

## Climate-Resilient Trade and Production: The Transboundary Effects of Climate Change and Their Implications for EU Member States

### KEY MESSAGES

- Climate change impacts around the world are already creating cascading risks that intersect with trade patterns and international supply chains. These risks can reverberate across the global economy and pose a growing challenge for EU Member States.
- Several European countries have conducted assessments of transboundary climate risks but have yet to develop policy responses based on the resulting insights. This is a complex task, involving a wide range of public and private actors, within and outside the EU. Three key priorities should guide decision-making:
  - *effectiveness* in reducing risk;
  - a clear designation of *responsibility*; and
  - *fairness* in the distributional impacts of the policies' effects.
- The EU is well placed to support Member States in identifying, managing and reducing transboundary climate risks by developing innovative governance mechanisms; creating common methodologies and guidance; fostering cross-sector and international cooperation; and harnessing new strategic partnerships.
- Addressing transboundary climate risks fits well with the European Green Deal and the EU's COVID-19 recovery plan, which aim to create a more sustainable, inclusive and climate-resilient economy. The EU Adaptation Strategy and the Trade Policy Review present important opportunities to build a global European economy resilient to transboundary climate risks, in recognition of our interdependent world.

COVID-19 has revealed with startling clarity the vulnerabilities inherent in a globalised world, including how risks can leap across sectors and national borders, with profound political, economic and social consequences. European businesses and consumers today rely heavily on complex supply chains and just-in-time production and delivery, which can be disrupted by shocks, compound events, and long-term shifts elsewhere in the world.

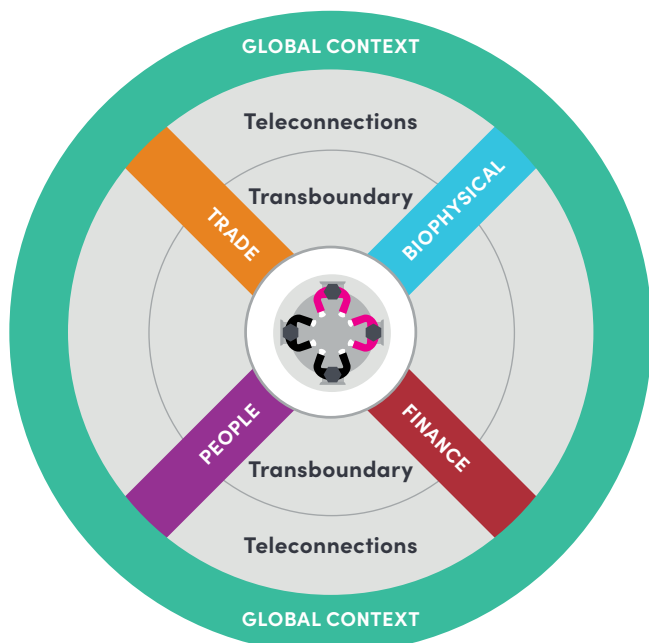
From this perspective, the pandemic offers crucial lessons on how to address climate change. Like COVID-19, it can spur chain reactions, threatening food security, livelihoods and wider health and well-being. In a warming, interconnected world, increasing the resilience of global trade and production systems is paramount.

This brief provides an overview of the state of knowledge on **transboundary climate risks** in Europe, and explores how this knowledge could help Member States, businesses and the EU as a whole to advance climate-resilient trade and production. Findings and recommendations will inform the development of the new EU Adaptation Strategy and the ongoing EU Trade Policy Review, as well as national efforts to adapt to climate change. These findings and recommendations have been shaped in part by an online seminar with adaptation and trade representatives of EU Member States, the European Commission and other international organisations, which was held on 9 July 2020.

### Transboundary climate risk

The impacts of climate change are not confined by national borders: they affect and are amplified by trade and supply chains, capital flows, human mobility, and the sharing of natural resources among countries, regionally and globally (Figure 1). Likewise, actions to adapt to climate change can have impacts far beyond the jurisdiction where they are implemented. Thus, while the

**Figure 1.** Four key pathways of transboundary climate change risk: biophysical, finance, trade and people



Source: Adapted from Benzie et al. 2016.

consequences of climate change are felt and addressed at the national and subnational levels, they also require a multilateral response that current approaches to adaptation rarely provide.

The impacts of climate change – from more frequent shocks, such as floods or heat waves, to gradual changes, such as sea-level rise and shifting ecological zones – are

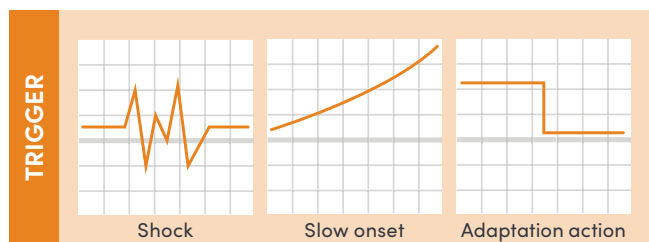
already creating cascading risks that intersect with trade patterns and international supply chains (Figure 2). Such risks may relate to diminished production of a particular good, such as agricultural commodities; the disruption of trade, transport or other key systems, including electricity generation and transmission; and responses to the perceived or actual manifestation of climate impacts. Risks can cross borders and reverberate through the global economy, impacting Europe and other countries all around the world, far away from the original source. They are poised to become larger and more significant with time. Yet many countries, businesses and organisations are unaware of these risks and underprepared for their potential effect on fragile systems.

As a highly connected global economic hub, Europe is acutely exposed to transboundary climate risks. This was revealed in a recent study by Hedlund et al. (2018), who calculated for 172 countries an index of exposure to transboundary climate risk, based on the four pathways shown in Figure 1. Assessments of in-country climate risk or vulnerability invariably rank countries in sub-Saharan Africa, Small Island Developing States and other Least Developed Countries the highest. For transboundary climate risk, however, the pattern is much more complex and diverse. Four European countries (the Netherlands, Luxembourg, Montenegro and Belgium) rank among the 20 most exposed countries globally, along with eight sub-Saharan African countries, seven Middle East and Northern African states, and one Asian country, Malaysia (Hedlund et al. 2018; see also Benzie et al. 2019).

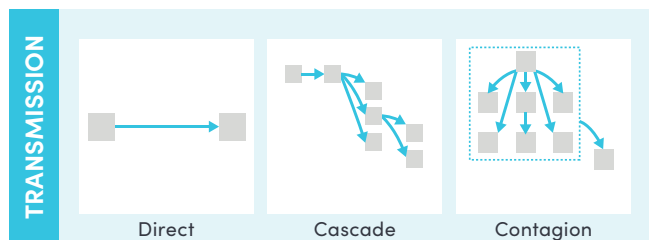
Figure 3 demonstrates some of the ways in which climate impacts elsewhere could affect Europe. The risks are

**Figure 2.** Properties of transboundary climate risks

**What can trigger them?** Different types of events can create transboundary climate risks

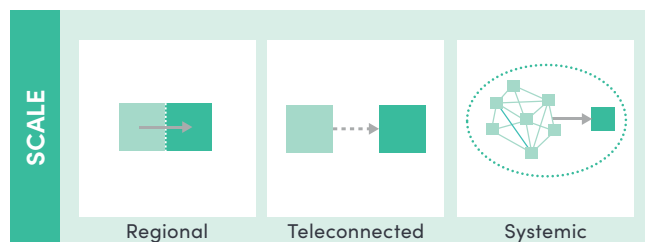


**How can they spread?** Transboundary climate risks can be transmitted in different ways

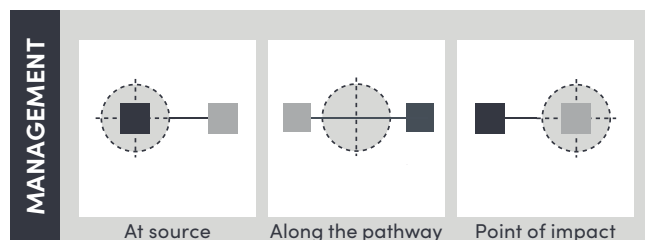


Source: Adaptation Without Borders 2019.

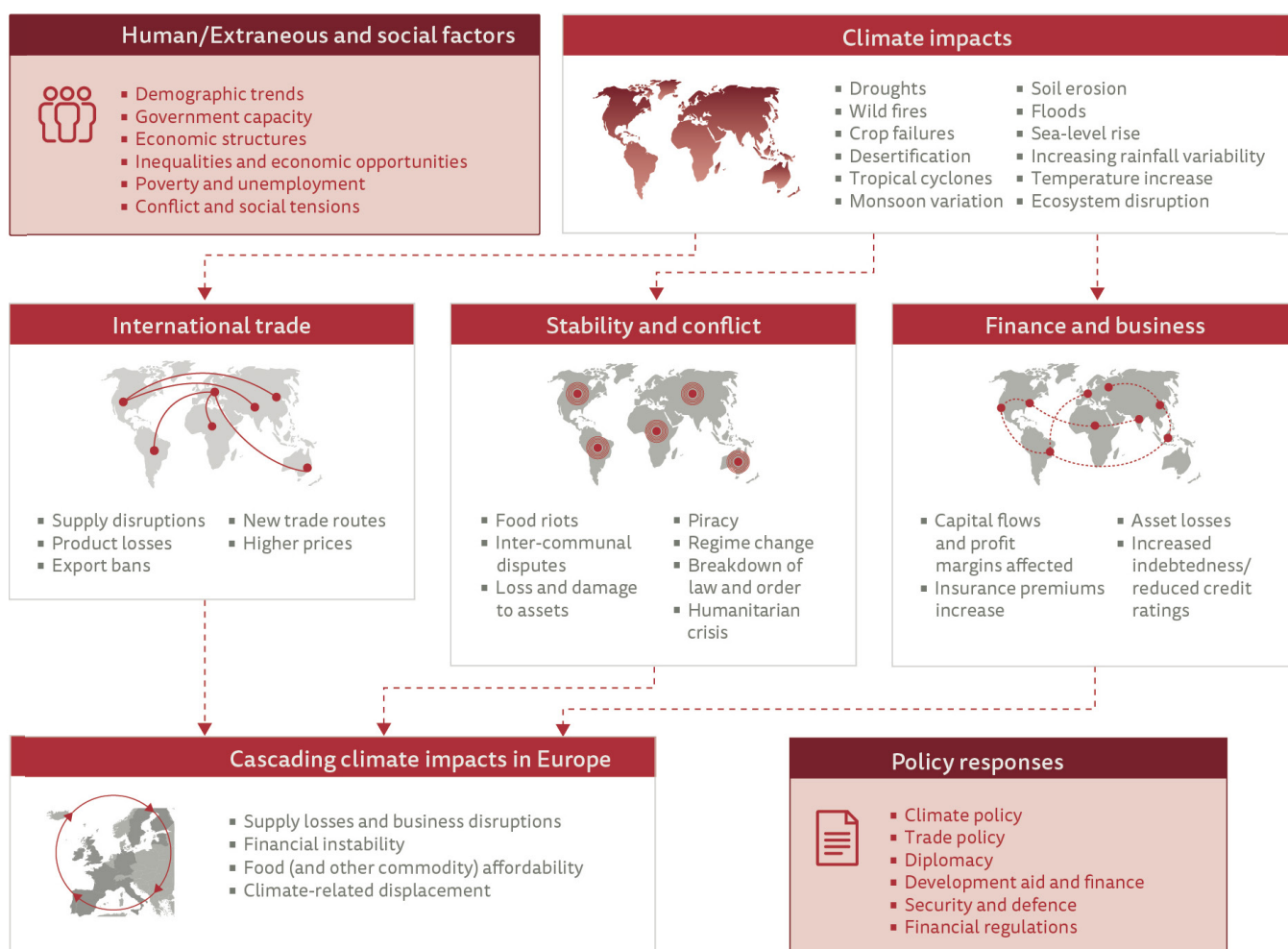
**Where can they spread?** Transboundary climate risks can be spread between and across countries



**How can they be managed?** Responses can target different stages of a transboundary climate risk



**Figure 3.** Examples of Europe’s exposure to cascading climate change impacts



Source: Hildén et al. 2020.

increasingly recognised, but their potential impact on Europe is still poorly understood. Even less is known about what measures national governments and the EU could and should take to address them. What is clear, however, is that transboundary climate risks are an EU-wide concern. There is therefore a need for EU leadership in guiding the assessment of risks and in formulating effective responses.

At the same time, the EU is ideally placed to develop innovative governance mechanisms to strengthen resilience and deepen international cooperation. These mechanisms would enable better support of Member States as they identify, manage and reduce transboundary climate risks, and help to harness the new strategic partnerships and opportunities they present.

### European assessments of transboundary climate risks and trade

A number of countries across Europe have already undertaken assessments of transboundary climate risks, although methods vary from economic modelling and

systematic research reviews to country-profile assessments and expert consultations (Table 1). Where the order of magnitude of transboundary climate risks has been assessed, such as in Switzerland, the UK and Germany, evidence suggests that the transboundary effects of climate change are expected to be as large or even larger than the domestic impacts of climate change (Schwank et al. 2007; PwC 2013). The recent German assessment values the economic impacts of trade-related transboundary climate risk alone as greater than the combined effects of all direct climate change impacts within the country’s national borders (Peter et al. 2019; 2020).

Assessments of transboundary climate risks are essential but can be highly complex exercises. Member States have the benefit of learning from others’ experiences as they undertake their own assessments. In particular, the *scoping and design* phase is critical, as policy-makers consider how to delimit their study, identify and involve appropriate stakeholders, and consider how results will be integrated into decision-making (Figure 4). After a detailed scoping has occurred, countries can proceed to the actual *assessment*, and to *appraising* the results.

**Table 1.** Assessments of transboundary climate risks across Europe

Country	Year	Scope	Method	Language
Switzerland*	2007	Trade (predominant); foreign exchange and capital markets; work and migration; technology; natural resource availability	Economic modelling	German/French
Finland	2007, 2016	Agriculture; forestry and forest industries; tourism; insurance; energy; transport	Research review, country profile-based	English (2007); Finnish (2016)
UK*	2013, 2017	Business and trade; infrastructure; food; health and wellbeing; foreign policy	Country profile-based	English
The Netherlands	2015	Health; food; energy; information and communications technology; water safety and security of supply; biodiversity; economic ties; foreign policy	Country profile-based	English/Dutch
Norway*	2018	Trade; agriculture and fisheries; finance; people; infrastructure; geopolitics	Modelled on UK assessment	Norwegian
Sweden	2019, 2020	Trade; finance; movement of people; infrastructure; food; geopolitics	Modelled on UK and Norwegian assessment (2019); Expert opinions/workshops (2020)	Swedish
Germany	2019, 2020	Trade (including disruptions in transport systems)	Economic modelling	German

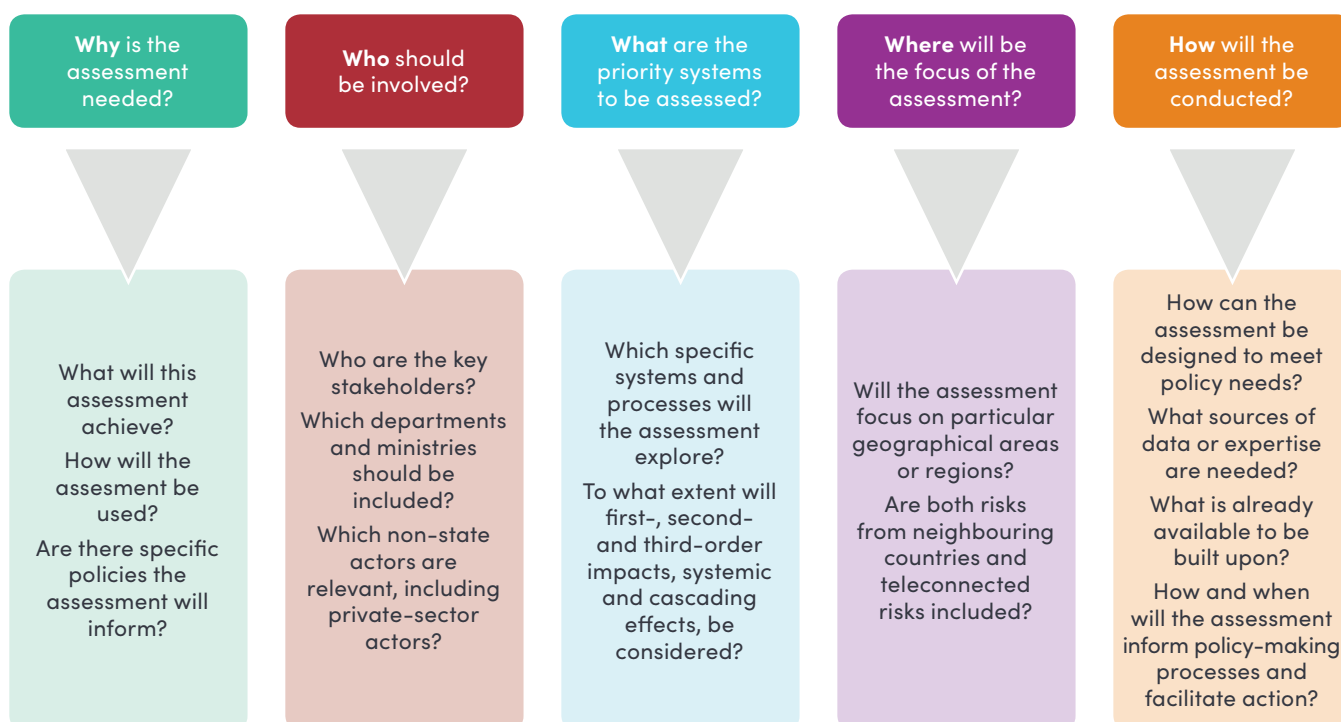
\* EU-neighbouring countries

## Managing transboundary climate risks in trade and production systems

While several countries have generated insightful assessments of transboundary climate risks, they all still need to employ their findings to adapt their trade and produc-

tion systems and make them more resilient. Doing so is a complex task. To find effective options with broad support, it is essential to start by identifying the most appropriate actors to take ownership of and to manage the risks revealed in the assessment. Given the wide variety of relevant actors – both public and private, spread across

**Figure 4.** Key questions for scoping and designing an assessment of transboundary climate risk



sectors and scales – that in itself may be a significant challenge.

For trade and production systems, the vast majority of risk management has historically been done within the private sector. For instance, companies may conduct supply-chain risk assessments focused specifically on climate resilience, to ensure their business models are robust in the short and long term. Institutional investors may benefit from much of the same information. In cases where the private sector is unable or unwilling to produce these details, the public sector may play a facilitating role: mandating the disclosure of climate risks, creating tax incentives for climate risk assessments or investments in resilience, and/or providing training and technical support materials and clear regulatory signals.

It is not self-evident which policy areas would be best placed to implement such options, or at what scale. It may be possible, for instance, to use the tools of international development cooperation to address a climate risk at its source outside of the EU. Alternatively, domestic tax policies could support sustainability in consumer behaviour at the point of impact in a Member State. To reduce risks along a risk pathway, a coordinated response may be appropriate at the EU level. Such a response could be adaptation-specific and aligned with international climate policy processes (such as the Paris Agreement), or pursued through free-trade agreements, in particular their sustainability chapters.

In summary, the complex nature of potential policy responses to transboundary climate risks may make them difficult to identify, assess and implement. Moreover, the same policy options may not be appropriate for all country contexts or risks, indicating a need for flexibility based on the challenge at hand. Across all policy options, however, three core principles should be used to guide decisions:

- **Effectiveness** – Is the proposed policy option likely to be effective in reducing or managing the risk? This is principally a technical question and can be answered by policy analysts or other relevant experts.
- **Responsibility** – Which actors should be responsible for reducing or managing the risk? This is principally a political question and should be addressed by considering the appropriate scope or mandates of relevant government departments and ministries, as well as the various roles that public and private actors play in that context.
- **Fairness** – How will the intended and unintended effects of this policy be distributed, positive and negative? This is both a technical and a political question, where technical analysis should support political discussions about who may gain from a policy and who may be harmed. These assessments should include both stakeholders in the jurisdiction of the policy implementer and trading partners who may be affected.

**“Building more resilient societies, including climate-resilient trade and production systems, is imperative for Europe.”**

Subsequent political deliberations should include all relevant stakeholders, so that implemented policies have equity at the centre.

## Recommendations

Building more resilient societies, including climate-resilient trade and production systems, is imperative for Europe in the next few years. At the core of both the European Green Deal and a green COVID-19 recovery is the desire to create a more sustainable, inclusive and vibrant economy that can withstand the shocks and stresses of a changing climate. EU Member States, supported by the European Commission, will have a critical role to play in this regard. The current consultations on the EU Adaptation Strategy and the Trade Policy Review also present an important opportunity to build a global European economy resilient to the transboundary nature of climate risk, in recognition of our interdependent world.

### EU Member States

EU Member States hold key responsibilities related to adaptation, including facilitating and supporting action at the subnational and local levels. They also play important roles in managing transboundary climate risks. While adaptation discussions typically focus on domestic concerns, in this context they will need to consider the implications of climate risk for wider policy portfolios – such as economic, trade and foreign policy – and for their engagement with other countries and regions.

#### *1. Conduct assessments of transboundary climate risks in trade and production systems*

All EU Member States should be aware of the nature and magnitude of the transboundary climate risks they are exposed to, which assessments to date suggest could be significant. To ensure that transboundary climate risk assessments can inform policy and planning, an inclusive scoping and design phase is critical. It needs to address the following questions: *Why* is the assessment needed? *Who* should be involved? *What* are the priority systems to be assessed? *Where* will be the focus of the assessment? *How* will the assessment be conducted? The latter question requires particular care. In addition to learning from other countries' experiences, Member States may wish to develop a common assessment methodology or guidance – perhaps in collaboration with the Organisation for Economic Co-operation and Development (OECD).



**“When the current EU Adaptation Strategy was reviewed in 2018, the evaluation raised concern that the strategy did not meet the EU’s needs with regard to climate change impacts beyond its borders.”**

### *2. Identify, assess and implement policy options to reduce and manage transboundary climate risks, working with the private sector*

A focus on reducing and managing transboundary climate risks adds a new dimension to domestic adaptation plans and strategies. EU Member States are already familiar with the need to integrate or mainstream adaptation into sectoral policies (including in health, water management, forestry, agriculture and urban planning, for instance). Transboundary climate risks, especially those associated with trade, further broaden the set of stakeholders with whom to engage and often involve the private sector. In many cases, businesses may take the lead. It is crucial to ensure policy coherence, as stakeholders may be subject to multiple sets of policies. For instance, businesses operate within an environment defined by domestic and international trade policy, enterprise and industrial policy, consumer policy, tax policy, and other relevant policies that are typically considered distinct from adaptation strategies. EU Member States must therefore ensure that their adaptation strategies facilitate private-sector initiatives to address transboundary climate risks in ways that are compatible with existing non-climate policies.

## **EU Adaptation Strategy**

When launching the consultation for the EU’s new and more ambitious Adaptation Strategy, the European Commission (2020) stated that “Europe is affected by indirect climate impacts occurring in other parts of the world in multiple ways, such as through trade and supply chains, spread of infections, threats to international security, or migration.” When the current EU Adaptation Strategy was reviewed in 2018, the evaluation raised concern that the strategy did not meet the EU’s needs with regard to climate change impacts beyond its borders, and explicitly said the issue should be considered in greater depth in future iterations (European Commission 2018). The new strategy presents an opportunity for the EU to design and support pioneering initiatives to build resilience to the transboundary and systemic nature of climate risk.

### *3. Increase the scope of the EU Adaptation Strategy to include transboundary climate risks as a major driver of climate change impacts in Europe*

The European Commission should recognise the pathways through which transboundary climate risks flow, including trade and production, as significant determinants of Europe’s exposure and vulnerability to the effects of climate change. The EU Adaptation Strategy should thus be broadened in scope, going beyond the traditional focus on climate change impacts occurring within Europe to also recognise sources of climate risk beyond the EU’s borders. This should stimulate the development of new approaches to managing cross-border risks that engage actors not currently involved in EU adaptation efforts, as well as with governments outside Europe. The Strategy should also underscore the importance of regional solidarity to effectively manage transboundary climate risks and aim to strengthen Member States’ collective resilience to those risks.

### *4. Establish concrete technical and financial mechanisms in the EU Adaptation Strategy to help Member States to manage transboundary climate risks*

The EU Adaptation Strategy should also include new mechanisms to support Member States in addressing transboundary climate risks. For instance, the EU could develop common approaches and tools to assess transboundary climate risks in trade and production systems or conduct stress tests. It could facilitate the generation and exchange of knowledge by commissioning case studies and convening Member States to share lessons and best practices. A formal EU-level stocktake and review mechanism could also be established to assess continued progress in transboundary climate risk management. Importantly, these mechanisms should promote deeper cooperation both within Europe and with key partners and countries internationally. By championing the management of transboundary climate risks in key diplomatic and multilateral processes, the EU can generate new opportunities for sustainable investment and strengthen the global governance architecture for managing systemic risks.

## **EU Trade Policy Review**

The European Trade Policy Review, launched in June 2020, seeks to chart a course for the next generation of EU trade policy that addresses the major global challenges facing Europe, including climate change and the COVID-19 pandemic. In this potentially transformative moment, the EU can advocate for and actively work to build a global trade system that places sustainability on a par with economic prosperity, and indeed recognises that sustainability is crucial to economic prosperity. Future European trade policy should be a key tool for working with trade partners to identify opportunities for sustainable investment and deepening economic cooperation.



**5. Review the sustainability chapters of EU Free Trade Agreements with a view to including measures to address transboundary climate risk in subsequent agreements**

While the principal ambition of Free Trade Agreements (FTAs) remains reducing barriers to trade, the vast majority of modern FTAs include provisions for environmental protection within their sustainability chapters. In recent years, those chapters have increasingly focused on climate change mitigation and compatibility with the Paris Agreement. A review of provisions included in sustainability chapters across all EU FTAs should be conducted, with a view to including specific measures to manage and reduce transboundary climate risks in subsequent FTAs. These measures may include joint work with trading partners to assess those risks and implement suitable adaptation measures. New investment frameworks should also aim to facilitate private-sector investment in climate-resilient trade and production, with appropriate incentives. A key consideration in this regard will be the distributional effects of these provisions; the goal should be to reduce risk in places that are now highly exposed to

climate change impacts, so that investments can continue to flow there – not to spur capital flight.

**6. Reform the multilateral trade framework to promote sustainable trade practices alongside free trade goals**

The multilateral trade framework set at the World Trade Organization (WTO) has significant bearing on how EU businesses and investors function and on the EU's ability to develop trade policy that is aligned with its strategic priorities. A common critique of WTO rules has centred on their inflexibility, particularly with regard to other matters of international importance and global public goods. In view of the twin crises of climate change and COVID-19, it is critical that the multilateral trade framework be substantively reformed so that sustainable trade practices are given as much priority as the promotion of free trade. The EU should strongly advocate for the WTO to prioritise the health of the global economic system, including by addressing climate change, instead of treating environmental concerns as secondary to the goal of increased trade and economic growth.



Rice fields belonging to local hill tribes in Sapa, Viet Nam.  
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**Adaptation Without Borders** is a global partnership, created in response to the emerging global challenge of transboundary climate risks. Adaptation Without Borders brings together the research capacities and convening power of a range of partners to explore the global implications of transboundary climate risks, create opportunities to strengthen international cooperation and pave the way towards genuine global resilience.

<https://adaptationwithoutborders.org>



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## ABOUT THIS BRIEF

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