



# Leveraging Trade to Support Climate Adaptation in Developing Countries

IISD REPORT



Julie Dekens  
Anne Hammill  
David Hoffmann  
Christophe Bellman



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Written by Julie Dekens, Anne Hammill, David Hoffmann, and Christophe Bellman.

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#### Head Office

111 Lombard Avenue,  
Suite 325  
Winnipeg, Manitoba  
Canada R3B 0T4

**Tel:** +1 (204) 958-7700

**Website:** [www.iisd.org](http://www.iisd.org)

**Twitter:** [@IISD\\_news](https://twitter.com/IISD_news)





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## Abbreviations and Acronyms

<b>ACCTS</b>	The Agreement on Climate Change, Trade and Sustainability
<b>ACRE</b>	Agriculture and Climate Risk Enterprise
<b>CEPA</b>	Comprehensive Economic Partnership Agreement
<b>CETA</b>	Comprehensive Economic and Trade
<b>CTCN</b>	Climate Technology Centre and Network
<b>DTIS</b>	Diagnostic Trade Integration Studies
<b>EIF</b>	Enhanced Integrated Framework
<b>EU</b>	European Union
<b>FAD</b>	fish aggregation devices
<b>FAO</b>	Food and Agriculture Organization of the United Nations
<b>FDI</b>	foreign direct investment
<b>GPS</b>	global positioning systems
<b>ICT</b>	information and communication technologies
<b>IISD</b>	International Institute for Sustainable Development
<b>IMF</b>	International Monetary Fund
<b>IPCC</b>	International Panel on Climate Change
<b>ISO</b>	International Standards Organization
<b>KJIP</b>	Kiribati Joint Implementation Plan
<b>LDCs</b>	least developed countries
<b>LMICs</b>	low-to-middle income countries
<b>MCIC</b>	Ministry of Commerce, Industry and Cooperatives
<b>MEL</b>	monitoring, evaluation, and learning
<b>MSME</b>	micro, small, and medium-sized enterprises
<b>NAP</b>	national Adaptation Plan
<b>NDCs</b>	nationally determined contribution
<b>ODA</b>	official development assistance
<b>OECD</b>	Organisation for Economic Co-operation and Development
<b>PACER</b>	Pacific Agreement on Closer Economic Relations
<b>RTAs</b>	regional trade agreements



<b>RWH</b>	rainwater harvesting
<b>SDGs</b>	Sustainable Development Goals
<b>SIDS</b>	small island developing states
<b>SME</b>	small and medium-sized enterprises
<b>TAs</b>	trade agreements
<b>TBTs</b>	technical barriers to trade
<b>UN</b>	United Nations
<b>UNCTAD</b>	United Nations Conference on Trade and Development
<b>UNFCCC</b>	United Nations Framework Convention on Climate Change
<b>UNFSS</b>	United Nations Forum on Sustainability Standards
<b>VSSs</b>	Voluntary sustainability standards
<b>WTO</b>	World Trade Organization



# 1.0 Introduction

The current international trade system was built on the back of a relatively stable global climate. However, the world is now on the path to reach an average temperature of 1.5 C° above pre-industrial levels before the middle of this century (Intergovernmental Panel on Climate Change [IPCC], 2019). Gradual changes in climate (rising temperatures, changing rainfall patterns) combined with more frequent and extreme weather events are increasing the risks of trade disruption.

Climate change is a pervasive, systemic threat whose impacts affect trade. Measures are needed to anticipate and manage them to minimize disruptions and losses. At the same time, trade can also be an important vehicle for helping countries deal with the impacts of climate change more broadly. Specifically, trade provides an opportunity to support climate adaptation: it offers entry points for developing countries to a) access goods and services needed for adaptation, b) invest in critical products and services that will reduce climate risks in their own country and abroad, c) access trade-related financing mechanisms that support climate adaptation and d) establish trade-related international collaborative frameworks in support of climate adaptation. Taking full advantage of these opportunities will require trade negotiators to understand the climate-related vulnerabilities and adaptation priorities of different countries and regions.

This paper aims to support trade negotiators in leveraging trade for climate change adaptation and to explore the critical role National Adaptation Plan (NAP) processes can play in this regard. Specifically, the objectives are to: clarify what climate change adaptation (hereafter, simply “adaptation”) is and the policy frameworks for adaptation; understand the impacts of climate change on trade and how countries are already addressing these impacts through their NAPs; present three general pathways through which international trade can facilitate national and regional adaptation to climate change; and discuss the role of NAPs in leveraging trade for adaptation.

This report draws from a review of the literature and consultations with key trade experts. To illustrate the different links and opportunities offered by NAP processes, a review of NAP documents in three countries of the Pacific region (Fiji, Kiribati, and Tonga) was conducted. The Pacific was selected as a case study because it is an acutely vulnerable region in which the International Institute for Sustainable Development (IISD) has worked via the NAP Global Network since 2017.



## 2.0 Background: The urgent need to adapt to the impacts of climate change

The average global temperature has already increased by more than 1°C since 1880, and two thirds of this warming has happened since 1975—with the last decade the warmest on record (Susskind et al., 2019). This warming is not evenly distributed across regions, and the impacts manifest themselves in very different ways—from hyperactive hurricane seasons in the Atlantic and more frequent heatwaves in Europe, to prolonged droughts in Southern Africa and devastating monsoon floods in Asia. Each passing year seems to break new climate records and offer stark reminders of the rising toll on human, economic, and environmental systems.

### 2.1 What Is Adaptation?

The global response to the climate crisis has taken place along two interdependent tracks: i) mitigation, or actions to prevent (further) warming by avoiding or reducing the emissions of heat-trapping greenhouse gases and drawing them down from the atmosphere, and ii) adaptation, or actions to prepare for and protect against the negative impacts of climate change, while also taking advantage of any potential new opportunities. As different as these two strategies may appear, they are complementary and can offer important co-benefits. For example, renewable energy can provide electricity to power early warning systems that help communities prepare for storms, or reforestation can slow the rush of water during heavy rainfall events and reduce flooding, as well as remove carbon from the atmosphere. Beyond co-benefits, the two strategies are fundamentally intertwined, as the amount of adaptation needed ultimately depends on the amount of mitigation achieved.

Despite these links between mitigation and adaptation, the former has traditionally received far more attention in policy discussions; indeed, until relatively recently, adaptation was viewed as plan B, a series of measures to be pursued if or when mitigation actions failed—a surrender, of sorts. Policy-makers feared that a serious acknowledgement of adaptation would undermine efforts to pursue ambitious mitigation measures. However, as scientific consensus coalesced around a recognition that climate change impacts were accelerating and the world was locked into a certain amount of further warming, adaptation became increasingly viewed as essential to confronting the climate crisis. There is no doubt now that both mitigation and adaptation must be simultaneously and vigorously pursued.

Adaptation can take many forms. It can involve changes in processes, practices, and structures ranging from city engineers building higher bridges or farmers planting new varieties of more drought-tolerant maize, to governments relocating communities away from coasts or resorts investing in mountain biking trails in the summer to offset declining ski tourism during the winter. How a household, community, business, or country adapts to climate change depends on several factors. This includes the specific climate hazards to which they are exposed—e.g., more intense rainfall and flooding events vs. longer wildfire seasons vs. conditions more hospitable to disease vectors, etc. It also depends on their vulnerability to these hazards, which is shaped in large part by the capacities they have for managing climate risks. As such,



adaptation is often context specific, tied to local geography, socio-economic circumstances, and development priorities. The same type of climate change impact may require very different adaptation measures in different places. For example, a peri-urban community around Mumbai will need to pursue different strategies for dealing with flooding than a suburban neighbourhood only a few kilometres away.

Importantly, adaptation is far more than a series of technocratic measures aimed at changing practices. It is also about fundamental shifts in how we make decisions—embracing an ongoing, iterative process of regularly assessing current and future climate risk, managing uncertainty, and embedding this in how we plan our futures, allocate resources, and measure progress. Adaptation is also about addressing the structural drivers of risk—transforming the processes and dynamics that make people and places vulnerable in the first place (Eriksen et al., 2015). Addressing these structural drivers of risk mean there are many significant overlaps between adaptation and human development, disaster risk reduction, and environmental sustainability.

This dynamic is most acutely captured in low-to-middle income countries (LMICs). Despite having contributed the least to climate change, LMICs are disproportionately affected by climate change. In addition to being in the parts of the world that will be hardest hit by climate change—i.e., near the equator, in the tropics—their economies are also heavily reliant on climate-sensitive sectors like agriculture, forestry, and tourism (King & Harrington, 2018). Taken together with constraints in human, technical, and financial resources, LMICs stand to lose the most in a warming world. The World Bank estimates that without urgent action, climate change may push 132 million people into extreme poverty by 2030 (Jafino et al., 2020). In short, we must adjust to new climate normals if we have any hope of meeting the Sustainable Development Goals (SDGs).

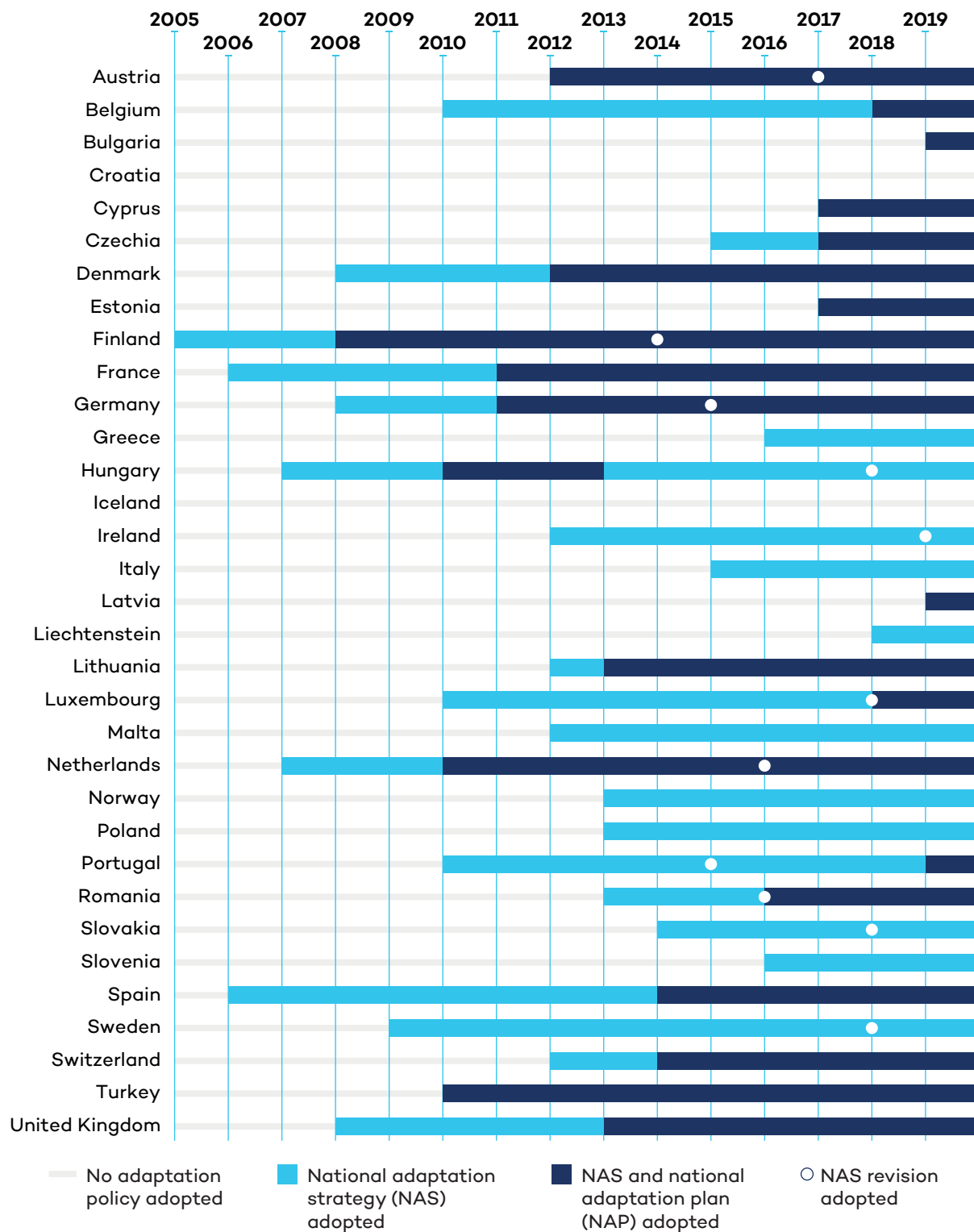
## 2.2 Policy Frameworks for Adaptation

As recognition of the need to adapt to the impacts of climate change has increased, so too has its political profile. Since its entry into force in 1994, the United Nations Framework Convention on Climate Change (UNFCCC) has provided a space for countries to communicate how climate change is affecting them, identify priorities and solutions for adapting, and share lessons around what works and why. But the early years of the Convention saw much more attention being paid to mitigation, and it wasn't until around 2010 that countries affirmed that adaptation should be addressed on the same level as mitigation (United Nations Climate Change Secretariat, 2019). This was reflected in the historic 2015 Paris Agreement, a legally binding international treaty under the UNFCCC, which established a global goal on adaptation to match the temperature goal for driving ambitious mitigation action (United Nations, 2015). The Agreement's signature vehicles for implementation—i.e., the Nationally Determined Contributions (NDCs), which are pledges submitted by countries that outline how they will achieve the Agreement's goals—are now central features of the climate policy landscape. And while NDCs must at least include provisions for reducing national emissions, most countries have chosen to include an adaptation component to ensure domestic efforts and needs for building climate resilience are profiled.





**Figure 1.** Overview of national adaptation strategies and plans in Europe



Note: Croatia adopted its first national adaptation strategy in April 2020.

Source: European Environment Agency, 2020.



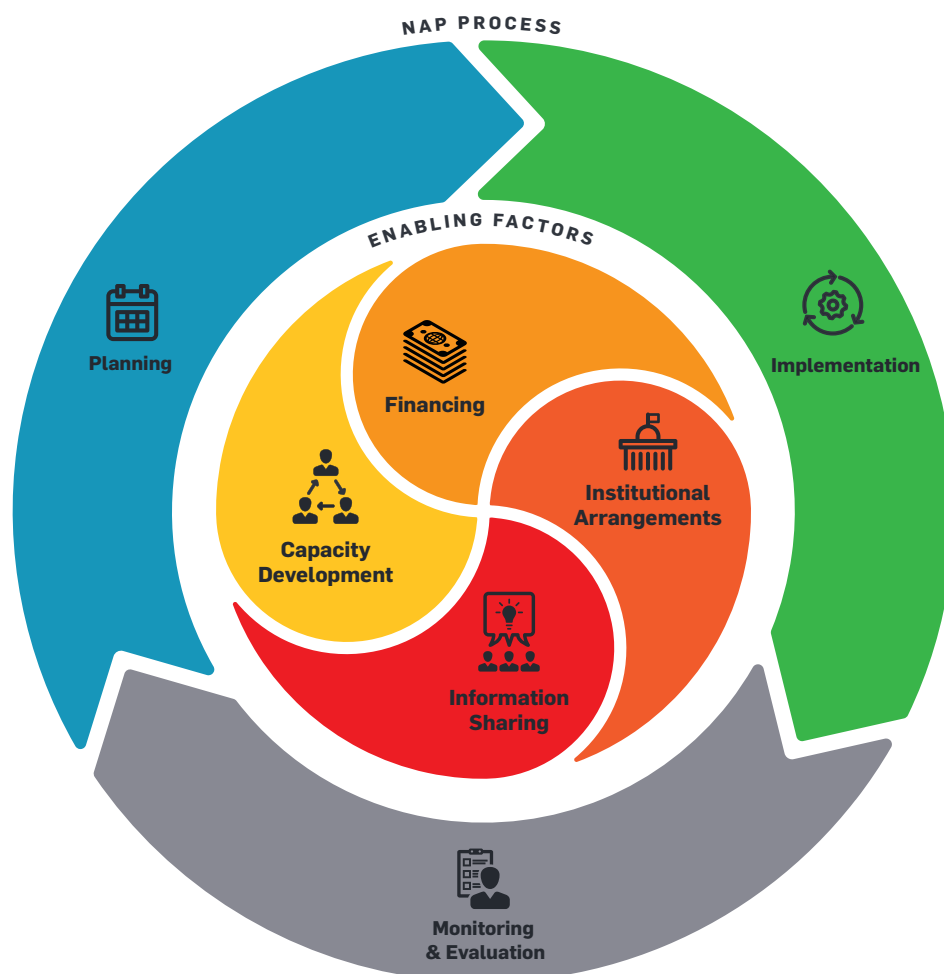
While NDCs are important for setting and communicating national targets and measures for meeting the goals of the Paris Agreement, they are effectively operationalized by other domestic policy instruments. On the adaptation side, this is increasingly through national adaptation planning efforts, which allow countries to identify and address their priorities for adapting to climate change. In fact, the increasing global commitment to adaptation planning is reflected in the Paris Agreement, which states that parties, “shall, as appropriate, engage in adaptation planning processes and the implementation of actions, including the development or enhancement of relevant plans, policies and/or contributions” (Article 7.9); it is the only “shall” that appears under the agreement’s article on adaptation. Recent estimates reveal that 72% of all countries have adopted at least one adaptation planning instrument, with another 9% of countries in the process of developing one (United Nations Environment Program [UNEP], 2021). European Union (EU) member states are frontrunners in this regard, with almost all members having adopted at least a first national adaptation strategy and/or plan. Figure 1 captures progress in EU member states, highlighting those countries that have been addressing national adaptation issues for over 15 years (e.g., Finland, France, and Spain).

While national adaptation planning efforts have been underway for a while, the NAP process—that is the steps and activities that buttress the development and implementation of national adaptation plans—was formally established in 2010 under the UNFCCC’s Cancun Adaptation Framework (Decision 1 CP.16). The process itself involves analyzing current and future climate change and vulnerability to its impacts, identifying and prioritizing adaptation options, implementing these options, and tracking their progress and results. It is a continuous, progressive, and country-driven process that has two objectives: “to reduce vulnerability to the impacts of climate change, by building adaptive capacity and resilience” and “to facilitate the integration of climate change adaptation, in a coherent manner, into relevant new and existing policies, programmes and activities, in particular development planning processes” (UNFCCC, 2012, p. 80). It is effectively about putting adaptation at the heart of decision making so that countries can thrive in a changing climate.

As depicted in Figure 2, the NAP process can be divided into three broad phases—planning, implementation, and monitoring, evaluation, and learning (MEL)—all of which are supported by capacity development, financing, appropriate institutional arrangements, and information sharing among the different actors involved. During the planning phase, climate-related vulnerabilities and risks are assessed, options for managing these risks are identified and prioritized, and strategies for their implementation are developed. During the implementation phase, these strategies are fleshed out in greater detail, financing secured, and necessary technical and human resources procured and deployed. Progress, results, and lessons from implementing the strategies are tracked and reported as part of the MEL phase (Hammill et al., 2019).



**Figure 2.** The NAP process



Source: Hammill et al., 2019.

The importance of these processes cannot be overstated. They drive coordination, set policy priorities, mobilize resources, allocate support, and track progress in countries' efforts to become more climate resilient. The systems and capacities that are established through a country's NAP process are the foundation of adaptation at scale, for moving from a patchwork of projects to a more coordinated effort at system change.

As of November 2020, an estimated 125 developing countries were reported to be formulating and implementing NAPs, signaling an important leveraging opportunity for sustainable development (UNFCCC, 2020). That is, the NAP process, and one of its most important milestones—the publication of a NAP document, which presents a country's approach to and priorities for adaptation—can be a valuable vehicle for establishing strategic linkages with other development agendas and processes, including international trade.



## 3.0 Understanding the Trade and Climate Adaptation Nexus

This section looks at the impacts of climate change on trade and how countries are already addressing these impacts through their NAPs. Understanding the impacts of climate change on trade points to adjustments that are needed to anticipate disruptions and maintain the flow of goods and services while accommodating shifting supply and demand. A review of NAPs in the Pacific region shows how governments have already prioritized adaptation measures that address the observed and anticipated impacts of climate change on trade.

### 3.1 Understanding the Impacts of Climate Change on Trade

The global trade system is based on complex supply chains, making the understanding of ripple effects very difficult. However, the COVID-19 pandemic gives some clues about the fragility of the system: the new disease generated a diverse range of risks with economy-wide consequences including through trade disruptions due to lack of labour for transport, lack of airfreight, and border closures (Challinor & Benton, 2021).

The World Economic Forum's 2021 Global Risks Report identified “extreme weather” and “climate action failure” among the most likely risks to occur in the next 10 years (McLennan, 2021), reflecting the growing awareness of the threat that climate change poses. Some countries (e.g., Canada, Germany, Switzerland, the United Kingdom) are starting to recognize the need to consider “transboundary climate risks,” i.e., how climate impacts abroad can affect competitiveness at home (Adams et al., 2020). For example, the European Commission (2021) has assessed that transboundary climate impacts could be as large as the domestic impacts of climate change within Europe.

Broadly, climate change impacts on trade are complex and include both direct and indirect impacts and negative and positive outcomes. They will affect the supply and demand for goods and services due to changes to the movement, volume, and value of goods and services traded—changes that do not happen in isolation. They intersect with, and will likely be amplified by, other drivers of change such as population growth, biodiversity losses, and health epidemics.

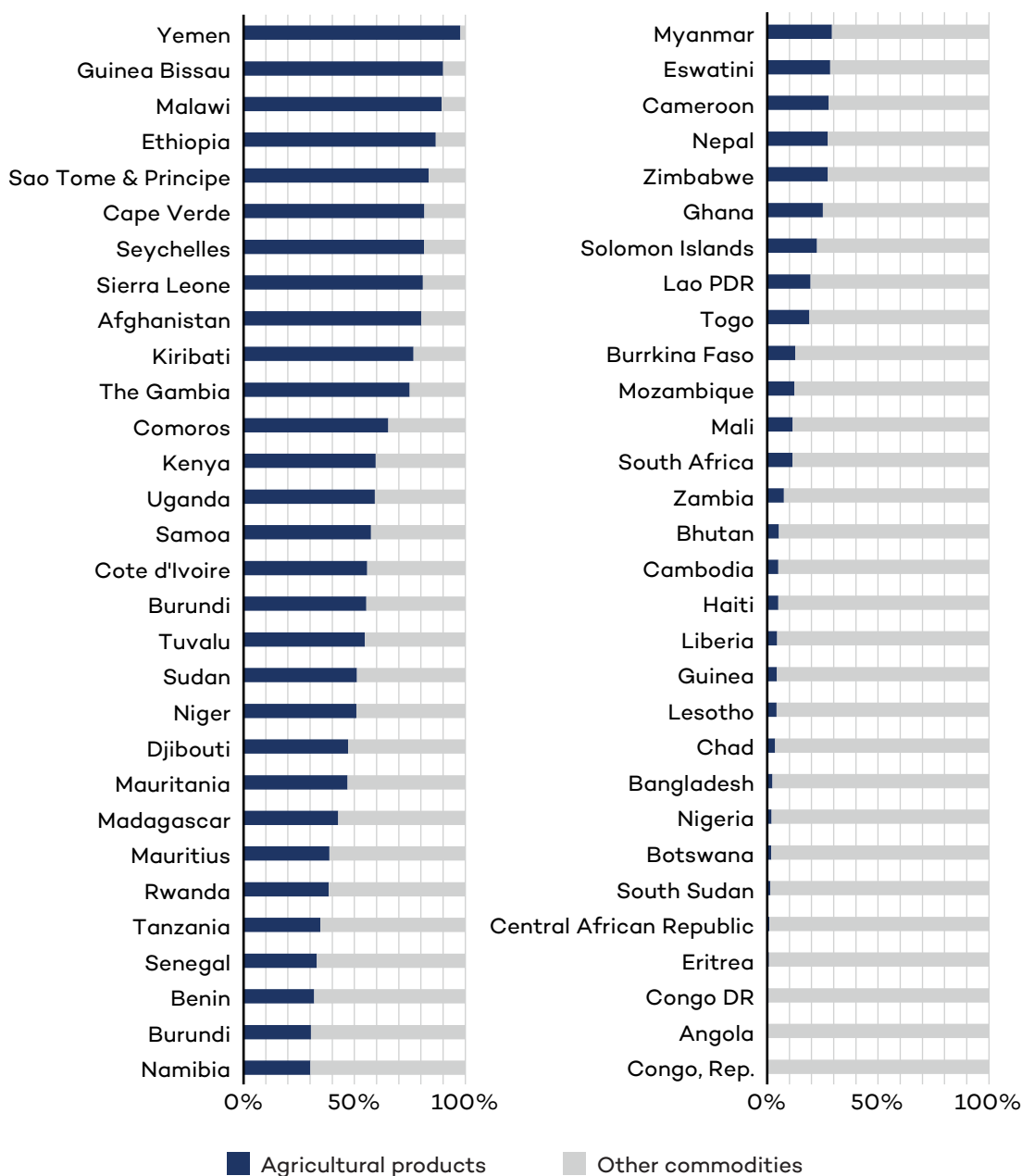
Changing climate conditions will particularly affect:

- **Agri-food commodities:** International trade in agri-food commodities, which include trade in grains, food, fiber, livestock, and meat, has attracted particular attention in the climate change literature, in part due to its importance for food security, developing countries' economies, and the sensitivity of the sector to climate change. Between 2000 and 2019, international food exports have increased by 7% per year (World Trade Organization [WTO], 2020). Between 2016 and 2019, agricultural exports in least developed countries (LDCs) and sub-Saharan Africa accounted on average for 35% of total exports (UN Comtrade Analytics, 2021). As illustrated in Figure 3, this share varies significantly, from less than 2% in countries that rely



more on minerals or fuels like Botswana or Angola to more than 90% in countries specialized in agricultural exports like Malawi or Yemen.

**Figure 3.** Share of agricultural products in exports of LDCs and sub-Saharan African countries (avg. 2016–2019)



Source: Authors' elaboration based on UN Comtrade Analytics, 2021.

IPCC's *Special Report on Climate Change and Land* (2019) establishes with high confidence that climate change has already affected food production and is likely to disproportionately affect food production and trade in emerging and developing countries. This will lead to shifts in agricultural production and yields among countries and regions. According to the Global Commission on Adaptation (Bapna et al., 2019),



climate change could reduce global agriculture yields up to 30% by 2050, mostly affecting 500 million small farms. For example, in higher-latitude regions, yields of some crops (e.g., maize and wheat) have already increased, while in lower-latitude regions—in which many developing nations are situated—yields of the same crops have already declined (IPCC, 2019). Agricultural yields are projected to further decrease in parts of Africa and Latin America due to water-related stresses (IPCC, 2019). Changing yields affect the price at which the good is traded, as a decrease in supply (when demand is constant or increasing due to population growth) will lead to higher prices. Changing yields of crops, and the resulting fluctuations in prices, can alter a countries' comparative advantages (Gouel & Laborde, 2018; Tamiotti et al., 2009).

- **Non-agricultural commodities:** Non-agricultural commodities comprise a wide category including trade in energy, forest products, and metals among others, in the form of raw materials and manufactured goods. The effects of climate change on non-agricultural commodities may especially damage or disrupt production facilities (factories, mines) and supply chain logistics. For example, Nelson and Schuchard (2011) documented the expected impacts of a changing climate on the mining industry, including: reduced access to water and energy needed for mining operations, increased worker exposure to illnesses and likelihood of accidents due to rising temperatures, and increased likelihood of conflict with neighbouring communities for scarce natural resources. Climate change will also affect the volume and quality of natural resources needed for commodity trade. The timber and pulp industry, for example, may face changes in the range of tree species, with species previously adapted to a certain climate no longer suited for a specific country or region. Increased temperatures may also reduce tree productivity due to increased risks of fire, pests, and diseases and reduced water availability to transform wood products (Brack, 2019; Seidl et al., 2017).
- **Trade infrastructure:** Global trade relies on a complex network of physical infrastructure to facilitate the movements of people, commodities, and services across borders. This network consists of transport infrastructures such as ports, airports, and roads; logistic infrastructure such as customs and storage facilities; and information and communication technologies (ICTs) infrastructure for data and information transmission such as computers, mobile phones, internet, servers, data centres, e-commerce systems, and trade portals among others (Sarangi & Pradhan 2020). These infrastructure systems are increasingly interconnected and complex, making trade more prone to disruptions with cascading impacts (Markolf et al., 2019). Climate change will exacerbate the vulnerability of transportation systems that are often already underfunded (Markolf et al., 2019). With 80% of global trade passing through seaports, of which over 50% are vulnerable to climate risks, the potential impact of climate change on trade transport infrastructure is enormous (The Economist, 2020). According to the Chatham House (Wellesley et al., 2017), global trade relies on few “chokepoints” such as straits or canals that are vulnerable to floods and droughts, storms, and haze and fog. The world’s busiest port (Shanghai, which handles more than 25% of all China’s trade flows) is vulnerable to sea level rise and flooding (Challinor & Benton, 2021). In 2017, it closed more than 50 days



because of extreme weather events (Monios & Wilmsmeier, 2020). Indirect impacts may also lead to substantial costs associated with overtime paid to workers, repairs, and the purchasing of new equipment. ICT infrastructure is also essential to support timely data and information management that is necessary for efficiencies and competitiveness. This type of infrastructure may be affected by climate hazards in numerous ways through degradation and reduced lifetime, reduced availability or reliability, and quality deterioration (Horrocks et al. 2010).

- **Tourism services:** As the third-largest sector in international trade, tourism includes recreational and business travel and generates a wide range of cross-border spending associated with things like travel planning, transport, accommodation, food and shopping, and sightseeing, and which counts as an export in international trade (Durkin, 2019; Schuler, 2020; WTO, 2018). Climate change impacts can damage tourism facilities and infrastructures as well as the reputation of a destination, leading to reduced tourist arrivals with cascading impacts for all actors working in the sector (workers in hotels and restaurants, travel agencies, tour operator services, and tourist guide services, among others). Coastal tourism is particularly at risk from climate change impacts for various reasons, such as ocean acidification damage to coral reefs which reduces protection against coastal storm and tidal surges; sea level rise and beach erosion that damage tourism infrastructure; and water shortages due to saltwater intrusion of fresh groundwater resources (Hamwey, 2021).
- **Financial services:** Access to financial services such as savings, credit, and insurance is essential for all actors involved in international trade. These services can also provide a buffer when shocks, like climate change, are experienced. International trade in financial services can make these services more accessible/affordable due to competition and innovation. This is important because climate change is likely to increase demand for some financial products. At the same time, the impacts of climate change can affect financial service providers' activities by exposing their investments to increased risk (Dazé & Dekens, 2016). Higher maintenance costs, disruption, and lower labour productivity due to climate change impacts may affect credit repayment. Climate change can increase the default risk of loan portfolios or decreased value of assets, such as real estate, following a climate event with negative effects on the economy and trade activities. Climate change impacts may increase the costs of access to financial services: insurance, for example, can become more expensive or unavailable in areas identified as too risky (IMF, 2019).
- **Human mobility:** Climate change can both constrain and accelerate human mobility. On the one hand, climate hazards can hinder people's movement due to loss of assets (e.g., money, social networks) resulting from extreme weather events (Deutsche Gesellschaft für Internationale Zusammenarbeit, 2019). Changes in labour mobility will affect supply chains and ultimately the geography of trade flows. On the other hand, climate change is projected to increase human mobility—in the form of disaster displacement, international migration, and planned relocation—resulting from loss of livelihoods and greater competition for limited resources. Nawrotzki and Bakhtsiyarava (2016) reported that excessive rain has increased international migration from Senegal, but heatwaves have decreased it in Burkina Faso, meaning that the impacts on mobility



will differ from place to place. In general, it is expected that most climate-related migration will be internal due to the challenges associated with international migration (Kaczan & Orgill-Meyer, 2020, cited in Challinor & Benton, 2021). Migration can be an adaptation strategy when it improves people's well-being.

In sum, climate change will affect countries' productive capacities, comparative advantages, and, ultimately, their ability to export goods and services. These impacts on trade can be addressed by a host of climate adaptation measures. These measures can serve to reduce the exposure and vulnerability of people, goods, and services in the face of climate change impacts. Table 1 identifies what this might look like at a general level. It is estimated that the benefits generated by investing in climate adaptation would largely outweigh the initial costs. For example, according to the Global Commission on Adaptation (Bapna et al., 2019), investments in early warning systems, climate-resilient infrastructure, improved dryland agriculture crop production, global mangrove protection, and resilient water resources totalling USD 1.8 trillion could generate USD 7.1 trillion of benefits.

**Table 1.** Measures to address climate change impacts on trade<sup>1</sup>

<b>Impact on trade</b>	<b>Examples of adaptation measures</b>
Trade infrastructure	Climate proofing existing and new trade infrastructure (such as ensuring that seaports can withstand projected sea level rise or building warehouses that account for increased risks of heat waves and floods) to avoid trade disruption and ensure the quality of goods; conducting climate risk assessment to avoiding building infrastructure in hazard-prone areas.
Agricultural commodities	Climate-smart agriculture; drought-resistant crops; introduction of new livestock species/breeds; irrigation technologies; drought management and flood control; improved processing facilities for goods subject to weather deterioration; adjusting diets to account for shifting commodity availability; agriculture insurances; exploring options to strengthen value-added processing; moving sourcing to an area that is not exposed to climate risks.
Non-agricultural commodities	Modifying forest composition and structure; elaborating international standards on building materials coherent with a changing climate; investing in hydrometeorological equipment; moving sourcing to an area that is not exposed to climate risks; increasing use of recycled water in mining operations.
Tourism services	Conducting climate vulnerability assessment of tourism hotspots; relocating tourism facilities in safe places; setbacks and coastal protection for hotel strips; water conservation and desalination in tourist resorts mangrove; integrated coastal zone management; developing ecotourism, agrotourism, and cultural tourism themes to diversify or shift tourism activities; raising awareness of tourism sector.

<sup>1</sup> For a more detailed list of adaptation measures in agriculture, fisheries, and tourism see for example, Hamwey, 2021.





Impact on trade	Examples of adaptation measures
Financial services	Climate proofing financial services; investing in weather index-based insurance programs such as Agriculture and Climate Risk Enterprise (ACRE) in sub-Saharan Africa; developing new financial products that promote investments in climate-resilient products and services; improving knowledge of climate change impacts on financial services through dialogue between finance organizations and the climate modelers to ensure reliable information.
Human mobility	Passport for climate migrants (inspired from the Nansen passport for stateless people after World War I) (Gupta, 2018); leveraging existing migration management solutions in the context of climate change such as humanitarian visas, temporary protection, authorization to stay (Ionesco, 2019); labour quota system for the most vulnerable places of the world.

An important adaptation measure that can help minimize the impacts of climate change across all elements discussed above (trade infrastructure, food and non-food commodities, tourism services, financial services, and human mobility) is to invest in hydrometeorological goods and services (e.g., satellite earth observation technology, climate data and information collection, climate risk modeling, early warning systems) to support climate risk assessments and the implementation and monitoring and evaluation of effective adaptation measures.

Finally, it is worth noting that responses to climate change can also influence international trade (and consequently also employment, innovation, and development) at different levels. That is, adaptation measures may regulate access to markets for certain products, increase or decrease the cost of certain types of production processes and provide comparative advantages/disadvantages to producers of certain goods. For example, climate impacts will affect the cost of certain raw materials and production processes (e.g., wood, construction), which will lead to certain adaptations (e.g., greater reliance on recycled/reclaimed wood; shift to different types of building products), which has implications for trade (e.g., shift in suppliers, associated tariff regimes).

## 3.2 How Countries Are Already Addressing Climate Impacts on Trade Through Their NAPs

While trade is rarely explicitly identified as a sector or an issue in countries' national adaptation strategies or plans, a closer look at these policy instruments reveals that they contain a range of measures that address the observed and anticipated impacts of climate change on productive capacities which in turn may affect trade prospects. Looking at the Pacific region, this can be seen in the national adaptation policy instruments in three example countries:



- **Fiji’s NAP:** Fiji’s NAP document serves to implement the adaptation component of the country’s National Climate Change Policy. It includes 160 adaptation priorities across 10 system and sector components over a 5-year period (2019–2024).
- **Kiribati’s Joint Implementation Plan for Climate Change and Disaster Risk Management (KJIP):** The KJIP is the country’s NAP document. It identifies 12 key strategies and prioritizes 104 climate adaptation and disaster risk reduction actions for the period 2019–2028. It integrates the priorities of the National Climate Change Policy endorsed in 2019 and is aligned with the Kiribati Development Plan 2016–2019, which is the overarching national development plan.
- **Tonga’s Joint National Action Plan 2 on Climate Change and Disaster Risk Management (JNAP 2) 2018–2028.** Tonga is currently implementing its second JNAP for the period 2018–2028. The JNAPII is the country’s NAP document. It serves to implement the objectives and priorities set in the 2016 Tonga Climate Change Policy and identifies six key objectives and 22 targets to help realize the vision of a resilient Tonga by 2035.

Table 2 provides examples of specific adaptation measures prioritized in these NAP documents that will help countries address the various ways in which climate change will affect trade.

**Table 2.** National adaptation priorities that address the impacts of climate change on trade in Fiji, Kiribati, and Tonga

Impact on trade	Examples of adaptation measures addressing climate change impacts on trade
Trade infrastructure	<ul style="list-style-type: none"> <li>• “Strengthen and upgrade existing ports so that they are climate- and disaster-resilient, as well as meet international standards.” (Government of the Republic of Fiji, 2018, p. 82)</li> <li>• “Collaborate with other stakeholders and the private sector to implement a national inter-island transportation framework network to address cost effectiveness and efficiency of collection and transportation of products to and from outer islands.” (Government of Kiribati, 2019, p. 129)</li> <li>• “Implement the Tonga Climate Resilient Transport Project to facilitate the safe, efficient and sustainable movements of people and goods in Tonga while strengthening resiliency of the transport sector.” (Government of Tonga, 2018, p. 65)</li> </ul>



Impact on trade	Examples of adaptation measures addressing climate change impacts on trade
Agricultural commodities	<ul style="list-style-type: none"> <li>• “Promote sustainable non-extractive cultured fisheries (e.g., pearls, seaweed) to reduce pressure on capture fisheries.” (Government of the Republic of Fiji, 2018, p. 68)</li> <li>• “Conduct agricultural research programmes on sustainable and resilient food crop and livestock production systems (including soil–water management techniques in vegetable production, grey water use and wastewater treatment, livestock waste management, pest and disease control, construction, wetlands).” (Government of Kiribati, 2019, p. 122)</li> <li>• “Implementing SMART agricultural and water management approaches in the context of climate change and disaster risk is critical for Tonga's food security and aimed at achieving a Resilient Tonga.” (Government of Tonga, 2018, p. 66)<sup>2</sup></li> </ul>
Non-agricultural commodities	<ul style="list-style-type: none"> <li>• “Implement a national program for the monitoring and management of rivers and watersheds (ridge to reef) to reduce the negative impacts of unsustainable activities linked to logging, river and seabed mining.” (Government of the Republic of Fiji, 2018, p. 88)</li> <li>• “Resilient coastal development, infrastructures and integrated coastal ecosystems management including the sustainability and resiliency of offshore minerals exploration and mining.” (Government of Tonga, 2018, p. 42)</li> </ul>
Tourism services	<ul style="list-style-type: none"> <li>• “Create a national forum which supports the ability of micro, small, and medium enterprises (particularly hotel and resort operators) to address direct and supply chain environmental and climate risks through which lessons learnt can be shared, support and information can be offered, and get access to technical and scientific advisors.” (Government of the Republic of Fiji, 2018, p. 59)</li> <li>• “Strengthen and achieve ecotourism initiatives that support climate change adaptation and disaster risk management (e.g., bonefish tourism) and can encourage investment through climate risk management measures.” (Government of Kiribati, 2019, p. 117)</li> <li>• “Support the engagement of tourism operators to participate in climate change and disaster risk management programmes, e.g., risk education programmes, equipment and accommodation risk assessment and mitigation approaches.” (Government of Kiribati, 2019, p. 118)</li> </ul>

<sup>2</sup> SMART agriculture and water management approaches refers to “climate smart agriculture” (CSA), which is an integrated approach to managing landscapes—cropland, livestock, forests and fisheries—that address the interlinked challenges of food security and climate change (World Bank, 2021).



Impact on trade	Examples of adaptation measures addressing climate change impacts on trade
Financial services	<ul style="list-style-type: none"> <li>• “Incorporate the consideration of risks and responses to climate change and hazards into strategic and business plans and explore options to transfer risks to third parties (micro insurance) to protect local businesses from loss of business and/or profit due to damage caused by fire, inundations, storms, coastal erosion and tsunamis.” (Government of Kiribati, 2019, p. 119)</li> <li>• “Enhance insurance protection of key energy assets as part of the broader Disaster Risk Financing Strategy of Government.” (Government of the Republic of Fiji, 2018, p. 81)</li> </ul>
Human mobility	<ul style="list-style-type: none"> <li>• “Strengthen the capacity of sub-national development planning processes to integrate human mobility issues to help protect individuals and communities and diverse social groups that are vulnerable to climate change and disaster displacement and migration, through targeted action, including relocation.” (Government of the Republic of Fiji, 2018, p. 52)</li> <li>• “Integrate labour mobility goals into trade agreements and strengthen MCIC [Ministry of Commerce, Industry and Cooperatives] in negotiations.” (Government of Kiribati, 2019, p. 151)</li> </ul>

The range of adaptation measures that are closely tied to trade-related issues across sectors reveals the strong linkages between the trade and adaptation agendas.



## 4.0 How Trade Helps Countries Address the Impacts of Climate Change: Three pathways

The links between trade and adaptation are not only about undertaking measures to ensure that status quo trade dynamics are protected in a changing climate—i.e., climate proofing ports, minimizing supply chain disruptions, or shifting production to new locations so that volume of global trade is maintained (or expanded). Trade can also play an important role in helping countries prepare for and protect their people, economies, and ecosystems against the impacts of climate change more broadly. It can facilitate access to the resources needed for technocratic adaptation measures, as well as address some of the structural drivers of climate risk—like poverty, environmental degradation, limited access to information and infrastructure—that render people, places, and assets vulnerable to climate impacts in the first place.

A review of recent literature and consultations with key experts has revealed three general pathways through which international trade can facilitate national and regional adaptation to climate change. These are: (1) domestic trade policy measures that enhance access to adaptation goods and services; (2) access to trade-related financing mechanisms that support climate adaptation; and (3) international collaborative frameworks on trade in support of climate adaptation. Each pathway represents an opportunity for countries, and the different economic sectors and populations therein, to reduce their exposure and vulnerabilities to climate change impacts through external trade. Pathway 1 essentially relates to unilateral measures implemented at the domestic level. Pathway 2 involves external sources of funds and technical assistance for adaptation, while Pathway 3 explores what countries can do multilaterally to leverage trade for adaptation. These pathways are designed to respond to different types of challenges. They are not mutually exclusive and rather complement each other.

### 4.1 Pathway 1: Domestic trade policy measures that enhance access to adaptation goods and services

The localized nature of climate impacts requires tailor-made solutions involving the use of a wide range of adaptation goods and services. In this context, trade policy measures can be designed to facilitate the availability and accessibility of particular goods and services required to adapt to climate change. The range of goods and services encompassed in this category is as wide and diverse as are the adaptation needs themselves (ranging from climate data and information to specific technologies and policy solutions).

#### IDENTIFYING ADAPTATION GOODS AND SERVICES

In the absence of an internationally agreed definition, we consider adaptation goods as goods that are either produced in a climate-resilient manner or goods that are used or consumed to reduce the negative impacts of climate change on people/regions/sectors. Adaptation services



include a range of activities necessary to support the production and use of adaptation goods such as transport, finance, telecommunications, and climate-information services, services associated with the monitoring and maintenance of adaptation goods, and research and development. Trade in adaptation services is closely linked with trade in goods, since the provision of those services often relies on the use of adaptation goods. Table 3 below provides specific examples of adaptation goods and services to begin illustrating this relatively underexplored area. Governments and businesses—from small and medium-sized enterprises (SMEs) to multinationals can benefit from these adaptation goods and services as producers, traders, and consumers. Citizens are also consumers of adaptation goods and services.

**Table 3.** Examples of adaptation goods and services

<p><b>Goods produced in a manner that explicitly manage climate risks (including the whole value chain from production to marketing)</b></p>	<ul style="list-style-type: none"> <li>• Drought-tolerant maize varieties in regions where traditional maize varieties are no longer suitable due to increasing temperatures</li> <li>• Clothing produced with special fibers that consume less water from a cotton-sourcing region experiencing drier conditions and water supply issues</li> <li>• Food processed using recycled water to minimize water consumption in a region already affected by more frequent and intense droughts</li> </ul>
<p><b>Goods used as inputs or consumed for adaptation end effects</b></p>	<ul style="list-style-type: none"> <li>• Final goods (goods that do not require further processing to be used): climate-resilient seeds and water-efficient irrigation technologies for use in drier conditions due to climate change; desalination technologies to ensure freshwater supplies as rising sea levels lead to saltwater intrusion of aquifers; early warning systems in the context of more extreme and intense extreme weather events</li> <li>• Intermediate goods (goods used to produce another good): specific machinery/technologies/spare parts/ climate data etc. needed for producing the above-mentioned final goods</li> </ul>
<p><b>Adaptation services</b></p>	<ul style="list-style-type: none"> <li>• Qualified labour for surveying/analyzing climate data</li> <li>• Engineering services to design and build climate-resilient infrastructure</li> <li>• Climate impact modelling and sector-specific data analysis</li> <li>• Climate change vulnerability and risk assessments</li> <li>• Provision of climate adaptation decision-support tools (e.g., to mainstream adaptation considerations into programs and projects)</li> <li>• Agricultural extension services to farmers (including on climate-smart agriculture) to ensure the quality and quantity of seed production in a changing climate</li> <li>• Provision of weather index insurance packages</li> </ul>



As highlighted earlier, adaptation—and therefore adaptation goods and services—is highly context specific, and priorities may change over time with shifting climate conditions. As such, developing a comprehensive and somewhat static checklist of adaptation goods and services will not be useful; in fact, it could be detrimental and lead to maladaptation, which happens when an adaptation measure in one location or sector increases the vulnerability of another location or sector, or increases the vulnerability of the target location, sector, or group of the population to future climate change (Huq et al., 2014). For example, maladaptation may occur if a country that is highly dependent on rice for export solely invests in irrigation despite climate projections showing that the country will not be suitable for rice production in the medium term. If irrigation kits appear on some list of adaptation goods and services, thereby promoting their large-scale uptake for the next few decades, it may divert efforts away from the investments that need to be made to adapt the country's rice sector.

A potentially more helpful approach could be to apply general criteria for determining if a good or service contributes to climate-resilient production and consumption. A good way to develop such criteria is to understand how a country will be affected by climate change and what needs to be done to manage associated risks. As part of their NAP process, countries are initiating or updating climate risk and vulnerability assessments in key priority sectors or regions. This information provides a basis for determining what it looks like to produce and consume in a climate-resilient manner in the specific country context based on available data and information by providing information on actual and projected changes in climate and the impacts of these changes on specific sectors, regions, or ecosystems.

In addition, an essential criterion for determining if a good or service contributes to climate-resilient production and consumption is to opt for “robust” goods or services in the face of uncertainties due to climatic and non-climatic shocks and stressors. Robust goods or services are those that can perform well across a wide range of futures, preferences, and scenarios (but may not be optimal in any particular one).

Finally, adapting to climate change in a particular sector/region/supply chain often requires a combination of actions (likely across different sectors)—and therefore a combination of adaptation goods and services—to have a desired impact. NAP processes are aimed at increasing collaboration among sectors and move away from looking at adaptation in so-called “silos.” They provide an opportunity for prioritizing more integrated strategic adaptation actions.

## **SUPPORTING THE TRADE IN ADAPTATION GOODS AND SERVICES**

Countries can support adaptation by removing barriers to the trade in adaptation goods and services and by actively supporting the trade in adaptation goods and services. This can be done through a range of tariff and non-tariff measures. Table 4 lists the different trade policy instruments that can be leveraged to support climate adaptation.

**Table 4.** Trade policy instruments that can facilitate climate adaptation

Trade policy instruments	Means of leveraging adaptation
Tariffs	<ul style="list-style-type: none"> <li>• Tax exemptions or lower tariffs for import/export of adaptation goods and services (e.g., tax breaks for ecotourism development, climate-resilient technologies)</li> </ul>
Subsidies	<ul style="list-style-type: none"> <li>• Allocate subsidies for adaptation goods and services (e.g., subsidy that supports the adoption of climate-resilient crops; installation of rainwater harvesting tanks; diversification out of monoculture; promotion of sustainable fishing methods; alternative fisheries-related activities, such as sustainable aquaculture in a context of a changing climate)</li> <li>• Reduce or eliminate subsidies that undermine adaptation (e.g., fisheries subsidies contributing to overfishing in a context where marine and coastal resources are already threatened by temperature change and sea level rise)</li> <li>• Reforms toward “green” subsidies are getting increasing attention across many sectors such as mining, fisheries, agriculture, transport, water management, urban development, tourism, and energy, but global progress in this area is slow. Applying adaptation criteria to the provision of existing green subsidies might be a good first step to ensure that natural resources management considerations account for present and future climate change impacts.</li> </ul>
Government procurement rules (“green/sustainable procurement”)	<ul style="list-style-type: none"> <li>• Set special conditions for adaptation goods and services. Foreigners offering adaptation goods and services are encouraged to compete for procurement contracts, which can help governments access better adaptation goods and services (including technology transfer) at a lower price.</li> <li>• Currently, this is likely one of the biggest and most important trade policy instruments for supporting adaptation, considering the size of finance involved through public procurement, which amounted to USD 11 trillion out of global GDP of nearly USD 90 trillion in 2018, meaning that 12% of global GDP is spent following procurement regulation (World Bank, 2020).</li> </ul>





Trade policy instruments	Means of leveraging adaptation
Intellectual property rights (IPRs)	<ul style="list-style-type: none"> <li>• Fast track technology transfer of adaptation goods and services when granting a patent to avoid delays that are detrimental to technology adoption (particularly for agriculture, which is time sensitive)</li> <li>• Significant technology transfer for adaptation is urgently needed to scale up adaptation actions. There are some unique challenges associated with technology transfer for adaptation such as high transaction costs to reach the most vulnerable, often remote communities (Biagini et al., 2014). The Climate Technology Centre and Network (CTCN), established in 2013 under UNFCCC, aims to connect developing countries to climate technology solutions, knowledge, and financing, with more than 320 technology transfers underway across various sectors in over 100 countries (CTCN, 2021).</li> </ul>
Private voluntary sustainability standards (VSSs), labels, and certification schemes; minimum requirements	<ul style="list-style-type: none"> <li>• Set standards for adaptation goods and services/integrate adaptation considerations in existing VSSs. Addressing adaptation explicitly in VSSs could help consumers and economic actors access adequate and transparent information about adaptation goods and services and would help leverage other trade instruments for adaptation (tariffs, government procurement, IPRs, and subsidies), e.g., using VSSs as a basis for setting adaptation criteria for tax waiver authorizations.</li> <li>• Currently, ISO 14090 (Adaptation to climate change – Principles, requirements and guidelines) and ISO 14091 (Adaptation to climate change — Vulnerability, impacts and risk assessment) are the only stand-alone adaptation standards aimed at helping organizations assess and manage climate change impacts. Both standards offer a set of generic principles and guidelines rather than a norm or standard. As such, they provide criteria at a very high, generic level to assess VSSs from the perspective of climate adaptation. Besides, most existing VSSs focus on the certification of agricultural commodities (United Nations Forum on Sustainability Standards [UNFSS], 2020) some of which are starting to explicitly address adaptation. Even if they do not explicitly address adaptation, several already contribute to adaptation (e.g., by supporting crop diversification). The absence of stand-alone adaptation standards is likely to remain given the complex and diffuse nature of adaptation, its many overlaps with sustainability, and to avoid the proliferation of VSSs and associated confusion for consumers and economic actors. In the medium term, VSSs have the potential to become an important trade policy instrument for supporting adaptation. Their adoption has grown over the past decade (UNFSS, 2020).</li> </ul>



Trade policy instruments	Means of leveraging adaptation
Trade and investment facilitation	<ul style="list-style-type: none"> <li>• Trade facilitation measures reduce the time it takes for adaptation goods and services to be traded across borders in emergency situations through things like customs clearance and facilitation, release of goods, ensuring the right of transit and temporary admission, express shipment and going paperless (Ugaz &amp; Sun, 2020; UNCTAD, 2020; World Bank, 2020). Similarly, investment facilitation would aim to implement a more transparent, and investment-friendly business climate for foreign providers of adaptation goods and services by simplifying, speeding up, and coordinating processes.</li> <li>• Trade and investment facilitation measures are increasingly in the spotlight given the recent lessons learned from the COVID-19 pandemic. In the context of natural disasters and global pandemics, trade facilitation could provide the flexibility and resilience needed to enable imports of time-sensitive, critical adaptation goods and services (e.g., food supplies and health goods and services). By offering a predictable environment for border transactions and investment, these measures would help balance out the uncertainties associated with climate variability and climate change.</li> </ul>

Importantly, these trade policy instruments can mutually reinforce (or undermine) each other.

Each tool involves some trade-offs between social, economic, and environmental objectives in the short, medium, and long terms. The right mix of tools—in terms of how they influence each other and how they should be sequenced—will depend on the country context and needs to be carefully assessed and monitored to ensure coherence. This is generally the case, but adaptation brings additional complexity as it requires additional technical expertise, access to relevant climate data and information, and greater collaboration between finance ministries and ministries responsible for coordinating climate change. A study on green taxes and subsidies in the Pacific region (Watkins et al., 2018) recommends prioritizing the reform of taxes and subsidies that do not meet social and economic objectives; compensating for reforms' redistributive effects; increasing transparency and dialogues among stakeholders; and using political windows of opportunity such as NAPs.

## 4.2 Pathway 2: Access to trade-related financing mechanisms that support climate adaptation

The global finance gap in adaptation is large—and widening (UN Environment, 2021). Annual adaptation costs are estimated to reach up to USD 300 and USD 500 billion in 2030 and 2050 respectively (UN Environment, 2021). However, the most recent estimates by the Climate Policy Initiative (CPI, 2019) suggest that only USD 30 billion was spent on climate change adaptation across the globe in 2017–2018, representing 5% of total global tracked finance flows (CPI, 2019). While the benefits generated by investing in climate adaptation are



estimated to largely outweigh the initial costs,<sup>3</sup> developing the business case for investing in climate adaptation has been challenging. This is mostly due to uncertainties regarding future climate change impacts and difficulties associated with quantifying the adaptation benefits due to the very context-specific nature of adaptation actions (Parry et al., 2017). To address the adaptation finance gap, there is an urgent need to leverage domestic and international public finance as well as private finance across all sectors. For international trade, the most promising entry points for facilitating access to adaptation finance are likely linked to Aid for trade (A4T) and the Enhanced Integrated Framework (EIF).

## **A4T**

International public finance for trade represents a large part of total official development assistance (ODA). According to the Organisation for Economic Co-operation and Development (OECD) (2021), in 2019, trade-related ODA represented USD 46.6 billion equivalent to almost one quarter of total ODA. Between 2006 and 2019, the growth rate of A4T disbursements for LDCs and other low-income countries has grown at 8.2% per year on average, with Africa and Asia being the main recipients (OECD, 2021). The A4T initiative was launched in 2005 by the WTO to improve developing countries' access to, and benefit from, international trade. It includes all ODA activities pertaining to technical assistance for: trade policy and regulations; economic infrastructure; productive capacity building, including trade development; trade-related adjustment to help with the costs associated with tariff reductions, preference erosion, or declining terms of trade; and other trade-related needs (WTO, n.d.). In 2019, most of the A4T disbursement went to support economic infrastructure followed by economic capacity building (OECD, 2021).

A4T can facilitate access to finance for adaptation in two important ways. First, A4T could be leveraged as co-financing when trying to secure climate finance from sources such as the Green Climate Fund, LDC Fund, or Adaptation Fund. This idea was proposed by Ghisu and Ancharaz (2013) and is based on the recognition that many of the climate change initiatives have a direct or indirect link with trade, probably most obvious in the agricultural and infrastructure sectors. Second, integrating adaptation into trade-related ODA will help ensure that trade supports—or at a minimum does not undermine—adaptation. Ultimately, and considering that international public finance is currently the biggest source of finance for adaptation in developing countries, countries need to foster a more integrated approach to climate adaptation financing and trade financing to increase aid effectiveness (Birkbeck, 2021).

## **EIF**

The EIF for Trade-Related Technical Assistance supports LDCs in mainstreaming trade into their overall national development strategies. It brings together 51 countries, 24 donors, and 8 partner agencies who combine their efforts to support the integration of LDCs into the global trading system and contribute to poverty reduction and sustainable development. Critical tools used by the EIF include the Diagnostic Trade Integration Studies (DTIS)

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<sup>3</sup> For example, according to the Global Commission on Adaptation (Bapna et al., 2019), investments in early warning systems, climate-resilient infrastructure, improved dryland agriculture crop production, global mangrove protection, and resilient water resources totaling USD 1.8 trillion could generate USD 7.1 trillion of benefits.



and Action Matrices, which identify trade and development priorities, reveal constraints to trade integration, and advise on key action areas. The result of this process is then translated into specific technical assistance and capacity-building programs to be supported by the donor's community. Such tools and the comprehensive process of consultation around their preparation may be used to foster enhanced coherence and synergies between trade priorities and national adaptation plans. Climate adaptation challenges and their potential impact on productive capacity and trade could be systematically integrated into the design of the DTIS and reflected in the design of specific development projects.

Lastly, other worth noting entry points for trade to facilitate access to private finance for adaptation include FDI and international remittances. While these entry points are not directly related to trade, FDI and remittances account for the largest share of cross-border finance in developing countries. In 2016, FDIs provided most of the external finance to developing countries followed by remittances and bilateral and multilateral finance (WTO & OECD, 2019). Some investment provisions are now included in trade agreements. However, they tend to limit rather than increase the capacity of recipient countries to channel them towards specific priorities like adaptation. Countries need to make sure they do not undermine their ability to invest in adaptation because of investment agreements (more on the role of FDI in the next section on the role of international cooperation). With regards to remittances, and recognizing that the volume of external finance from remittances is only significant for few developing countries (WTO & OECD, 2021), trade can facilitate workers' mobility and the flow of foreign remittances. There is some evidence (see for e.g., Maharjan et al., 2020; Musah-Surugu et al., 2018; Bendandi & Pauw, 2016) that international remittances can support poverty reduction and climate adaptation at the micro level (households, SMEs) in recipient countries. Specifically, they can help households diversify their income, spread risks, and create a buffer against shocks and stresses (Maharjan et al., 2020). This is particularly relevant in fragile states affected by conflicts, which are even more vulnerable to climate change impacts.

### **4.3 Pathway 3: International collaborative frameworks on trade in support of climate adaptation**

Enhanced international cooperation will be crucial for countries to increase the ambition and viability of their NAPs and NDCs. Enhanced cooperation between parties on adaptation issues can also help direct support toward enhancing resilience on trade-related issues. Trade agreements (TAs) including regional, plurilateral or multilateral ones offer useful entry points for governments to identify and advance mutual areas of interest through targeted cooperation. They are particularly useful to address problems that cannot be addressed through unilateral measures such as those identified under Pathway 1.

Amongst the different regional trade agreements (RTAs) currently being negotiated, the Agreement on Climate Change, Trade and Sustainability (ACCTS) is generating particular momentum toward developing wider, globally agreed solutions to environmental challenges. Announced in September 2019 by the leaders of five countries—Costa Rica, Fiji, Iceland, New Zealand and Norway—the envisaged scope of the agreement seeks to remove barriers to trade in environmental goods and services, phase out their fossil fuel subsidies, and encourage



the promotion and application of voluntary eco-labelling programs and mechanisms (Steenblik & Droege, 2019). While adaptation issues can be addressed through several of these key areas, they are not (yet) explicitly reflected in most agreements. TAs nonetheless have a significant potential as a vehicle for more dedicated cooperation amongst countries on trade and adaptation.

The following sections provide examples of possible avenues to integrate trade and climate adaptation provisions in TAs based on similar precedents. They are summarized in Table 5.

- **Broader policy cooperation on adaptation:** At the broadest level, TAs provide a useful framework for countries to craft, review, and renew policy cooperation on a range of issues, fostering policy alignment on agendas of mutual interest. This might include climate change adaptation. Governments are already signalling policy intentions going in this direction. The EU and Canada—through the Comprehensive Economic and Trade (CETA) agreement—are calling on members to cooperate on policies related to domestic mitigation and adaptation, carbon markets, energy efficiency, and developing low-carbon technologies (Economist Intelligence Unit, 2019).
- **Information sharing and dialogue:** To take advantage of best practices, trade negotiators could engage in dialogue and information sharing in a more coordinated manner via provisions in TAs. On occasions when adaptation policies and measures will be supported via trade, facilitating the exchange of information and negotiating experiences could be key to identify ways in which best practices can be multilateralized and where opportunities for cooperation and convergence exist. Given the number of initiatives, ensuring that these stay on the radar for trade negotiators will be key to ensuring synergies and avoiding overlaps and/or maladaptation.
- **Cooperative capacity building:** In TAs between developed and developing countries, provisions may be focused on delivering technical assistance for the public sector in the implementation and enforcement of multilateral agreements (e.g., the Paris Agreement). Technical assistance can also be integrated into the pre-implementation phase of a trade agreement, as has been done for the Pacific Agreement on Closer Economic Relations (PACER Plus) agreement through the delivery of a “Readiness Package.” The assistance could specifically be targeted at setting up or strengthening institutional arrangements—one of the four main enabling factors of the NAP process—by connecting sector representatives focusing on climate adaptation with trade negotiators.
- **Liberalization of climate adaptation goods and services:** TAs may serve as avenues to remove trade barriers affecting goods and services related to climate adaptation. This can be done, for example, by frontloading trade liberalization onset of agreed goods and services. This accelerated liberalization approach is already applied in a number of RTAs and can have important impacts depending on the initial level of protection. For example, the Agreement between New Zealand and the Separate Customs Territory of Taiwan, Penghu, Kinmen, and Matsu on Economic Cooperation identifies a list of 132 environmental goods to be liberalized immediately upon entry into force of the agreement. TAs may also provide an avenue for granting preferential market access to exports of goods produced in a way that contributes to climate adaptation. For example, The European Free Trade Association (EFTA)–Indonesia



Comprehensive Economic Partnership Agreement (CEPA) grants preferential tariff treatment to certain agricultural products (e.g., palm oil) that meet sustainability requirements. In doing so, the agreement makes an explicit distinction between conventional and sustainable production, providing preferential tariff treatment (i.e., a direct incentive) where importers of palm oil and palm oil derivatives can prove compliance with one of three VSSs (Birkbeck, 2021).

- **Working toward harmonization or mutual recognition of environmental standards and regulations**, which could be used to help consumers and economic actors access adequate and transparent information about adaptation goods and services. In the absence of well-established international standards, differences in the design and implementation of standards and regulations across jurisdictions may send diverging signals to producers and reduce incentives to adopt climate-resilient solutions along the value chain. This heterogeneity may also impose additional costs for exporters and highlights the importance of enhanced coherence and interoperability across jurisdictions as a way to both reduce trade costs and scale climate-resilient solutions. TAs can help enhance transparency and promote equivalences, mutual recognition, or the harmonization of standards, regulations, and conformity assessment. This can be achieved either through dedicated chapters on climate change chapters following the models of the EU–Vietnam or the EU–Singapore chapters on “Non-tariff Barriers to Trade and Investment in Renewable Energy Generation” or through a dedicated annex like the US–Mexico–Canada FTA (USMCA) Sectoral Annex on Energy Performance Standards. Possible provisions to be included in TAs could range from encouraging regional and national standardizing bodies to participate in the preparation of international standards and use them as a basis for the development of national standards.<sup>4</sup> More ambitiously, parties may agree on provisions promoting harmonization or equivalence of specific standards or regulations.<sup>5</sup> A common approach also consists of establishing a mutual recognition agreement of conformity assessment procedures to eliminate duplicative testing and certification procedures.<sup>6</sup> Finally, RTAs could be used to promote cooperation on voluntary labelling schemes.
- **Fostering climate-resilient foreign direct investment (FDI)**. In developing countries, most private enterprises are micro, small and medium-sized enterprises (MSMEs) in the informal economy. These enterprises often have limited resources to address climate risks compared to larger companies. As such, multinationals have an important role to play in financing adaptation in developing countries. Specifically, they can finance the implementation of adaptation actions indirectly by climate proofing their operations and value chains and by developing climate-resilient products and services in line with the adaptation priorities of the government. Large companies in developed countries also increasingly need to comply with environmental

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<sup>4</sup> See, for example, EU–Japan EPA, Chapter 7, Technical Barriers to Trade, Arts. 7.6.4; 7.6.2(b).

<sup>5</sup> For instance, the USMCA Sectoral Annex on Energy Efficiency Performance Standards calls on the parties to harmonize energy performance standards within 9 years after the entry into force of the agreement.

<sup>6</sup> See, for example, the CETA Protocol on Mutual Acceptance of Conformity Results for energy-efficiency requirements.



and climate policies and regulations (Parry et al., 2017). Countries are increasingly using TAs as tools to regulate investments in combination with the use of bilateral investment treaties (WTO, 2018). This is being done by including investment provisions in TAs. These provisions tend to cover elements such as investments definitions, investors and home state obligations, and dispute settlement. However, the need to reform investment provisions included in both trade and international investment agreements to promote sustainable development is increasingly being recognized (Birkbeck, 2021). If home states want to ensure that investments contribute to climate adaptation, adjusting investment provisions in TAs could offer a starting point (see possible options in Table 5).

- **Incentivizing climate adaptation through subsidies.** Parties to an RTA can also agree to prevent remedial action against a set of well-defined non-actionable subsidies, whose objective is to promote climate change adaptation as highlighted under Pathway 1. Here, the objective is to provide incentives to invest in climate adaptation solutions. An example of such an approach is found in the Caribbean Community and Common Market for environmental subsidies.

**Table 5.** Possible options to incorporate climate adaptation provisions in TAs

Topic or RTA chapters	Possible provisions
Preamble	<ul style="list-style-type: none"> <li>• Preambular language highlighting mutual supportiveness of trade and climate adaptation</li> </ul>
Environmental/ Sustainable development chapter	<ul style="list-style-type: none"> <li>• Commitment to cooperate on climate adaptation</li> <li>• Promote ongoing dialogue on climate adaptation and trade</li> <li>• Provide technical assistance and capacity building</li> <li>• Include climate adaptation considerations in ex-ante and ex-post sustainability impact assessments</li> </ul>
Climate adaptation goods and services	<ul style="list-style-type: none"> <li>• Frontload tariff liberalization of goods relevant to climate adaptation</li> <li>• Provide preferential market access to goods supporting climate adaptation</li> <li>• Liberalize services relevant to support climate adaptation</li> </ul>
Technical barriers to trade (TBTs) and sanitary and phytosanitary measures (SPS)	<ul style="list-style-type: none"> <li>• Encourage regional and national standardizing bodies to participate in the preparation of international standards related to climate adaptation</li> <li>• Use international standards related to adaptation as a basis for the development of national standards</li> <li>• Promote harmonization or equivalence of specific climate adaptation standards or regulations</li> <li>• Establish a mutual recognition agreement of conformity assessment procedures of standards or regulations</li> <li>• Promote cooperation on voluntary labelling schemes</li> </ul>



Topic or RTA chapters	Possible provisions
Investment	<ul style="list-style-type: none"><li>• Preserve the right to establish non-discriminatory regulations aimed at fostering investment in climate adaptation</li><li>• Commit to promoting investment in climate adaptation supported by assistance measures and cooperation among investment facilitation agencies</li><li>• Incorporate specific obligations for investors (e.g., related to climate risk and vulnerability assessments, possibly together with issues related to environmental impact assessments)</li></ul>
Subsidies and trade remedies	<ul style="list-style-type: none"><li>• Exclude remedial action against subsidies designed to foster productive capacity and climate adaptation</li></ul>





## 5.0 The Role of NAPs in Leveraging Trade for Adaptation

The three general pathways described in the previous section can be operationalized by identifying useful starting points and developing shared understandings of how trade can advance climate change adaptation in countries. Both the NAP and the process that underpins its development and implementation provide a strong opening in this regard.

As described in Section 2, NAPs summarize a country's medium- and long-term adaptation needs and priorities, as well as strategies for addressing them. There is no single approach to developing and structuring NAPs—some countries may choose to produce a single, overarching plan for the country, while others may develop separate sectoral adaptation plans, and others may choose to do both. In terms of content, apart from presenting adaptation needs, priorities, and strategies, NAPs may contain information on:

- The country's longer-term vision for adaptation
- The principles, purpose, goals, and objectives driving adaptation action
- Institutional arrangements for adaptation (i.e., government agencies responsible and involved, how they work together)
- The observed and projected impacts of climate change on the country
- The main risks—including cross-border risks—associated with these impacts
- How adaptation actions align with other key national policies—e.g., national development plan and/or SDG implementation, climate change policy or law, disaster risk reduction strategy, biodiversity action plan, COVID-19 recovery program, etc.

It is worth noting that NAPs are typically supported by other supporting or derivative documents that are produced throughout the NAP process. These may include stand-alone national climate vulnerability and risk assessments, private sector engagement strategies for adaptation, costing of adaptation actions, broader resource mobilization and/or financing strategies for the NAP, implementation roadmaps, needs assessments for implementing specific adaptation priorities, and so on.

The point here is that there are many resources from which to draw to get a strong understanding of how climate change impacts affect the country and the priority actions and investments the government has identified to minimize loss and harm resulting from these impacts. And these can—and should—be used in mapping out how trade can be more strategically used to help a country meet its adaptation goals. Referring to the three pathways described in the previous section, these adaptation documents point to the goods and services that will be required for adaptation, associated financing needs, and the cooperation opportunities that might be pursued with other countries.

A closer look at the three NAP documents described in Section 3 from Fiji, Kiribati, and Tonga demonstrates what this might look like in practice. Taking an identified adaptation priority or measure from each country's NAP document, we explored how trade might be used under the three pathways identified above. These three examples are summarized in Boxes 1, 2, and 3.



## Box 1. Enhancing hydrometeorological capacity in Fiji

**Adaptation priority:** “Upgrade the existing Fiji Meteorological Service (FMS) infrastructure and technical capacities (e.g., early warning systems, flood forecasting, weather stations, hydrological services, telemetry system) to develop and provide access to hazard and risk information including multi-hazard early warning systems, and to monitor and provide timely and effective warning services to the public.” (Source: Government of the Republic of Fiji, 2017)

**Identifying the adaptation goods and services required to implement this priority:**

FMS needs access to modern observation equipment to provide more accurate short and long-term weather forecasts. Access to fit-for-purpose ICT and infrastructure is also important, as it enables the FMS to collect the data needed to provide better services. To implement this adaptation priority, the government conducted a review of its infrastructure and technical capacities (see Government of the Republic of Fiji, Department of Meteorology, 2019). Examples of priority adaptation goods identified in the analysis include: modernize the Nausori and Labasa radars and equip all radars (including Nadi) with the dual-polarization features (cost USD 5 million–USD 10 million); increased number of automatic weather and hydrological stations; and acquire and develop a fully integrated data management system for observation and forecast data. Examples of adaptation services prioritized include: maintenance and calibration of sensors; increase the number of IT experts in FMS with a minimum number of two to support the maintenance, development, and operation of the data management system; and inclusion of automated quality control of data in the data management system.

**Using domestic trade policy measures that enhance access to goods and services for this adaptation priority:**

The lowering or removal of tariffs could facilitate the importing of the adaptation goods and services needed to upgrade FMS infrastructure and technical capacities. The Fijian government could look in more detail at tariff structures and domestic regulations that could affect the delivery of those goods and services, either at the national level or on a project basis, if changing the overall tariff structure is not an option.

**Using trade-related financing mechanisms to support this adaptation priority:**

Key export and service sectors in Fiji such as agriculture, tourism, and aviation rely heavily on FMS forecasts to help produce and deliver their outputs. Clients already include aviation forecast services to the Cook Islands, and limited services for Christmas Island (Line Islands), Tokelau, Samoa, Niue and Tonga (Government of the Republic of Fiji, Department of Meteorology, 2019). But private sector investments in hydrometeorological equipment and services are difficult to secure, even more so given that FMS is not yet an entity that is able to charge for its services (Government of the Republic of Fiji, Department of Meteorology, 2019). A4T financing could, however, support this adaptation measure through its productive capacity building and infrastructure investment channels of delivery.

**Using trade agreements to enhance multilateral cooperation for this adaptation priority:**

Access to useful hydrological and meteorological data is an ongoing challenge for trade in the region, and Fiji is positioning itself to be a strategic regional hub. Upgrades to FMS's observation network and equipment have mainly been done on an ad hoc basis due to a heavy dependence on the availability of external funding or donors (Government of the Republic of Fiji, 2019). Access to accurate hydrological and meteorological data is a strategic issue for trade in the region. A more coordinated approach from trading partners to better plan and sequence investments in infrastructure, as well as supporting existing initiatives such as the World Meteorological Organization's Global Framework for Climate Services, could be pushed via dedicated cooperation commitments within RTAs. The ACCTS currently under negotiation (and to which Fiji is a party) could also be leveraged to support adaptation policies by removing barriers to trade in climate adaptation environmental goods and services.

**Box 2. Promoting efficient rainwater harvesting systems to address water availability issues in Kiribati**

**Adaptation priority:** "Identify most appropriate water sources and technological actions such as infiltration galleries; protection of household wells from wave overtopping, contamination and heavy rain; rainwater harvesting; desalination plants." (Source: Government of Kiribati, 2019, p. 144)

**Identifying the adaptation goods and services required to implement this priority:**

In several Pacific islands, rainwater is used to cover all needs, as groundwater is often contaminated by sewage and other pollutants, as well as saltwater intrusion (Secretariat of the Pacific Regional Environment Programme (SPREP), 2015). With rising sea levels and increased risk of saltwater contaminating the islands' groundwater, investing in rainwater harvesting (RWH) is becoming an important adaptation strategy for many small island developing states (SIDS). RWH systems vary in complexity. While some systems can be installed with minimal skills, automated systems require advanced setup and installation. Adaptation goods needed for more advanced RWH systems would include elements such as prefilters (e.g., vortex filter); drains/gutters; storage containers; pumps (for pressurized systems); treatment devices (i.e., UV lights); chlorination devices; and post-filtration equipment. Adaptation services that might be needed for the implementation of this measure mostly focus on support for installation and maintenance.

**Using domestic trade policy measures that enhance access to goods and services for this adaptation priority:**

The lowering or removal of tariffs could facilitate the importing of the adaptation goods and services needed for promoting the use of efficient rainwater harvesting systems. The government of Kiribati could look in more detail at tariff structures and domestic regulations that could affect the delivery of those goods and services, either at the national level, or on a project basis, if changing the overall tariff structure is not an option.



**Using trade-related financing mechanisms to support this adaptation priority:**

With the aim of eliminating infrastructure constraints, such as water shortages, A4T financing could support more advanced RWH systems through its infrastructure investment channels of delivery. In addition, international remittances could also be used to finance less-sophisticated RWH systems at the household level.

**Using international collaborative frameworks on trade to support this adaptation priority:**

Water security poses a common threat to Pacific SIDS and is already being addressed through initiatives such as the Pacific Partnership for Atoll Water Security (The Pacific Community [SPC], 2016). The PACER Plus trade agreement provides another important platform to identify and prioritize Pacific Island countries' trade and investment needs in relation to water security, as well as to coordinate Australia and New Zealand's A4T assistance. This could be done both in the context of the PACER Plus readiness package and subsequently the implementation package which will coordinate support across each core aspect of the agreement. The PACER Plus agreement also contains a range of provisions aimed at facilitating the temporary movement of natural persons and cooperation on tertiary education, which could be leveraged to facilitate the delivery of climate adaptation-related services relevant to RWH including construction, installation and maintenance services, environmental consultancy, or monitoring services.

### **Box 3. Strengthening sustainable fisheries and aquaculture resources management in Tonga**

**Adaptation priority:** “Strengthen the sustainable development and management of fisheries and aquaculture resources to increase these sectors' resilience to the impacts of climate change.” (Source: Government of Tonga, 2018)

**Identifying the adaptation goods and services required to implement this priority:**

Tonga's NAP document, the JNAP II, identifies the need to strengthen the knowledge of fisheries managers on fish aggregation devices (FADs); extend their use where appropriate; and improve their design to be more resilient to the impact of storms and cyclones (Government of Tonga, 2018). FADs are drifting or anchored buoys or rafts that attract and aggregate fish, making them easier to find and catch. FADs for artisanal and commercial/industrial fisheries have proliferated in Asia and the Pacific region over the past decade (Beverly et al., 2012). There are several risks and precautions associated with their use, including disturbance of the balance of delicate ecosystems as well as the creation of marine debris, leading environmental and conservation groups to lobby for FAD-free caught tuna, particularly in industrial-type tuna fisheries (Beverly et al., 2012). Yet anchored FADs are an important tool for the development of sustainable artisanal and small-scale commercial fisheries that provide food and livelihoods for coastal communities in developing countries (FAO, 2012). To implement this adaptation priority, the following goods might be needed: buoys; anchors; braided mooring ropes (stronger than three-strand rope); lights; radar reflectors; solar panels; GPS homing transmitters and echo sounders. In addition, training to design and implement FAD programs that maximize benefits while reducing risks will also be needed as an adaptation service.

**Using domestic trade policy measures that enhance access to goods and services for this adaptation priority:**

The lowering or removal of tariffs could facilitate the importing of the adaptation goods and services needed for strengthening sustainable fisheries and aquaculture resources management in Tonga. The Government of Tonga could look in more detail at tariff structures and domestic regulations that could affect the delivery of those goods and services, either at the national level, or on a project basis if changing the overall tariff structure is not an option

**Using trade-related financing mechanisms to support this adaptation priority:**

In Tonga, FDI in most fisheries activities is prohibited, and only a limited number of tuna longline fishing licences are granted to foreign (mostly Asian) vessels (Government of Tonga, 2016). A4T support on productive capacity building and infrastructure seems to be a more appropriate vehicle to support the implementation of this measure.

**Using international collaborative frameworks on trade to support this adaptation priority:**

Tonga is one of the eight ratified signatories of the PACER Plus trade agreement. The agreement could serve as a platform to identify and respond to specific trade-related climate adaptation needs. In addition, the provisions aimed at facilitating the temporary movement of natural persons and cooperation on tertiary education in the agreement could be leveraged to facilitate the delivery of climate adaptation-related services relevant to FADs, including construction, installation and maintenance services, environmental consultancy, or monitoring services.

While reviewing the NAPs may be a useful starting point for understanding how trade may support adaptation, many countries—especially LMICs—have not yet finalized this document. This highlights the value of engaging with the broader NAP process, i.e., with the actors, institutions, activities, and outputs associated with developing and implementing a NAP.



## 6.0 Conclusions and Next Steps

It is well understood that climatic impacts on trade can be addressed by a host of climate adaptation measures, ranging from the development of resilient trade infrastructure to designing new financial products that promote investments in climate-resilient products and services. However, the inverse relationship of leveraging trade as a vehicle to support adaptation efforts has not been given much attention until now.

To help assess the role of trade in supporting these adaptation measures, three general pathways were identified, with each representing an opportunity for countries—and the different economic sectors and populations therein—to reduce their exposure and vulnerabilities to climate change impacts. Specifically, these pathways were:

1. **Domestic trade policy measures that enhance access to adaptation goods and services:** Designing and applying tariffs, subsidies, government procurement rules, IPRs, VSS and certification schemes, minimum requirements, and trade facilitation measures to enable the importation of products and services needed to implement adaptation priorities, but also incentivize the development of climate-resilient goods and services for export.
2. **Access to trade-related financing mechanisms that support climate adaptation:** Using A4T or the EIF.
3. **International collaborative frameworks on trade in support of climate adaptation:** Providing useful platforms for governments to support the advancement of adaptation priorities in a coordinated manner.

Adaptation priorities from the national adaptation plans of three Pacific SIDS provide a basis for an initial exploration of how these pathways might be realized in practice. The examples provide only a taste of what might be possible and certainly point to areas of further research and continued engagement.

Based on the relationships and opportunities described in this paper, several practical next steps or recommendations are proposed for strategically leveraging trade for advancing climate change adaptation:

- **Establish contact between trade and adaptation policy actors.** This may seem obvious, but it is the foundation for everything else and is currently largely non-existent. The NAP “team” that drives the development and implementation of adaptation policy at the national level can be based in various parts of government, although it is usually in the ministry of environment or a country’s planning agency. If it is unclear where the adaptation actors sit, then the country’s UNFCCC Focal Point should be able to help. Trade actors can also find out if the government has produced a national adaptation strategy and/or plan. A small but growing list of such documents for LMICs is available via the UNFCCC’s [NAP Central](#). International NAP support programs, like the [NAP Global Network](#), can also point to national plans or other milestone documents in a country’s NAP process to help trade actors become oriented with what is happening in their country.



- **Support targeted engagement between trade and adaptation actors.** Once contact is established, a certain amount of awareness-raising and strategic engagement will likely be needed to identify shared interests and opportunities for mutual support. This can include developing specific outreach, communications, and engagement strategies for raising the profile of trade in adaptation conversations or vice versa. Communications materials or campaigns that explain the basics of adaptation and distill the latest understandings of climate impacts and adaptation priorities can be prepared to better explain their relevance to trade. For example, the Ministry of Economy in Fiji has developed an internal government communications strategy to raise awareness around the NAP and convey its strategic importance in decisions across government. Opportunities for greater engagement through institutional structures can be effective. Including trade actors on internal and/or external committees or advisory bodies that inform the NAP process should be pursued and, again, vice versa. For example, the different task forces that have been set up and promoted through technical assistance within the trade policy sphere could benefit from the inclusion of members of the government's NAP team.
- **Conduct in-country assessments of trade policy instruments and the extent to which they support or constrain adaptation.** Pathway 1 highlighted the role different trade policy instruments (tariffs, subsidies, public procurements, VSSs and trade facilitation) can play in supporting—or removing barriers to—the trade in adaptation goods and services. To assess this potential, countries could pick a selection of adaptation priorities and evaluate how existing trade policy instruments impact, or could impact, these priorities. The results could offer recommendations on the following: the reform needed to ensure that existing trade policy instruments support, or at a minimum do not undermine, adaptation; any new trade policy instruments that should possibly be considered; and, best ways to align different trade policy instruments in a sector or across sectors to ensure coherence and make a difference for adaptation. These assessments would need to be conducted jointly with the ministry of trade (or similar department), the ministry responsible for coordinating climate change (particularly the team responsible for coordinating the NAP process), and the ministry of finance. The selection of the adaptation priorities will also determine which sectoral ministries should be involved, ideally by bringing in both the trade and climate change focal points.
- **Integrate adaptation in A4T.** As highlighted in Section 4.2 (Pathway 2), integrating adaptation into trade-related ODA will help to ensure that trade supports, or at a minimum does not undermine, adaptation. There is an opportunity to integrate adaptation considerations across all four elements of trade-related ODA from trade policy and regulations to economic infrastructure, productive capacity building, and trade-related adjustment. For example, trade-related technical assistance can be used to develop trade strategies that address adaptation priorities identified by governments; activities for building production and supply-side capacity can focus on diversifying exports and investing in industries and sectors that are less sensitive to climate risks, as well as building comparative advantages, taking into account future climate conditions; and trade-related adjustments can compensate for declining terms of trade due to the climate-induced shocks in sensitive sectors such as agriculture.



- **Use existing tools to identify entry points for integrating adaptation considerations into TAs.** IISD and UNEP developed the Sustainability Toolkit for Trade Negotiators to help policy-makers craft trade and investment agreements that support sustainable development objectives (IISD, 2017). The toolkit identifies different entry points for incorporating sustainability considerations into TAs. Specifically, climate adaptation could be considered across environmental/sustainable development chapters; market access provisions for goods and services; disciplines on non-tariff barriers including standards, regulations, and conformity assessment procedures; investment chapters or subsidies and trade remedies.





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**Head Office**

111 Lombard Avenue, Suite 325  
Winnipeg, Manitoba  
Canada R3B 0T4

**Tel:** +1 (204) 958-7700

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