

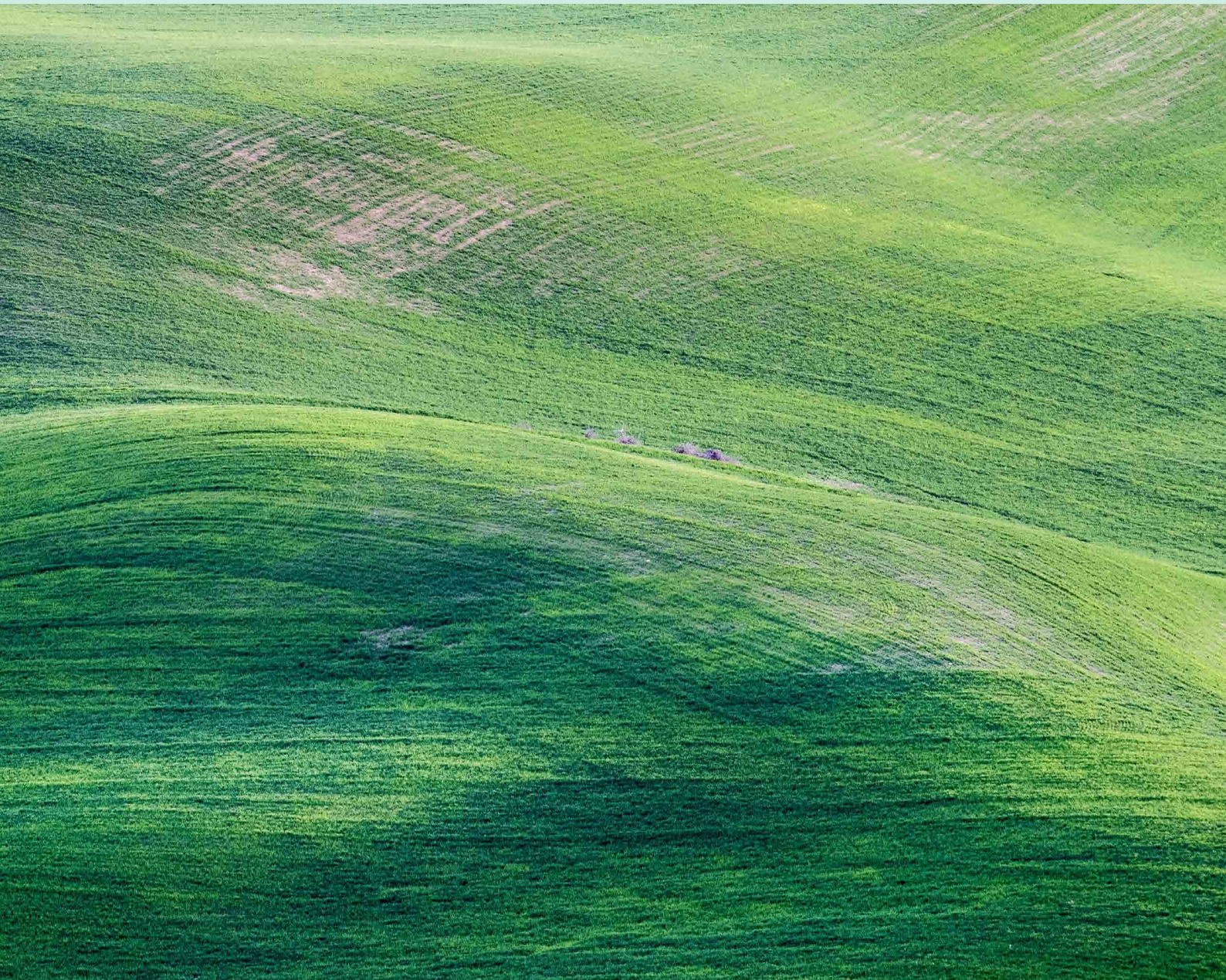


WORLD TRADE  
ORGANIZATION

# SMALL BUSINESS AND CLIMATE CHANGE

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**MSME Research note #3**





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# SMALL BUSINESS AND CLIMATE CHANGE

## SUMMARY

*To address climate change, businesses of all sizes will need to contribute to decarbonization efforts by reducing behaviours harmful to the climate and environment and by engaging in sustainable practices.*

*Based on responses from two surveys by Meta, micro, small and medium-sized enterprises (MSMEs) are aware of climate change, and know that they need to adopt decarbonization practices in order to participate in supply chains, but they face obstacles, especially in accessing information about the changes to be made in their businesses and the cost of change.*

*When offering policy support, governments should focus on clear decarbonization agendas that include widely disseminated information on requirements, tools for MSMEs to assess their climate impact, and access to green finance.*

## INTRODUCTION<sup>1</sup>

Climate change has become an important factor for businesses in today's world. From positive developments, like the new green economy (defined by the UN Environment Programme (UNEP) as "low carbon, resource efficient and socially inclusive") or efficiency gains from decarbonization (i.e., the reduction or removal of carbon dioxide (CO<sub>2</sub>) emissions in the atmosphere), to negative effects, like trade interruptions or drops in supply related to climate events, climate change is creating both opportunities and risks for businesses, including MSMEs. However, climate events, from droughts to floods, pose serious challenges for small businesses in a broad range of sectors, many of which are tied to international trade, such as agriculture and tourism.

While large corporations have been seen as the largest emitters of greenhouse gases, it is estimated that over 80 per cent of their emissions are derived from their supply chains (McKinsey, 2016). These global value chains (GVCs) are often comprised of smaller enterprises that perform essential services in the production of products or other services. Thus, although MSMEs individually may not be large carbon emitters, the collective size of this business segment, amounting to roughly 90 per cent of businesses worldwide, means that MSMEs will be critical to achieving global decarbonization targets.

Decarbonization efforts can provide innovation opportunities and business efficiency gains on which businesses of all sizes can capitalize. According to a 2021 International Trade Centre (ITC) survey, more than half of African firms reported that greening their companies had led to improvements in the output and quality of their products, new market access, reduced input costs and a better ability to access green finance (ITC, 2021). The International Energy Agency (IEA) (2021) also estimates that, even though businesses require capital to invest in more efficient appliances and lower-emission vehicles, the cost savings over time can significantly outweigh the expense. Many of these changes are already within reach. According to the World Economic Forum (WEF) (2021), the eight global supply chains that account for more than 50 per cent of global emissions could reduce around 40 per cent of those emissions by making a few relatively easy and affordable changes that would have marginal cost implications or returns on increased efficiency.

While decarbonization and transitioning to sustainable business practices offer potential opportunities for MSMEs, they also pose significant challenges. Capital constraints, which are relatively higher for smaller businesses, mean that MSMEs are likely to be more risk-averse than larger companies, and to be less motivated to react to climate events and implement efficiency changes, due to the greater hurdles they must overcome (IEA, 2021). Many smallholders in the agriculture sector, for example, err on the side of caution when considering lower-carbon, higher-yield practices due to their lower capacity to absorb potential failure (even if temporary). Despite the fact that certain sustainable agricultural practices are well-established, smallholders remain tentative due to few financing tools and safety nets.

Knowledge gaps may also pose compliance challenges when new regulations enacted by governments leave businesses unaware of new requirements or adaptation methods (ITC, 2019). As a result, small business-owners tend to rely on familiar, established business practices. The lack of appropriate capacity and skills can also mean that MSMEs, especially those led by women or young people that tend to be smaller, may not take advantage of new opportunities (ITC, 2021). Currently, only 38 per cent of small businesses have made investments to reduce their environmental risks, compared to 60 per cent of large firms (ITC, 2021), and only a fraction of MSMEs even have a plan to decarbonize (BCG & HSBC, 2021).

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Although making changes involves significant costs and challenges, if an enterprise stays out of the circular economy or does not improve its environmental impact, it can risk exclusion from value chains, as large companies look to decarbonize their inputs and production. In addition, given that MSMEs may provide key components within supply chains, large firms cannot decarbonize without the combined efforts of their suppliers. For example, PepsiCo estimates that 92 per cent of its carbon emissions come from outside the firm's own operations, while only 8 per cent of its suppliers have scientifically approved climate targets

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<sup>1</sup> The present note was prepared by Emmanuelle Ganne, Zakaria Imessaoudene, and Kathryn Lundquist, Economic Research and Statistics Division of the WTO.

(Financial Times, 2022). Gauging the views of MSMEs regarding climate change and identifying the barriers they face in implementing climate action will be important as the world works to decarbonize the global economy.

Over the last few years, the US company Meta (formerly called Facebook) has been using its social media platform (still called Facebook), to better understand and assess the concerns facing business leaders by sending surveys to business-owners or managers around the world with a presence on Facebook. These surveys have been used to research how small businesses in different regions are affected by certain disruptions, such as the COVID-19 pandemic. Recently, questions concerning climate change have also been included. Using information from two of these “Small Business Surveys” conducted by Meta’s “Data for Good” services the present research note will look at how MSMEs view climate change, how willing they are to implement business changes, and what are the key barriers they claim to face with regard to decarbonizing. The surveys also offer insights into how MSMEs led or managed by women are affected, and where they stand in terms of the challenges facing MSMEs. This research note will trace connections between international trade policy and climate change, and propose policy interventions that could be made to help MSMEs to make more rapid progress towards decarbonization.

### **Data: Meta’s Global State of Small Business Survey**

The Global State of Small Business (GSoSB) is a biannual research effort conducted by Meta which assesses the economic situation of small and medium-sized businesses<sup>2</sup> globally. Data from these surveys are shared through Meta’s “Data for Good” programme.<sup>3</sup>

This research note looks at two GSoSB surveys, the first conducted between 19 July and 7 August 2021 (July-August 2021 survey) and the second survey conducted from 3 to 17 January 2022 (January 2022 survey). The July-August 2021 survey looked at a random sample of over 35,000 MSMEs across 30 countries and territories. Meta’s research team sent out over 8.5 million survey invitations via Facebook, of which 1.6 per cent were answered by owners and managers of MSMEs. Analyses of MSMEs were restricted to businesses with fewer than 250 employees. Survey weights were applied to make the results more representative of the population of MSMEs on the Facebook platform but results are not intended to be representative of a country’s entire population of MSMEs.

The July-August 2021 survey included roughly 20 general questions used from previous studies and added between eight and 10 new questions that are relevant to current global issues or trends. The list of questions was broken down according to a range of themes, e.g., demographics, staffing, revenue, digital transformation, challenges and digital tools. An additional set of climate change questions was included for a subset of fourteen economies.<sup>4</sup> It is worth noting that most of the countries represented in the July-August 2021 survey are classified as developed and are therefore not indicative of global perceptions. Businesses in developed economies tend to have access to more resources and investments than their counterparts in developing economies.

The January 2022 survey was undertaken in 30 countries and territories from around the world, including both developing and developed economies.<sup>5</sup> In addition to the regular GSoSB survey, it also included a question on expectations of future challenges which included checkboxes concerning trade and climate-related options. The 2022 survey received responses from over 23,000 MSME leaders globally, including over 5,000 MSMEs in the United States.

The surveys enable analyses disaggregated by factors such as gender and industry type.

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2 Meta refers to firms with fewer than 250 employees as small and medium businesses, referred to in this note as micro, small and medium-sized enterprises (MSMEs).

3 <https://dataforgood.facebook.com/dfg/tools/future-of-business-survey>

4 Climate change module: Australia; Belgium; Canada; France; Germany; Ireland; Israel; Italy; Poland; Portugal; Spain; Chinese Taipei; United Kingdom; and the United States.

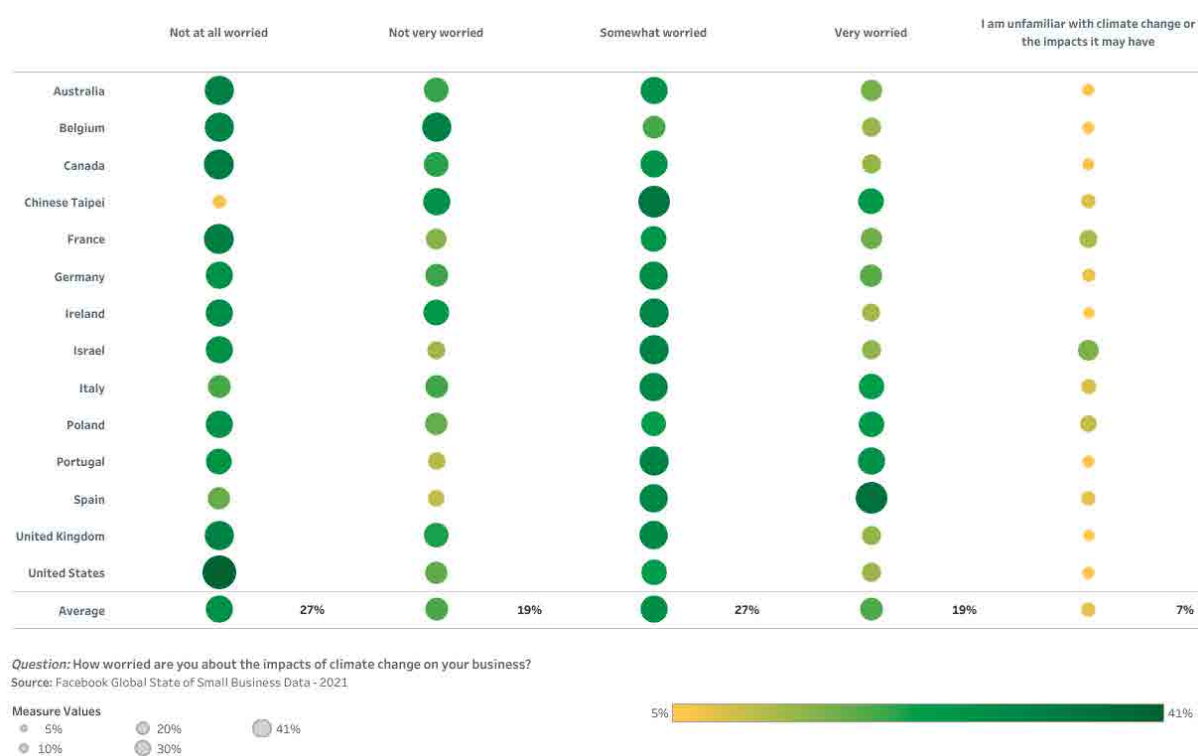
5 The economies surveyed included Argentina; Australia; Belgium; Brazil; Canada; Chinese Taipei; Colombia; Egypt; France; Germany; Ghana; India; Indonesia; Ireland; Israel; Italy; Kenya; Mexico; Nigeria; Pakistan; Philippines; Poland; Portugal; Russian Federation; South Africa; Spain; Turkey; United Kingdom; United States; and Viet Nam.

## 1. CLIMATE CHANGE, MSMEs AND BUSINESSES LED BY WOMEN

### 1.1 Perceptions of climate change are relatively mixed across surveyed countries

Results from Meta's July-August 2021 survey show a range in reporters' levels of concern over the effects of climate change. As Figure 1 shows, respondents were evenly split with regard to their response to the question "How worried are you about the impacts of climate change on your business", with 46 per cent of respondents reporting that they were "not at all worried" or "not very worried", while another 46 per cent reported being "somewhat worried" or "very worried". Very few respondents in any of the surveyed economies replied that they were unfamiliar with climate change, and it is worth noting that respondents from economies located in relatively warmer climate zones and coastal areas had higher shares of respondents reporting being "very worried" (e.g., Italy, Portugal, Spain and Chinese Taipei).

Figure 1, Concern for Climate Change



### 1.2 Concern for climate change also varies by gender

While geography may play a role in overall perceptions, gender also appears to be a factor when responding to the survey questions, as women entrepreneurs own a significant share of MSMEs globally, representing between 30 and 37 per cent (8 to 10 million) of all MSMEs in emerging markets alone (IFC, 2017). Moreover, women entrepreneurs mostly own and lead micro enterprises that tend to be smaller than firms owned or led by men. In Canada, for example, 92.7 per cent of firms owned by women employ fewer than 20 employees (Cukier et al., 2020).

When looking at the responses broken down according to gender, although female and male respondents reported similar shares of climate concern for their business (see Figure 2), a slightly smaller share of women reported being not at all worried (24 per cent, versus 29 per cent for male respondents), despite the fact that access to information and networks may be marginally more challenging for women than men, with 9 per cent of female respondents citing unfamiliarity with the issue of climate change or its impacts versus only 6 per cent of men. Given women are more likely to lead micro firms they may have fewer resources to devote to climate-related issues and resources themselves may be geared to other demographics. This suggests that additional education on this question would be beneficial, given the relatively low levels of concern and the significant share of respondents that note no familiarity with climate change and its impacts.

Figure 2, Concern for Climate Change by Gender



Question: How worried are you about the impacts of climate change on your business?  
 Source: Facebook Global State of Small Business Data - 2021

### 1.3 Most surveyed MSMEs are willing to change their business practices

Willingness to change is also an important factor in decarbonization efforts. The data collected in the July-August 2021 survey indicate that most respondents would be willing to upgrade their business practices. In fact, as Figure 3 shows, most respondents to the question “How willing or unwilling would you be to change your business practices to reduce climate change” were in the spectrum between having already changed their business practices or “would probably be willing to change their business practices to reduce climate change”.

The data collected in the July-August 2021 survey indicate that most respondents would be willing to upgrade their business practices.

Figure 3, Willingness to Make Change



Question: How willing or unwilling would you be to change your business practices to reduce climate change?  
 Source: Facebook Global State of Small Business Data - 2021



## 1.4 Female respondents are more willing to act than men but need more information

In response to the same question, 29 per cent of women had already made changes to business practices to reduce climate change compared to 26 per cent of men, while 23 per cent of both sexes were definitely willing to make changes. However, a larger share of female respondents (20 per cent) than of male respondents (15 per cent) reported that they needed more information before making a climate-related change to their business practices. On the other hand, less than half the share of female respondents compared to male respondents (4 per cent versus 9 per cent) reported they “definitely would not” make any changes (Figure 4).

**A larger share of female respondents (20 per cent) than of male respondents (15 per cent) reported that they needed more information before making a climate-related change to their business practices.**

Figure 4. Willingness to Make Change by Gender



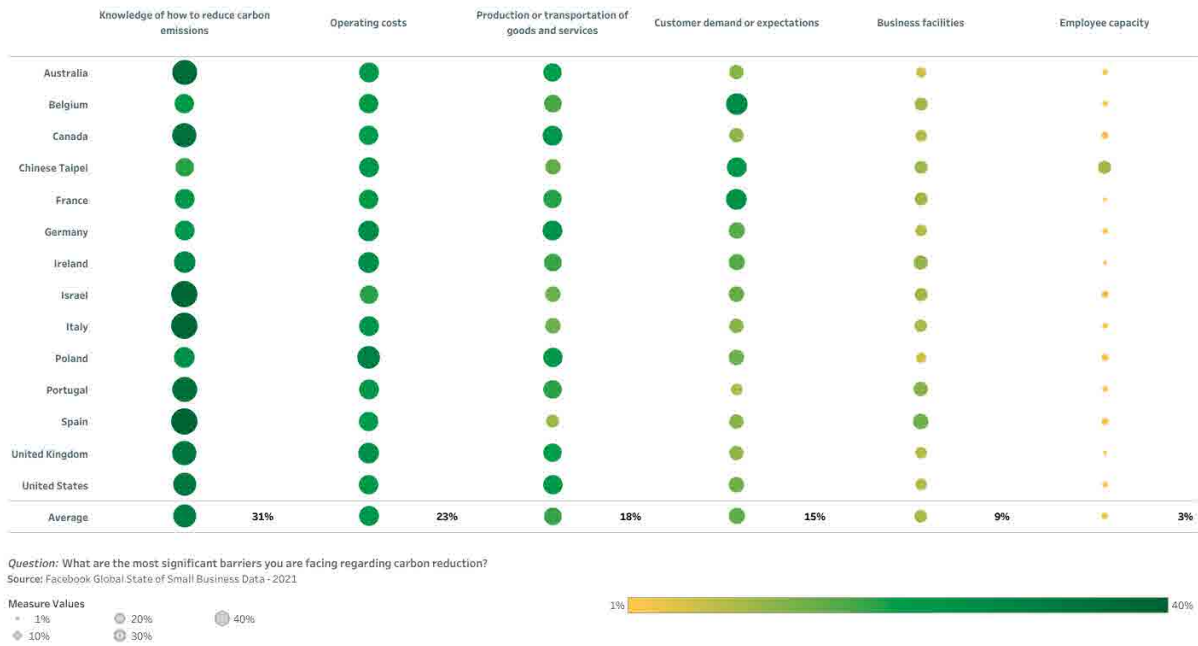
Question: How willing or unwilling would you be to change your business practices to reduce climate change?  
Source: Facebook Global State of Small Business Data - 2021

## 1.5 Lack of knowledge of decarbonization practices is a major barrier, in particular for female business-owners

In response to the question, “What are the most significant barriers you are facing regarding carbon reduction?”, responding businesses in more than half of the economies covered by the survey cited knowledge of how to reduce carbon emissions as their largest barrier to decarbonizing (Figure 5). Operating costs and the production or transportation of goods were also barriers to carbon reduction for many respondents. In contrast, employee capacity was the least common concern in all countries surveyed.



Figure 5, Barrier for Carbon Reduction



According to the survey, 35 per cent of women respondents listed knowledge of how to reduce carbon emissions as the leading barrier compared to 28 per cent of men (see Figure 6). Operating costs and production/transport of goods came second and third in the list of barriers.

Figure 6, Barrier for Carbon Reduction by Gender



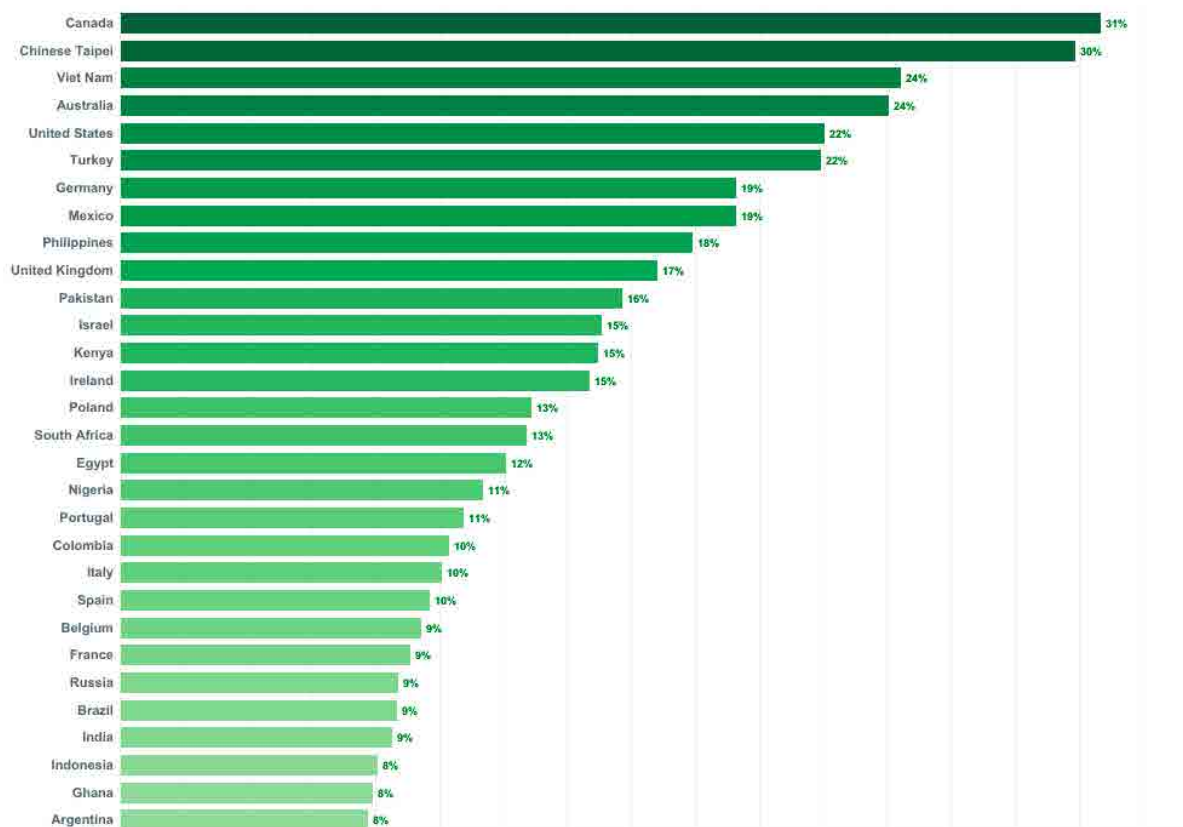
## 1.6 GVC-intensive economies are more concerned about supply chain disruptions

The results from Meta's January 2022 Global State of Small Business (GSoSB) study complement the previously discussed July-August 2021 survey. This second survey included responses from participants in an additional 16 economies in a broader geographical range. The survey included a question asking "Do you expect any of the following to be challenges for your business over the next 2-5 years" with eight different response checkboxes. The checkbox options included 1) I expect no challenges; 2) Physical damage due to natural disaster and/or severe weather; 3) Supply chain disruptions due to natural disasters and/or severe weather; 4) Insurance costs due to natural disasters and/or extreme weather; 5) Costs due to implementing climate change policies and regulations; 6) Energy costs due to transitioning to renewable energy sources for your business; 7) Surplus office/commercial space; 8) Other (please specify). Although response rates were low and many of these options are not specifically trade-related, the responses for supply chain disruptions due to weather and for costs due to implementing climate change policies and regulations suggest a few trends, especially when analysed at the economy level.

In relation to supply chain disruptions due to natural disasters and/or severe weather, Figure 7 indicates that business-owners and managers in many developed and globally-linked economies expect future challenges in this regard. Although no regional pattern emerges, respondents in economies more closely linked to GVCs, like Canada, Chinese Taipei and Viet Nam (WTO, 2019), appear to be more concerned about the effects of severe weather on supply chains.

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Figure 7, Supply Chain Disruption Concerns Due to Weather



Question: Do you expect any of the following to be challenges for your business over the next 2-5 years? (Supply chain disruptions due to natural disasters and/or severe weather) - Yes

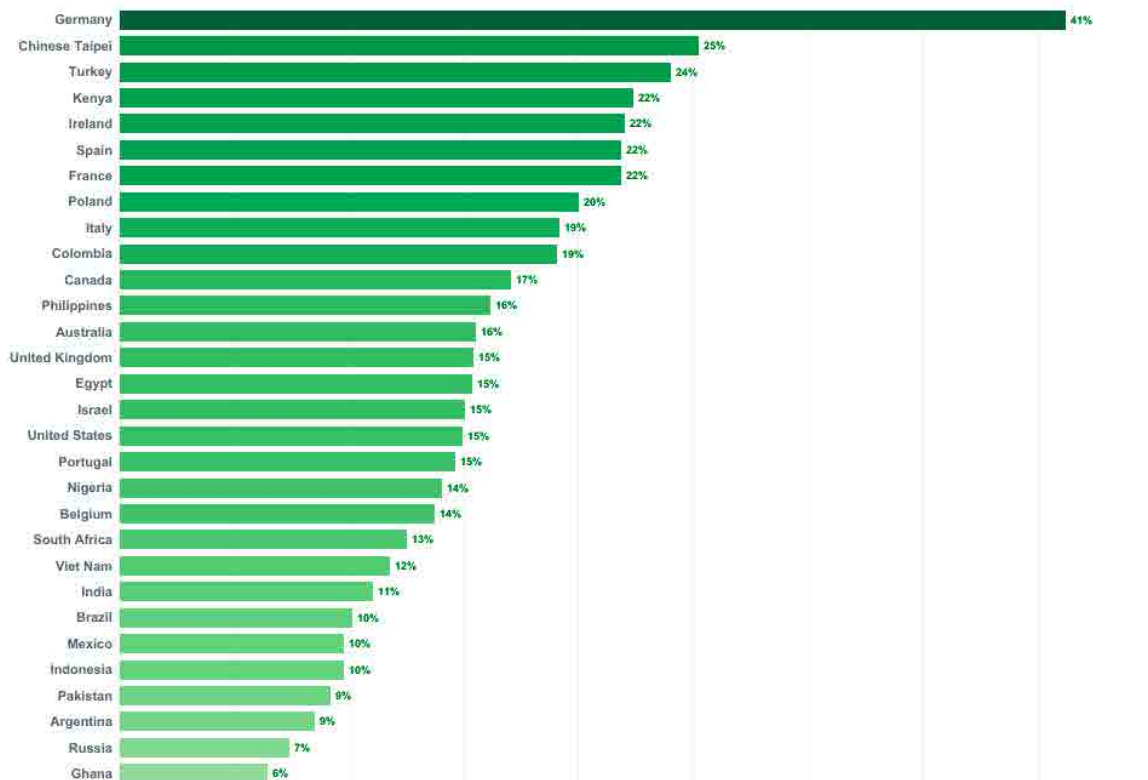
Source: Facebook Global State of Small Business Data - 2022

## 1.7 Surveyed MSMEs report rising operation costs due to climate change policies and regulations

The results from the 2022 GSoSB survey also indicated that responding MSMEs expected significant costs to be incurred to their operations as a result of climate change policies and regulations (see Figure 8). In Germany, for example, where national decarbonization efforts are well under way, more of the surveyed MSMEs reported that they expected climate change policies and regulations to increase their operating costs. These high levels of concern could simply reflect stringent domestic climate regulations and policies rather than issues related to global trade.

**The results from the 2022 GSoSB study also indicated that responding MSMEs expected significant costs to be incurred to their operations as a result of climate change policies and regulations**

Figure 8, Concerns Over Costs Due to Climate Change Policies and Regulations



Question: Do you expect any of the following to be challenges for your business over the next 2-5 years? (Costs due to implementing climate change policies and regulations) - Yes

Source: Facebook Global State of Small Business Data - 2022

## 2. WHAT CAN GOVERNMENTS DO TO SUPPORT MSME TRADE AND DECARBONIZATION?

Based on the responses to the Meta surveys reviewed in Section 1, MSMEs, at least in developed regions of the world, are aware of climate change and it appears that many have related business concerns. There is also a general willingness to change, but the surveys suggest that there is a need for more information on ways businesses can modify their practices. Demand for additional information was particularly high among female business-owners and managers. Policymakers should therefore focus on information dissemination, clear decarbonization objectives and overall messaging. Policy uncertainty can also keep MSMEs from considering long-term changes to decarbonize their production (ITC, 2021; WEF, 2021). Access to tools like the ITC's Trade for Sustainable Development (T4SD) resources,<sup>6</sup> the SME Climate Hub,<sup>7</sup> or the WTO's Environmental Database (EDB)<sup>8</sup> could be helpful, as such tools as these allow users to assess their carbon footprint, acquire ideas for carbon reduction, and find information on financial resources.

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Clear decarbonization and environmental standards are required (WTO, 2022). At the international level, the wide variety of standards, measurement requirements and carbon content calculations mean that MSMEs may not be able to easily demonstrate their compliance with regulations to access the certifications and labels they need to export abroad and participate in value chains.

For one, these certificates continue to multiply, and their fixed costs mean they are relatively more expensive for smaller firms. In addition, these standards are often created by developed economies and focused on metrics that may be less relevant in developing economies. For example, the baseline assumptions for environmental impact can be challenging and even misleading according to the context, as one study of sugar exports from Malawi and Mauritius revealed. In this example, the "change in land-use" to agriculture dominated the carbon calculations given that prior land use is often unknown, meaning a "worst-case" scenario is applied (World Bank, 2021). Governments should thus aim to harmonize domestic requirements with international standards where possible, complementing any requirements with adequate verification measures (WTO, 2022).

Businesses are focused on their bottom line (i.e., their net income, earnings or profit), and high up-front transition costs are a major barrier to certain environmental efficiency improvements for MSMEs. Operating costs are among the concerns for businesses in the survey, and will cause lags in decarbonization. The 2022 GSoSB survey shows that businesses expect climate change regulation to create extra costs for them, and governments need to recognize that many climate-related measures implemented by firms would provide no savings and would cause them to incur additional expenses (ITC, 2021). To mitigate these effects, policymakers should develop climate-related regulations seen through a "MSME lens" to identify potential challenges and costs. Decarbonization requires investment, and, to make the transition possible, access to finance and even subsidization for some of the costs incurred will be necessary.

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The WTO can help to reduce this dissonance by providing a space to move towards harmonization and avoid inefficient frictions due to different approaches. It can also serve as a forum for experience-sharing by WTO members, so that best practices can be promoted for supporting MSMEs to cope with climate change challenges. This can be achieved through discussions in committees, such as the Technical Barriers to Trade (TBT) and Trade and Environment (CTE) committees, as well as, through new initiatives like the Trade and Environmental Sustainability Structured Discussions (TESSD).<sup>9</sup> By actively engaging in these discussions, governments can establish new practices and policies to better serve and support their MSMEs.

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<sup>6</sup> More information can be found [here](#), including access to ITC Standards Maps and the ITC Sustainability Map.

<sup>7</sup> A global initiative, for which more information can be found [here](#).

<sup>8</sup> More information on the WTO's [Environmental Database](#), global trade and climate change can be found [here](#).

<sup>9</sup> The TESSD was announced in 2020 by a plurilateral group of WTO members to organize structured discussion on trade and environmental sustainability. For more information, see [https://www.wto.org/english/tratop\\_e/tessd\\_e/tessd\\_e.htm](https://www.wto.org/english/tratop_e/tessd_e/tessd_e.htm).



As mentioned above, the 2022 GSoSB survey indicates that survey respondents expect climate change policies and business regulations to increase their costs. Thus, governments and policymakers need to be conscious of the challenges facing these businesses, and opt for legislation and standards that take different firm sizes into account. Although there has been a global increase in the availability of “green finance” to support ecopreneurs and business decarbonization, MSMEs cannot necessarily access this financing because they may not conform to the requirements, they may not be able provide the appropriate documentation, or they may be too small to qualify for official government schemes (BCG & HSBC, 2021).

In addition, not only is it expensive for an MSME to invest in green upgrades, but these changes are not always understood by financial institutions as a way of increasing long-term revenue by the requestor, meaning that the credit applications of MSMEs looking to access capital for these types of changes may not be viewed favourably (ITC, 2021). Financial institutions, such as the European Bank for Reconstruction and Development (EBRD), are working to support greener energy through credit lines distributed by private banks to industrial MSMEs and small renewable energy projects (Stern Review, 2006).

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**Thus, governments and policymakers need to be conscious of the challenges facing these businesses, and opt for legislation and standards that take different firm sizes into account.**

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## CONCLUSION

With the advent of global initiatives such as “greening the economy”, green finance and other sustainability initiatives, environmentally-conscious practices have become increasingly popular across different industries. Decarbonization and transitioning towards greener business practices will undoubtedly play an essential role in the global effort to limit the effects of climate change and achieve carbon neutrality targets. However, these efforts mean change.

With change comes new economic opportunities for MSMEs that can be created through eco-innovation. But this requires significant investment that many individual MSMEs do not have. While there is a large appetite for green investment, access to financial assistance and incentives is hindered because small companies may not be able to provide the appropriate verification these programs required, or they may be too small to qualify for national decarbonization target reduction initiatives.

Consequently, MSMEs may struggle to comply with, or may be unable to benefit from, new policies such as cap-and-trade (i.e., government regulatory programmes designed to cap or limit the level of emissions of various types) or legal requirements to decarbonize because of their lack of access to information and the costs that these efforts entail to implement (ITC, 2019). Firms led by women and young people in certain regions may also struggle more to adapt to such policies, and may have less capacity and fewer of the skills that would enable them to take advantage of new opportunities (ITC, 2021).

Since MSMEs comprise 90 per cent of global business, and are therefore critical to achieving decarbonization targets, governments and financial institutions will need to become more attuned to the concerns of these firms. Policy support should focus on clear decarbonization agendas with information disseminated widely, alongside tools for MSMEs to assess their climate impact and easier access to green finance and standards. Moreover, MSME concerns over certain issues, such as adhering to international standards and regulations, should be voiced by governments in a multilateral setting so that standards can be rendered more accessible to smaller businesses. By coordinating with other global partners and harmonizing domestic requirements with global initiatives, governments can facilitate greener trade.

While there is no one-size-fits-all solution, governments should work closely with their MSMEs to better understand the challenges they face domestically, with a view to opting for policies that empower firms of all sizes without compromising national climate agendas and missing targets.

## REFERENCES

BCG and HSBC (2021), "Delivering Net Zero Supply Chains, The Multi-Trillion Dollar Key to Beat Climate Change", [https://cdn.txfmedia.com/assets/Assets/HSBC\\_BCG\\_NetZeroSupplyChain\\_WhitePaper\\_25102021\\_vF.pdf](https://cdn.txfmedia.com/assets/Assets/HSBC_BCG_NetZeroSupplyChain_WhitePaper_25102021_vF.pdf).

Brenton, P. and Chemutai, V. (2021), "The Trade and Climate Change Nexus: The Urgency and Opportunities for Developing Countries", Washington, D.C.: World Bank Group, <https://doi.org/10.1596/978-1-4648-1770-0>.

Cukier, W., Gagnon, S., Hodson, J., Saba, T., Grandy, G., Morton, S., Elmi, M., Stolarick, K., and Chavoushi, Z.H. (2020), The State of Women's Entrepreneurship in Canada 2020. Toronto: Diversity Institute, Ryerson University. [https://wekh.ca/wp-content/uploads/2020/10/WEKH\\_State\\_of\\_Womens\\_Entrepreneurship\\_in\\_Canada\\_2020\\_EN-1.pdf](https://wekh.ca/wp-content/uploads/2020/10/WEKH_State_of_Womens_Entrepreneurship_in_Canada_2020_EN-1.pdf).

Financial Times (2022), "PepsiCo squares up to supply chain emissions challenge", [PepsiCo squares up to supply chain emissions challenge | Financial Times \(ft.com\)](https://www.ft.com/content/8c8c8c8c-8c8c-8c8c-8c8c-8c8c8c8c8c8c).

IEA (2021), Net Zero by 2050: A Roadmap for the Global Energy Sector, Paris: IEA, <https://www.iea.org/reports/net-zero-by-2050>.

IFC (2017), "Women Entrepreneurs are Essential for Private Sector Development in Emerging Markets", Washington, D.C.: IFC, <https://www.ifc.org/wps/wcm/connect/d7623440-8bb4-4827-9ce5-470dcb6f86b1/Entrepreneurship+Offering+Brochure+July2017.pdf?MOD=AJPERES&CVID=IQps6KM>.

ITC (2021), SME Competitiveness Outlook 2021: Empowering the Green Recovery, Geneva: ITC, <https://intracen.org/resources/publications/sme-competitiveness-outlook-2021-empowering-the-green-recovery>.

McKinsey (2016), "Starting at the source: Sustainability in supply chains", <https://www.mckinsey.com/business-functions/sustainability/our-insights/starting-at-the-source-sustainability-in-supply-chains>.

Stern, Nicholas (2006), "The Economics of Climate Change: The Stern Review", Cambridge: Cambridge University Press.

Tollefson, J (2020), "How hot will Earth get by 2100?", Nature, 22 April 2020, <https://www.nature.com/articles/d41586-020-01125-x>.

WEF (2021), "Net-Zero Challenge: The Supply Chain Opportunity", Geneva: WEF, [https://www3.weforum.org/docs/WEF\\_Net\\_Zero\\_Challenge\\_The\\_Supply\\_Chain\\_Opportunity\\_2021.pdf](https://www3.weforum.org/docs/WEF_Net_Zero_Challenge_The_Supply_Chain_Opportunity_2021.pdf).

WTO (2022), "Trade and Climate Change: Information Brief No. 6", World Trade Organization, Geneva: WTO, [https://www.wto.org/english/news\\_e/news21\\_e/clim\\_03nov21-6\\_e.pdf](https://www.wto.org/english/news_e/news21_e/clim_03nov21-6_e.pdf).

WTO, IDE-JETRO, OECD, RCGVC-UIBE and World Bank Group (2019), Technological Innovation, Supply Chain Trade, and Workers in a Globalized World, Geneva: WTO, IDE-JETRO, OECD, RCGVC-UIBE and World Bank Group, [https://www.wto.org/english/res\\_e/booksp\\_e/gvc\\_dev\\_report\\_2019\\_e.pdf](https://www.wto.org/english/res_e/booksp_e/gvc_dev_report_2019_e.pdf).

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