificates: Safety certificates</li> <li>▪ International certificates: Quality or performance certificates</li> <li>▪ International certificates: Sustainability certificates</li> <li>▪ International certificates: Other</li> </ul>	<ul style="list-style-type: none"> <li>▪ Availability of domestic information on international certificates</li> <li>▪ Quality of domestic information on international certificates</li> <li>▪ Cost of domestic information on international certificates</li> </ul>

## Capacity to connect

The capacity to connect is calculated as the average of firm capabilities and business ecosystem competitiveness scores in connecting with buyers, suppliers and institutions.

TABLE A.4. Questions by theme and level in the connect pillar

	Themes	Levels of competitiveness	
		Firm capabilities	Business ecosystem
Connect	Connecting to buyers	<ul style="list-style-type: none"> <li>▪ Business website</li> <li>▪ Forms of advertising: leaflet, poster, etc.</li> <li>▪ Forms of advertising: radio or tv</li> <li>▪ Forms of advertising: internet based</li> </ul>	<ul style="list-style-type: none"> <li>▪ Availability of information on buyers</li> <li>▪ Completeness of market information on potential buyers</li> <li>▪ Quality of market information on potential buyers</li> <li>▪ Costs of market information on potential buyers</li> </ul>
	Connecting to suppliers	<ul style="list-style-type: none"> <li>▪ Reliance on biggest supplier</li> <li>▪ Assess the performance of suppliers</li> </ul>	<ul style="list-style-type: none"> <li>▪ Availability of market information on potential suppliers</li> <li>▪ Quality of market information on potential suppliers</li> <li>▪ Cost of market information on potential suppliers</li> <li>▪ Exchange of market information with other companies in sector</li> <li>▪ Cooperation with firms in sector</li> </ul>
	Connecting to Institutions	<ul style="list-style-type: none"> <li>▪ Engagement with institutions: TPO</li> <li>▪ Engagement with institutions: IPO</li> <li>▪ Engagement with institutions: Chambers of Commerce</li> <li>▪ Engagement with institutions: sector association</li> </ul>	<ul style="list-style-type: none"> <li>▪ Quality of services provided by TPO</li> <li>▪ Quality of services provided by IPO</li> <li>▪ Quality of services provided by Chambers of Commerce</li> <li>▪ Quality of services provided by relevant sector association</li> </ul>

## Capacity to change

The capacity to change is calculated as the average of firm capabilities and business ecosystem competitiveness scores in finance, skills, and intellectual property and innovation requirements.

TABLE A.5. Questions by theme and level in the change pillar

		Levels of competitiveness	
	Themes	Firm capabilities	Business ecosystem
Change	Financing Requirements	<ul style="list-style-type: none"> <li>▪ Bank account</li> <li>▪ Ability to manage cash flow</li> <li>▪ Business plan</li> <li>▪ Financing forms: loan</li> <li>▪ Financing forms: equity financing</li> <li>▪ Financing forms: financing through bonds</li> <li>▪ Financing forms: line of credit</li> <li>▪ Financing forms: letters of credit</li> </ul>	<ul style="list-style-type: none"> <li>▪ Quality of the banks</li> <li>▪ Quality of the insurance companies</li> <li>▪ Access to financial institutions is an obstacle to operations</li> </ul>
	Skills Requirements	<ul style="list-style-type: none"> <li>▪ Skill set of employment matches the need of the company</li> <li>▪ Established hiring process</li> </ul>	<ul style="list-style-type: none"> <li>▪ Availability of skilled workers</li> <li>▪ Quality of bodies teaching relevant skills for the sector</li> <li>▪ Cost of bodies teaching relevant skills for the sector</li> </ul>
	Intellectual property and innovation requirements	<ul style="list-style-type: none"> <li>▪ Protected sensitive business information</li> <li>▪ Registered patent</li> <li>▪ Resources to R&amp;D</li> <li>▪ New or improved processes or products</li> </ul>	<ul style="list-style-type: none"> <li>▪ Availability of market information on IP</li> <li>▪ Quality of the services offered by patent institutions registrations</li> <li>▪ Cost of the services offered by patent institutions registrations</li> <li>▪ Quality of innovation supporting institutions</li> <li>▪ Cost of innovation supporting institutions</li> </ul>

## ITC SME Competitiveness and COVID-19 Business Impact Survey

### Content and sample

In 2019, before COVID-19 hit, ITC collaborated with institutions in three countries – Benin, Cambodia, and the Philippines – to conduct an in-depth assessment of the competitiveness of enterprises through the SME Competitiveness Survey. The questionnaire was administered to 502, 400, and 514 businesses across Benin, Cambodia, and the Philippines, respectively.

In mid-2020, a COVID-19 Business Impact Survey was carried out in the three countries. Among the respondents from the SME Competitiveness Survey, 770 firms (44 in Benin, 272 in Cambodia, and 454 in the Philippines) also took part in the follow-up survey.

The results provided in selected figures of Chapter 1 are based on the 770 respondents that took part in both the SME Competitiveness Survey and the COVID-19 Business Impact Survey. This allowed for an assessment of whether and to what extent certain pre-crisis competitiveness factors influenced business outcomes during the crisis. The sample includes companies of different size, sector and region of the respective country.

TABLE A.6. Sample size of ITC SME Competitiveness and COVID-19 Business Impact Survey by country, firm size and sector

Group	Observations	Share in total
<b>Country</b>		
Benin	44	6%
Cambodia	272	35%
Philippines	454	59%
<b>Size Category</b>		
micro (<5)	116	15%
small (<20)	431	56%
medium (20-99)	147	19%
large (100 or over)	76	10%
<b>Sector</b>		
Manufacturing	404	52%
Services	225	29%
Primary	141	18%
<b>Total</b>	<b>770</b>	<b>100%</b>



Specifically, one in two surveyed firms are in manufacturing, one third are in services and the remaining 18% are in the primary sector (Table A6). Nine out of ten companies in the sample are SMEs.

### ITC's resilience index

The resilience index is based on analysis conducted by Justine Falciola, Sarah Mohan, Barbara Ramos and Valentina Rollo in "Identifying the drivers of SME resilience: evidence from developing countries during the COVID-19 pandemic", ITC Working Paper 2021. The method adopted to calculate the index is based on three steps.

First, qualitative analysis of the literature on SME resilience was undertaken to identify the firm-level factors that affect the capacity of a firm to withstand a crisis, and classify them within a multidimensional framework comprising of three pillars of firm resilience – robust, related and responsive.

Second, the resilience framework was estimated using linear factor analysis. This empirical analysis was conducted using variables from the ITC SME Competitiveness Survey (from the Philippines, Benin and Cambodia) identified as relevant to the three resilience pillars. Factor analysis confirmed the relevance of those factor variables in building a composite index for robust, related and responsive, as well as the overall resilience index.

Third, a structural equation model analysis connected these resilience factors, previously identified in step 2, to the data from the COVID-19 Business Impact Survey from the same firms in the same countries. It modelled how these resilience factors drive a latent resilience variable that, in turn, explains whether firms performed well during the COVID-19 crisis.

Indeed, when each of the firms' responses on these resilience-driving factor variables are combined into the resilience index, that index is highly statistically correlated with the probability of firms having stable sales and the likelihood that they did not lay off employees during the pandemic.

## ITC SME Competitiveness Survey with environment module

### Content and sample

A set of survey questions focusing specifically on the environment was included in three national SME Competitiveness Surveys conducted in Benin in 2019, Botswana in 2019, and Zambia in 2018. This environmental module was designed by ITC's environmental experts and added to the organization's standard questionnaire.

The module assesses the extent to which environmental concerns are affecting SME competitiveness, as well as the extent to which enterprises are taking action on environmental issues. The environmental module was administered to 1,359 businesses in the three countries. The sample spans across sectors, with almost three quarters of surveyed firms in services, and the remainder split between manufacturing and primary sectors (Table A7). More than nine out of ten companies in the sample are SMEs.

**TABLE A.7.** Sample size of ITC SME Competitiveness Survey with environment module by country, firm size and sector

Group	Observations	Share in total
<b>Country</b>		
Benin	502	37%
Botswana	615	45%
Zambia	242	18%
<b>Size Category</b>		
micro (<5)	719	53%
small (<20)	420	31%
medium (20-99)	135	10%
large (100 or over)	85	6%
<b>Sector</b>		
Manufacturing	184	14%
Services	959	71%
Primary	216	16%
<b>Total</b>	<b>1359</b>	<b>100%</b>

## ITC's Resource Efficiency and Circular Production interventions

### Content and sample

The objective of ITC's Resource Efficiency and Circular Production (RECP) interventions is to increase SME competitiveness through improved resource efficiency and enhanced productivity. Selected companies, many of which supply into international value chains, participate in a customized coaching programme based on the analyses of buyer requirements and performance of local SMEs in terms of resource efficiency (e.g. energy, water and waste) and circular production processes. Participating companies identify and implement measures and can seek financing opportunities for measures that require significant upfront investments.

Interventions started in 2018 and are ongoing in more than 15 countries, as standalone RECP interventions, components of larger projects or through ITC's GreenToCompete Hubs.

The statistics received so far cover measures identified by 56 participating companies in 5 countries and 3 sectors (Table A8). Each measure is associated with financial information (upfront investment, recurrent yearly savings, and recurrent yearly costs) and savings of water, waste, electricity, and fuel in terms of physical units. The analysis in this report is based on the estimated values. Once the measures are implemented, the ITC will be able to compare the estimated values to the actual values.

**TABLE A.8.** Number of measures from Resource Efficiency and Circular Production interventions, by country and sector

	Ethiopia 2018	Jordan 2019	Kenya 2019	Peru 2019	Viet Nam 2020	Number of respondents
Agriculture and agrifood	0	0	0	19	3	<b>22</b>
Tea	0	0	96	0	0	<b>96</b>
Textile, clothing	35	62	0	15	5	<b>117</b>
Others	0	0	0	5	12	<b>17</b>
<b>Total</b>	<b>35</b>	<b>62</b>	<b>96</b>	<b>39</b>	<b>20</b>	<b>252</b>

## Figures based on primary data

**Figure 1.** Respondents were asked 'How many full-time employees does the business have?' and 'How have your business operations been affected by the coronavirus (COVID-19) pandemic?' Answer options ranged from 1 (not affected) to 4 (strongly affected). The results are statistically significant, even after controlling for sectoral differences.

**Source:** ITC COVID-19 Business Impact Survey

**Figure 2.** Respondents were asked 'How many full-time employees does the business have?' and 'Do you think there is a risk that your business will permanently shut down because of this crisis, and if so, when could this closure occur?' Answer options included '1 month or less', '3 months', '6 months or more' or 'Business closure not envisaged'. The results are statistically significant, even after controlling for sectoral differences.

**Source:** ITC COVID-19 Business Impact Survey

**Figure 4.** Respondents were asked 'How have your business operations been affected by the coronavirus (COVID-19) pandemic?' Answer options ranged from 1 (not affected) to 4 (strongly affected). Firms are considered robust if they answered 1, 2 or 3. Respondents were also asked 'Please rate the efficiency of this company's inventory management system.'; 'Does your company keep the following types of records?'; and 'At this time, does this company have a bank account for daily operations which is separate from a personal account?'. Firms are considered to have efficient inventory management if they chose options 4, 5 or 6 on a Likert scale ranging from 1 (inefficient) to 6 (highly efficient). Firms are considered to have complete financial record keeping if they kept all economic records (revenues, expenses, liabilities, and assets). The results are statistically significant, even after controlling for size and sectoral differences.

**Source:** ITC SME Competitiveness and COVID-19 Business Impact Survey

Figures 5, 7 and 9 are the result of binned scatterplots, controlling for firm's size and sector. Binned scatterplots are a non-parametric method of plotting the conditional expectation function, which describes the average y-value for each x-value. To generate a binned scatterplot, the `binscatter` command

groups the x-axis variable into 20 equal sized bins, computes the mean of the x-axis and y-axis variables within each bin, and creates a scatterplot of these data points. By default, `binscatter` also plots a linear fit line using OLS, which represents the best linear approximation to the conditional expectation function.

**Figure 5.** The horizontal axis measures firms' capacity to compete (see definition above). The vertical axis measures firms' responses to the question 'How have your business operations been affected by the coronavirus (COVID-19) pandemic?' Answer options ranged from 1 (not affected) to 4 (strongly affected). A company is given a score of 100 in robust if it answered 1 (not affected), a score of 75 if it selected 2 (slightly affected), a score of 50 if it answered 3 (moderately affected) and a score of 25 if it selected 4 (strongly affected). The results are statistically significant, even after controlling for size and sectoral differences.

**Source:** ITC SME Competitiveness and COVID-19 Business Impact Survey

**Figure 7.** The horizontal axis measures firms' capacity to connect (see definition above). The vertical axis measures firms' responses to the question 'How easy is it to access information and benefits from government COVID-related SME assistance programmes?' Answer options ranged from 1 (very difficult) to 5 (very easy). A company is given a score of 100 in related if it answered 5 (very easy), a score of 80 if it selected 4 (easy), a score of 60 if it answered 3 (standard), a score of 40 if it answered 2 (difficult) and a score of 20 if it selected 1 (very difficult). The results are statistically significant, even after controlling for size and sectoral differences.

**Source:** ITC SME Competitiveness and COVID-19 Business Impact Survey

**Figure 9.** The horizontal axis measures firms' capacity to change (see definition above). The vertical axis measures firms' responses to the question 'Have you adopted any of the following strategies to cope with the crisis?' Firms are considered responsive if they selected one or more of the following strategies: selling online; customized/new products or sourcing from new suppliers. A company is given a score of 100 in responsive if it used all three responsive coping strategies,

a score of 75 if it used two responsive coping strategies, a score of 50 if it used one responsive coping strategy and a score of 25 if it did not use any responsive coping strategies.

**Source:** ITC SME Competitiveness and COVID-19 Business Impact Survey

**Figure 6.** Panel (a) Respondents were asked: 'How easy is it to access information and benefits from government COVID-related SME assistance programmes?'. Answer options ranged from 1 (very easy) to 5 (very difficult); the vertical axis in the figure reflects the proportion of firms that answered 4 or 5. Respondents were also asked 'Are you actively engaged with any of the following types of institutions: trade promotion organizations, investment promotion organizations, chambers of commerce or sector associations?'. Companies are considered engaged with business support organization if they said they were involved with any of the four types of institutions. Panel (b) Respondents were asked 'Has the coronavirus (COVID-19) pandemic affected the ability to purchase inputs for your enterprise and/or sell outputs?'. Answer options included 'difficulty accessing inputs domestically'; the vertical axis in the figure shows the percentage that choose this option. Respondents were also asked 'Please rate your reliance on your biggest supplier', with answer options ranging on a Likert scale from 1 (strong reliance) to 6 (little reliance); firms are defined as independent of largest supplier if they chose 5 or 6, and as dependent if they chose 1 or 2. The results are statistically significant, even after controlling for size and sectoral differences.

**Source:** ITC SME Competitiveness and COVID-19 Business Impact Survey

**Figure 8.** Respondents were asked 'Have you adopted any of the following strategies to cope with the crisis?' Possible responses included: selling online; creating new/customized products; or sourcing from new suppliers. Panel (a) The vertical axis measures the share of firms selecting 'creating new/customized products' as a coping strategy. Respondents were asked: 'Please estimate the level of resources your company commits to research and development'. Responses are classified as 'high resources to R&D' if the respondent chose options 5 or 6 on a Likert scale ranging from 1 (low) to 6 (high). Panel (b) The vertical axis measures the share of firms selecting 'selling online' as a coping strategy. Respondents were asked 'Please rate the extent to which the skill set of currently employed workers matches the needs of this company'. Firms are classified as 'high skill match' if the respondent chose options 5 or 6 on a Likert scale ranging from 1 (low) to 6 (high). Panel (c) The vertical axis measures the share of firms selecting 'sourcing from new suppliers' as a coping strategy. Respondents were also asked 'Please rate this company's ability to manage its cash flow to reliably execute payments'. Firms are classified as 'high ability to manage cash flow' if the respondent chose options 5 or 6 on a Likert scale ranging from 1 (low) to 6 (high).

**Source:** ITC SME Competitiveness and COVID-19 Business Impact Survey

**Figure 10.** Respondents were asked: 'How many full-time employees does this establishment currently employ?'; 'What is the age of the top manager?'; 'What is the gender of the top manager?'; 'What percentage of this establishment is owned by women?'. The figure shows the average index of resilience (see definition above) for each category. The results on size and age are statistically significant.

**Source:** ITC SME Competitiveness and COVID-19 Business Impact Survey

**Figure 11.** Respondents were asked 'Has the coronavirus (COVID-19) pandemic affected the ability to purchase inputs for your enterprise and/or sell outputs?' Firms are considered to have maintained stable sales if they did not choose options 'Lower domestic sales to consumers' or 'Lower domestic sales to businesses' or selected the option 'Increased exporting'. Respondents were also asked 'Have you adopted any of the following strategies to cope with the crisis?' Percentages reflect the proportion of firms that selected 'lay off employees' as a coping strategy. Firms with a resilience index below the median are classified as low resilience, and those with a resilience index above the median are defined as high resilience. The results are statistically significant, even after controlling for size and sectoral differences

**Source:** ITC SME Competitiveness and COVID-19 Business Impact Survey

**Figure 12.** Panel (a): Respondents were asked 'Does the business participate in international trade?' and 'Has the coronavirus (COVID-19) pandemic affected the ability to purchase inputs for your enterprise and/or sell outputs?' Firms are considered to have difficulty accessing inputs if they chose options 'difficulty accessing inputs domestically' or 'difficulty importing inputs abroad'. Panel (b): Respondents were asked 'How have your business operations been affected by the coronavirus (COVID-19) pandemic?' Answer options ranged from 1 (not affected) to 4 (strongly affected). Percentages reflect the proportion of firms that selected 4. Results are weighted using each country's share of the global population divided by the number of firms interviewed in each country to statistically reduce the weight of responses from small countries with a large number of responses. The results are statistically significant, even after controlling for size, sector and country fixed effects.

**Source:** ITC COVID-19 Business Impact Survey

**Figure 13.** Panel (a): Respondents were asked 'Does the business participate in international trade?' and 'How easy is it to access information and benefits from government COVID-19-related SME assistance programmes?' Answer options ranged from 1 (very easy) to 5 (very difficult); percentages reflect the proportion of firms that answered 1 or 2. Panel (b): Respondents were asked 'Have you adopted any of the following strategies to cope with the crisis?' Answer options included: Temporarily reduced employment, laid off employees, loaned employees to other enterprises, teleworking, rescheduling of bank loans, increased marketing efforts, online sales, customized / new products, started sourcing from new suppliers, filed for bankruptcy. Percentages reflect the proportion of firms that selected one or more of the following strategies: selling online; customized / new products or sourcing from new suppliers.

Results are weighted using each country's share of the global population divided by the number of firms interviewed in each country, to statistically reduce the weight of responses from small countries with a large number of responses.

**Source:** ITC COVID-19 Business Impact Survey

**Figure 14.** Respondents were asked 'Which of the following environmental risks are significant for your business?' Answer options included changing temperatures; changing sea levels; water scarcity; floods; decreased air quality (e.g. air pollution); more severe and frequent storms; decreased quality of inputs (e.g. natural resources); scarcity of inputs (e.g. natural resources); other environmental risk not listed; none; do not know. If the respondent company chose one or more environmental risk options, saying they were significant to their business, they are identified as facing significant environmental risks.

**Source:** ITC SME Competitiveness Survey with environment module

**Figure 15.** Respondents were asked 'Which of the following environmental risks are significant for your business?' Answer options included changing temperatures; changing sea levels; water scarcity; floods; decreased air quality (e.g. air pollution); more severe and frequent storms; decreased quality of inputs (e.g. natural resources); scarcity of inputs (e.g. natural resources); other environmental risk not listed; none; do not know. The proportion of respondents choosing each of the options is shown in the figure.

**Source:** ITC SME Competitiveness Survey with environment module

**Figure 17.** Respondents were asked 'To what extent are environmental regulations an obstacle to your continued operations?' Answer options included 0 (no obstacle), 1 (small obstacle), 2 (moderate obstacle), 3 (high obstacle), 4 (very high obstacle), and 'do not know'. Firms choosing options 1, 2, 3 or 4 are defined as saying 'environmental regulations are an obstacle'; those choosing option 0 are defined as saying 'environmental regulations not an obstacle'; and those choosing 'do not know' are excluded from the calculations.

**Source:** ITC SME Competitiveness Survey with environment module

**Figure 18.** Respondents were asked 'Does this establishment's main product or service hold any of the following types of internationally recognized certificates?' Answer options included safety certificate; quality or performance certificate; sustainability certificate; other certificate. Percentages reflect the proportion of firms that selected 'sustainability certificate'. The number of employees has a positive and statistically significant influence on the likelihood of certification to a sustainability certification in a multivariate probit regression analysis with controls for sector and export status. Similarly, the higher number of employees in sustainability-certified firms as compared to non-sustainability-certified ones is statistically significant in a t-test.

**Source:** ITC SME Competitiveness Surveys

**Figure 21.** Values show the total number of measures by sector and category. Only most popular categories of measures are shown. Measures have been selected for the implementation by 56 firms participating in ITC RECP interventions.

**Source:** ITC Resource Efficiency and Circular Production interventions

**Figure 22.** Respondents were asked 'In the last three years, did your company invest in any of the following measures to reduce the environmental risks that your company is facing?' Answer options included irrigation systems; water purification systems; flood prevention systems; power generation systems; soil management practices; transportation means; air pollution controls; temperature controls; other measures to reduce environmentally-related risks; none; and do not know. Respondents that chose any of the answer options (besides none and do not know) are defined as 'adapting to environmental risks'; those that chose 'none', 'do not know' or did not choose are defined as 'not adapting to environmental risks'. The probability of firms investing in these measures to adapt to climate change differs across gender of firm leadership, age of firm leadership, firm size, and export status: the pairwise comparison of each category of firm is statistically significant in a t-test. Furthermore, in a multivariate probit regression on the determinants of the probability of adaptation, which included controls for sectors and whether the firm said they had already been affected by environmental risks, gender of firm leadership, age of firm leadership, and firm size were statistically significant.

**Source:** ITC SME Competitiveness Survey with environment module

**Figure 23.** Values represent the cumulative net benefits in 1000 \$ for each year, plotted for 10 years forward (values are projections). Net benefits are calculated as the difference between the recurrent yearly savings and the sum of the initial investment and the recurrent yearly costs, hence the negative numbers are costs and the positive numbers are savings/benefits. The numbers are cumulative, i.e. each year includes the net benefits of all preceding years. Year zero shows the initial investment. Values are simple averages for 202 resource efficiency measures identified by 56 companies participating in ITC RECP interventions.

**Source:** ITC Resource Efficiency and Circular Production interventions

**Figure 24.** The figure plots the correlation between the initial investment in 1000 \$ (horizontal axis) and cost savings projected to cumulate over 10 years in 1000 \$ (vertical axis). The size of each bubble is proportionate to the total reduction in greenhouse gas emissions from saving wood, fuel and electricity. Values are simple averages for 202 resource efficiency measures identified by 56 companies participating in ITC RECP interventions and aggregated by measure category. Only top measures (by cost savings) are shown.

Greenhouse gas reductions are calculated on the basis of the estimated savings of wood, fuel and electricity, using the following coefficients:

- Wood: 1 m<sup>3</sup> wood = 1 ton of CO<sub>2</sub>
- Fuel: 1 litre = 2.68 kg of CO<sub>2</sub>
- Electricity: Varied, as per OECD (2018)

**Source:** ITC Resource Efficiency and Circular Production interventions

**Figure 25.** Respondents were asked 'In the last three years, did your company invest in any of the following measures to reduce its negative impact on the environment?' Answer options included renewable energy sources; more energy-efficient technologies; more water-efficient technologies; reduction of the use of chemicals; waste management systems; air pollution controls; sustainable/recyclable packaging; other measures; none; do not know. *Panel (a)*: Respondents that chose at least one of the answer options (besides none and do not know) are defined as 'undertaking environmental investment'; those that chose 'none', 'do not know' or did not choose are defined as 'no environmental investment'. *Panel (b)*: Percentages reflect the share of all investments undertaken by all firms in the sample that are accounted for by that measure option. Since respondents could choose more than one option, 782 options were chosen. The share of each chosen category in 782 total is shown in the graph. For this reason, the percentages add to 100%, and not to the 42% that chose any option.

**Source:** ITC SME Competitiveness Survey with environment module

**Figure 26.** Respondents were asked 'In the last three years, did your company invest in any of the following measures to reduce its negative impact on the environment?' See previous note for the answer options. The 556 companies that chose one of the options and are defined as 'undertaking environmental investment' were asked 'Did these investments present any of the following opportunities for your business?' Answer options included access to new markets; increased production; increased product quality; lower input costs; new products or services; other opportunities; no new opportunities; do not know. Respondents that chose at least one of the answer options (besides no new opportunities and do not know) are defined as 'reporting new business opportunities'; those that chose 'no new opportunities' or indicated 'no' for each option are defined as 'not reporting new opportunities'.

**Source:** ITC SME Competitiveness Survey with environment module

**Figure 27.** Proportions indicate the share of respondents that undertook environmental investments and said they presented business opportunities. Since respondents could choose more than one option, the percentages do not add to the 59% that said there was an opportunity.

**Source:** ITC SME Competitiveness Survey with environment module

**Figure 28.** Respondents were asked 'In the last three years, did your company invest in any of the following measures to reduce its negative impact on the environment?' See previous note for the answer options. The companies that chose one of the options and are defined as 'undertaking environmental investment' were asked 'Did these investments present any of the following opportunities for your business?' Answer options included access to new markets; increased production; increased product quality; lower input costs; new products or services; other opportunities; no new opportunities; do not know. The proportion of respondents that chose 'no new opportunities' or indicated 'no' for each option are defined as 'average firms' 'reporting that green investment did not lead to business opportunities'.

'In a value chain' refers to those respondents that chose 'yes' to the following question: 'In the last year, did you produce according to any requirements imposed by buyers?' Respondents were also asked 'Does this establishment's main product or service hold any of the following types of internationally recognized certificates?' Answer options included safety certificate; quality or performance certificate; sustainability certificate; other certificate. Respondents that did not choose 'sustainability certificate' are defined as being without certification. The figure reflects the proportion of those respondents that undertook environmental investments and said they did not present business opportunities, and were in a value chain without certification. Among those in a value chain, the proportion that received benefits from undertaking environmental investments is statistically significantly higher for those that held a sustainability certificate than those that did not. Similarly, among those that undertook environmental investments, firms in the service sector were less likely to say they benefited from those investments than non-services firms. The difference in the proportion of services and non-services firms that benefited from environmental investments was statistically significant in a t-test.

**Source:** ITC SME Competitiveness Survey with environment module



## Annex III: ITC's GreenToCompete strategy and toolbox

GreenToCompete is ITC's strategy to support developing countries in leveraging trade to seize the opportunities of the green economic transition.

With a focus on climate change, circularity and biodiversity, GreenToCompete supports countries across the following areas:

- **Green competitiveness:** Support SMEs to compete through environmentally friendly business practices and access to green finance.
- **Ecopreneurship:** Support innovative entrepreneurs build and grow solutions to environmental challenges.
- **Business ecosystems:** Work with key ecosystem stakeholders to unlock the relevant services that SMEs require to succeed.
- **Sustainable value chains:** Work with market partners to connect SMEs to international value chains, generate more local value, and realize green business opportunities.
- **Green policies:** Support policymaking to transform trade and investment and build conducive institutional and regulatory frameworks at the domestic, regional and multilateral levels for the green transition.

To accompany the strategy, ITC has a range of tools to help businesses, business support organizations, policymakers, lead firms and development partners to become greener and more competitive.

For more information, contact [GreenToCompete@intracen.org](mailto:GreenToCompete@intracen.org).

### SMEs in value chains

#### BioTrade Knowledge-Sharing and Self-Assessment Tool

Brings together in a platform information about biodiversity-based initiatives. It allows SMEs to connect with value chain actors and benchmark their sustainability practices against the UNCTAD BioTrade Principles and Criteria.

The platform is developed by ITC and the UNCTAD BioTrade Initiative, under the framework of the Global BioTrade Programme.

#### Climate Resilience Coaching Programme

Develops company-specific investment opportunities to better manage climate risks. It is based on climate risk assessments of targeted value chains and production premises, and analysis of localized climate data in the countries' main production zones. The programme consists of three steps:

1. Climate risk awareness
2. Coaching guided by local and international experts
3. Implementation of adaptation measures.

First, companies are sensitized to the benefits of climate adaptation through workshops. Second, data on past and future climate impacts on the selected SMEs are collected and climate risks identified. Climate adaptation measures and business opportunities are then identified, and their financial viability is assessed through a cost-benefit analysis. The adaptation strategy is tailored to the specific needs and goals of the particular SME, and is finally implemented.

---

### **Continuous Improvement: Sustainable Packaging and Waste Reduction Assessment**

Takes a circular economy approach to reduce and repurpose waste, and to increase recycling efficiency. A key area is packaging, which is made more sustainable and cost-effective.

The programme is implemented in four phases, during which the business receives training on tools and methodologies, processes in need of improvement are identified, strategies are developed, and results are evaluated.

### **Greening Tech Startups: Training on Environmental Sustainability in ICT**

Improves ICT environmental sustainability through training. Startups and SMEs learn how to lower their environmental impact while reducing business costs, increasing investor attractiveness, and anticipating future environmental regulations.

The training covers the following one-hour long modules:

1. Electronic waste management
2. Data storage and energy efficiency
3. Voluntary sustainability standards for ICT sustainability (in development)

### **International Executive Programme on Sustainable Sourcing and Trade**

A network of leading academic institutions and teaching modules on international value chains and sustainable development. The programme is open to executives from small, medium and large enterprises engaged in international trade. Content was developed with support from Cranfield University, Cambridge Institute for Sustainability Leadership, ISAE Brazil Business School and HEC Lausanne.

### **Resource Efficiency and Circular Production Coaching Programme**

Supports SME processors in developing countries to enhance the use of natural resources and implement circular production practices. The approach is implemented through a coaching programme and consists of three phases:

1. Sensitization on resource consumption and waste generation in production processes
2. Coaching guided by local and international experts
3. Implementation.

Companies are sensitized to use resources, such as water, energy or chemicals more efficiently, and improve waste management. Data on current production practices and related resource consumption are collected. A gap assessment then compares the data to efficiency benchmarks specific to the target country and sector. Investment opportunities to make resource use more efficient and introduce circular production practices are identified, to build a company-specific strategy. Finally, priorities are implemented with follow-up and monitoring.

### **Responsible Sustainable Ethical Trade for the Fashion Sector**

Brings together social and environmental responsibility tools to enable value chain actors in the fashion sector to manage their production activities in an ethical and sustainable manner.

The framework takes a circular economy approach, assessing the full value chain, from raw materials to recycling. Businesses can assess the climate impact of supply chain segments and establish science-based improvement targets contributing to the low-carbon, climate-resilient development agenda.

### **Standards Map and Self-Assessment Tool for Companies**

Helps companies choose the right voluntary sustainable standard to certify their goods or services, providing information on over 290 standards. Certification allows SMEs to access a broader range of sustainable markets and become more competitive

The map provides an in-depth comparison between standards based on five sustainability dimensions – environment, social, management, quality and ethics – as well as a free online self-assessment open to all companies.

### **Sustainable Finance for SMEs**

The Access to Finance and Investment approach supports SMEs to access sustainable finance to grow their green and inclusive business or to implement sustainable business practices. The approach is implemented in three steps:

1. Access to sustainable finance landscape study
2. Access to sustainable finance bootcamp
3. Access to sustainable finance coaching programme.

The sustainable finance landscape study gives SMEs an overview on the current offering of green finance products in their country. The bootcamp lasts around three days and introduces SMEs to requirements of sustainable finance providers, and provides information on how to approach them. The coaching programme builds the capacity of SMEs to develop a green business plan, enhance financial management skills and ultimately connect to green finance providers through matchmaking facilitated by the ITC.

The programme helps financial institutions understand and improve their environmental, social and governance frameworks and assists them in developing appropriate products and services for SMEs. It also facilitates their access to de-risking solutions such as credit guarantee schemes from development partners.

### **Sustainable Investment: A guide to environmental and social compliance**

Outlines the social, environmental, and economic practices that international businesses must understand when entering a new market. The guide makes the case for why caring for the environment and local communities is good for business and provides examples of sustainability practices relevant to investing.

The guide is complemented by national companion guides for Ethiopia, Kenya, Mozambique, and Zambia, which provide a concise breakdown of the mandatory sustainability requirements in each country. It also includes practical resources such as worksheets and diagrams to help investors mainstream environmental and social sustainability in their business operations.

### **Value-Based Supply Chain Transformation**

Enables value-based production chains that generate and distribute value more equitably and sustainably. The aim is to create climate-smart production and commercialization systems.

The approach entails environmental, social and economic sustainability assessment of a selected value chain. The assessment is discussed with value chain stakeholders to identify interventions that improve environmental sustainability in terms of investments and capacity-building for business support organizations and SMEs.

### **Voluntary Sustainability Standards: Capacity building**

Supports SMEs to identify relevant sustainability standards and implement associated requirements, allowing them to access new markets.

First, SMEs conduct an online self-assessment against a standard of their choice through the Standards Map. Next, locally trained experts conduct a gap analysis, identify the issues companies need to address and strategies to do so. A business case for certification is developed through break-even point analysis. The results are summarized in an action and communications plan.

The programme also supports SMEs to adopt ISO management standards on quality and environmental compatibility of industrial products and manufacturing procedures, such as ISO 14001 (environmental management systems) and ISO 50001 (energy management systems) as well as standards related to ISO 14067 (GHG/carbon footprint) and ISO 14046 (water footprint).

### **Young Entrepreneurs Going Green**

Aimed at young entrepreneurs (18-35) and business support organizations that cater to their needs, this initiative provides online and offline training courses and links participants with ITC's offerings on sustainable trade.

In this context, ITC is launching a Green Entrepreneurship Challenge for young entrepreneurs from developing countries that provide innovative solutions to pressing environmental challenges.

---

## Business support organizations

---

### **Business Support Organization Benchmarking: Mainstreaming sustainability**

Helps business support organizations quantify, measure and assess the efficiency, effectiveness, cost and risk of their institutional practices and processes. Organizations are assessed based on the following four areas:

1. Leadership and direction
2. Resources and processes
3. Products and service delivery
4. Measurement and results.

The benchmarking results show the institution's position at all levels, in relation to the generally accepted good practices. ITC is currently upgrading the benchmarking methodology to incorporate sustainability elements such as environment, youth and gender.

### **Advocacy Practices for Sustainable Trade**

Targeted to business support organizations, a needs assessment is conducted to enhance the advocacy capacity and practices and better contribute to formulating, implementing and monitoring trade and environment regulations.

### **GreenToCompete Hubs**

Provides integrated solutions and tools for SMEs to implement green and sustainable business practices. Hosted by local business support organizations in the Caribbean, Ghana, Kenya, Laos, Nepal, Peru and Viet Nam, the hubs act as one-stop shops for SMEs to develop environmentally sustainable business strategies through coaching programmes, webinars and e-learning.

### **Supporting conformity assessment bodies for environment-related standards**

Supports national inspection and certification bodies, testing laboratories and other institutions to ensure reliable test results and inspections for environmental sustainability. The initiative supports standards development to reduce the environmental impact of production and meet higher-end consumer market demand.

---

## Policymakers

---

### **Green Trade Strategy**

A methodology and a process that incorporate environmental sustainability and climate change resilience into national and sector export strategy development. It aims to create a policy framework and plan of action that can allocate resources to initiatives that can achieve green trade objectives; institutions that can provide services and facilities tailored to businesses in the environmental goods and services sector; and enterprises that have the capacity to link to these value chains.

The strategy design process follows four steps:

1. Pre-engagement
2. Analysis and prioritization
3. Design
4. Strategic plans of action and implementation management.

The blended approach incorporates quantitative and qualitative tools in the form of desk research, surveys and SME interviews, as well as broad stakeholder participation and consultation.

### **Greening cross-border trade and procedures**

Make trade at the border more efficient and less resource-intensive, with better cross-border trade procedures and trade facilitation measures that focus on the logistics sector. The accent is on digitization of procedures and formalities and steps to create shorter waiting times at the border, as well as on reforms to facilitate trade of environmental goods and services in particular.

### **Aligning Trade, Industry and Investment Policies and Agreements with Green Economy priorities**

Ensures that policies incorporate environmental sustainability, at the intersection of trade, industrial and investment areas. Examples of activities: build capacity of trade agreement negotiating teams in developing countries to conduct sustainability impact assessments; identify priorities in low-carbon or renewable industries to link to trade negotiations; review and set up investment facilitation policies and practices to attract investment for cleaner technologies and capital goods.

## Development partners

### **Mainstreaming Sustainable and Inclusive Development Guidelines**

Offers a one-stop approach for project managers to embed consistently the principles of sustainable and inclusive development throughout the project cycle.

The guide outlines a process to identify climate and environmental impacts, and measures to mitigate them in project design. The guide also offers indicators to measure a project's contribution to environmental sustainability.

### **Climate and Environment Risk Assessment in Agriculture**

Supports project managers to identify climate and environment related risks across agricultural value chains during the project design phase. Through a risk assessment methodology, the tool identifies climate hazards and risks at each stage of the value chain and proposes adaptation and mitigation actions. It is divided into four steps:

1. Mapping
2. Strategy
3. Opportunity
4. Capacity Building.

First, the potential risks posed by climate change on selected agricultural value chains are mapped. Next, strategies to mitigate and adapt to the risks are developed and economic opportunities are identified. The strategies are then implemented to strengthen the chain's climate resilience, and to provide SMEs with new business opportunities.

## Cross-cutting tools

### **E-learning on Sustainability**

The SME Trade Academy offers multiple e-learning courses on sustainability topics. Participants from all backgrounds learn how to leverage sustainability solutions for their own organizations or businesses. Working with experts, participants also exchange knowledge. It is not necessary to be affiliated with an ITC project to access the courses, which include:

1. Competitiveness through enterprise sustainability
2. Enterprises and climate change
3. How to measure and manage your social impact
4. Introduction to corporate social responsibility
5. Introduction to standards and sustainability
6. Meeting standards in the agrifood sector
7. Organic agriculture trade development (accessible through Sustainability Map)
8. Social entrepreneurship
9. Standards and certifications for IT and ITES outsourcing
10. Standards and technical requirements for the leather industry
11. Resource efficiency and circular production for SMEs (forthcoming)
12. The role of standards in sustainable supply chains.

### **SME Competitiveness Survey: Environment module**

Collects data on the strengths and weaknesses of enterprises, and their business ecosystem. In cooperation with local partners, ITC designs a customized questionnaire, identifies a representative sample of SMEs, and gathers data. Data are then analysed and a report of findings is prepared to inform evidence-based production optimization, investment and policymaking.

Business performance is analysed based on the three pillars that drive competitiveness – the capacity to compete, connect and change – across three levels of the economy – firm capabilities, the business ecosystem, and the national environment. The survey has standardized core questions, and an optional environmental module that covers perceptions on climate risk assessment, risk reduction, resource efficiency, policy and business opportunities.



### 2020: COVID-19: The Great Lockdown and its Impact on Small Business



The [SME Competitiveness Outlook 2020](#) analyses the impact of the pandemic on small firms, international supply chains and trade. It provides projections and a 15-point action plan for businesses, policymakers and business support organizations to weather the crisis - and gear up for a 'new normal' that needs to be resilient, digital, inclusive and sustainable.

The report combines analysis of the impact of COVID-19 on firms based on a large-scale global survey, with case studies and a thought leader viewpoint. The projected drop in supply chain trade is evaluated by region, and in 85 country profiles.

### 2019: Big money for small business: Financing the Sustainable Development Goals



Increasing annual investments in small and medium-sized enterprises by \$1 trillion would yield disproportionate dividends in terms of progress towards the Sustainable Development Goals. These investments also have the potential to deliver healthy returns for investors.

To boost investment in developing country small firms, the [SME Competitiveness Outlook 2019](#) finds that stronger investment facilitators (actors that connect firms to investors) are key. Other major findings: bundling investments for small firms into large packages helps scale up financing; disseminating information on small business credit performance improves risk assessments; and helping these firms to be investor-ready improves their commercial viability.

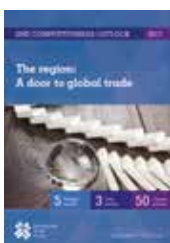
### 2018: Business Ecosystems for the Digital Age



Digitalization and the rise of the platform economy are rapidly changing the way in which firms do business. A strong business ecosystem is necessary to manage this change. The [SME Competitiveness Outlook 2018](#) tells how to build it.

The report combines data analysis, academic insights, thought leader views and case studies to guide policymakers, businesses, and trade and investment support institutions in designing the business ecosystem that is necessary for small businesses to embrace and benefit from industry 4.0. This year's edition includes 50 country profiles on SME competitiveness, with a focus on strengths and weaknesses of the business ecosystem.

### 2017: The region: A door to global trade



The [SME Competitiveness Outlook 2017](#) focuses on regions as a stepping-stone to international value chains for small and medium-sized enterprises (SMEs). It provides new evidence showing that deep regional integration is good for SMEs. These agreements can be both powerful and inclusive.

It finds that deep regional trade agreements help deliver inclusive growth. These agreements attract value chain activity and narrow the competitiveness gap between large and small firms. When investment is part of such agreements, the impact is stronger. The report provides targeted advice for policymakers, businesses, and trade and investment support institutions.

### 2016: Meeting the standard for trade



The [SME Competitiveness Outlook 2016](#) focuses on standards and regulations. The report combines data analysis, academic insights, thought leader opinions and case studies to provide guidance for policymakers, business managers and standard setters.

Standards and regulations have a major impact on SME competitiveness. By meeting the standard for trade, SMEs increase their chances to connect to international value chains and consumers in a socially and environmentally sustainable manner. The report contains governance insights for voluntary sustainability standards; new evidence on how standards and regulations affect trade and business performance; guidance for SMEs on how to select and implement standards and regulations; and a policy action plan to strengthen SMEs' ability to meet standards and regulations.

### 2015: Connect, compete and change for inclusive growth

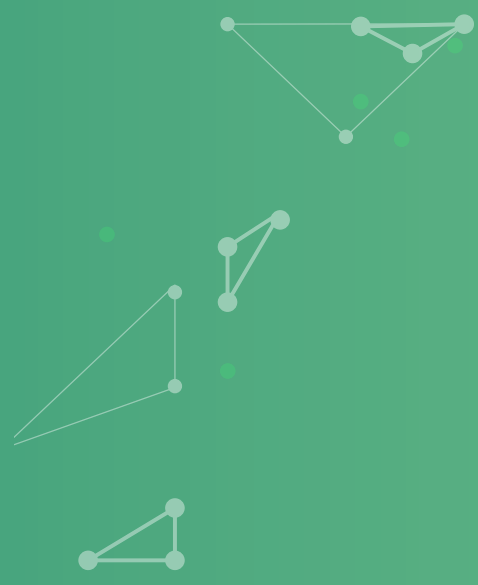


The [SME Competitiveness Outlook 2015](#) is a "one-stop shop" on the topic of SME internationalization, and combines unique analysis, thought leader insights and case stories about developing country SMEs in international markets.

Organized around the theme Connect, Compete, Change for Inclusive Growth, the report shows that SMEs are generally less productive than large firms are. The productivity gap is wider in developing countries, and the wage gap is similar. It also shows that firms connected to international markets are more productive and create more employment. The book combines unique analysis, thought leader insights and case stories about developing country SMEs in international markets, along with 25 country profiles.

Printed by ITC Digital Printing Service.

A free pdf is available on ITC's website at:  
[www.intracen.org/publications](http://www.intracen.org/publications)



International  
Trade  
Centre

