BACKGROUND PAPER

WORLD TRADE ORGANIZATION
THE EFFECT OF TRADE ON GREENHOUSE GAS EMISSIONS

Welcome Letter

Distinguished Delegates,

Welcome to the World Trade Organization Committee at The European International MUN 2022! We are delighted to announce that, during this year's conference, WTO will focus on discussing the sustainability of trade – specifically on the effect of trade on greenhouse gas emissions and concerns of revitalizing international trade post the COVID-19 pandemic.

The World Trade Organization is the only international organization dealing with the global rules of trade – ensuring that trade flows as smoothly, predictably, and freely as possible.[1] The WTO has over 160 members representing 98 percent of world trade and has its main role set to operate a global system of trade rules, acting as a forum ro negotiate trade agreements. With WTO's primary goal to create open trade for the benefit of all, WTO has a mandate of having all major decisions made by WTO's member governments – either by ministries, ambassadors, or delegates – and the Ministerial Conference as the top decision-making body. In TEIMUN 2022, the WTO Committee will be following the procedure and structure of The General Council, which is the top day-to-day decision-making body.[2]

Your days at TEIMUN 2022 will consist of long discussions and negotiations, aimed at reaching an agreement with the other Member States, and passing a resolution which offers concrete proposals regarding the actions your delegation believes should be taken. You will find that reaching a compromise is often not easy, since all countries' interests differ and each hopes to promote their individual goals. As a consequence, in order for you to be a successful delegate, you must put yourself in the position of the other States, without losing sight of your own objectives. TEIMUN 2022 offers you the perfect opportunity to broaden your knowledge on this topic, to understand its complexity and to propose and address multiple possible solutions. To be prepared, we recommend that you read this background paper carefully, as it contains important information on the topic. In addition, we strongly encourage you to rigorously research your country's position on this issue before the start of the conference. Finally, it is important that you read the Rules of Procedure with great care, so we can have a fruitful and productive debate.

We hope that you are as excited about TEIMUN 2022 as we are. We are very much looking forward to meeting you all; we are certain that it will be a great experience for everyone!

Sincerely,
Chairs of the World Trade Organization at TEIMUN 2022

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[1] "WTO | The WTO In Brief". *Wto.Org*, https://www.wto.org/english/thewto_e/whatis_e/inbrief_e/inbr_e.htm.
[2] "What Is The WTO?". *Wto.Org*, https://www.wto.org/english/thewto_e/thewto_e.htm.

Introduction to The Committee

The World Trade Organization ("**WTO**") was established on January 1, 1995 which has the objective to create an open and strong international trading system that can contribute to a country's economic growth and give benefits for their people, which more specifically can raise the living standards of the citizens each country and open up more jobs through the open trade. Currently, WTO has 164 members on board that includes both the developed and developing nations and an annual budget of approximately $180 million. WTO has three official languages namely English, Spanish, and French.[3] Agreements made in the WTO are usually lengthy and consist of complex clauses as it encompasses legal texts that constitutes various operations and activities within the global trade.

WTO is controlled by its member governments and as for decisions, most of them are made by the membership as a whole which includes their ministers who has regular meet once every two years, their ambassadors, or their delegates who usually have their meetings conducted directly in Geneva, Switzerland which is the place for the secretariat of WTO. All activities in the secretariat are assisted by around 700 staff and are led by the WTO Director-General. The key areas that WTO is focusing on is operating the global system of trade rules and helping developing nations advance their trade capacity in general which hopefully can raise living standards, provide job employment and improve the quality of people's lives better.

[3] "WTO Overview". https://www.wto.org/english/thewto_e/whatis_e/wto_dg_stat_e.htm

Problem Specification

The arising issues coming from the international trade about managing greenhouse gas emissions come from four different aspects. Namely: production, transportation, distribution, and consumption. Each element yields different conditions, causes, and effects on global emissions. However, all four aspects are linked with one causal factor of increasing global emission, which is trade development. Due to more countries emerging their economic capacity, more trade happens in different regions around the world, increasing the emission intensity. According to the WTO, the world's gross domestic product (GDP) rose eight-fold from 1950 until the present time, from 5.5% to 20.5%.[4] According to Our World in Data, emitted global emission is around 50 billion tonnes of CO_2 per year, which is 40% higher than in 1990.[5] One of the indicators of the increase in emission is trade. The figure reflects how substantial the effect of trade development towards greenhouse gas emission is.

To understand more about each problem's specification, delegates may refer to the QARMAs section based on four different aspects of international trade as their first point of research. It is empirical for delegates to note that research and solutions should be based on the mandate of WTO – which are regulations in international trade in a General Council format. More information on the scope of the WTO involvement in environmental policies can be seen in the first QARMA section.

[4] "The Impact of Trade Opening on Climate Change". n.d..
<https://www.wto.org/english/tratop_e/envir_e/climate_impact_e.htm>.
[5] Ritchie, Hannah and Max Roser. "Greenhouse Gas Emission". 2020.
<https://ourworldindata.org/greenhouse-gas-emissions#:~:text=Greenhouse%20gases%20are%20measured%20in,were%20around%2035%20billion%20tonnes.>.

Questions a Resolution Must Answer (QARMAs)

We hope that the QARMA sections for the TEIMUN 2022 debate of the WTO Council provide you with interesting new facts and helpful insights. Please note that the following questions are issues which the resolution must address in order to be considered for discussion. As such, you must investigate where your respective countries stand on these subject matters. However, if you would like to address additional concerns in your resolution, that is, of course, permitted.

1. To what extent do WTO principles of the trading system – specifically in promotion of freer trade and fair competition – contribute, both positively and negatively, to greenhouse gas emissions in the production sector? What measures can be taken to improve the integrity and operativity to establish a low-carbon economy?

2. How can the Member States ensure to maintain the greenhouse gas emission produced from the transportation aspect of international trade?

3. How can member states ensure that the efficacy of distribution services in the context of international trade is maintained while at the same time taking into account the greenhouse gas effect that it creates? What solutions can address the obstacles in achieving environmentally friendly distribution procedures within international trade?

4. To what extent do the consumption-based carbon emissions affect global emissions in international trade? Does the WTO need to also pay attention to the carbon emission emitted from the consumption aspect of trade? If it is needed, how can it be formulated and implemented?

Explanatory Section per QARMAs

Production

Question: To what extent do WTO principles of the trading system – specifically promotion of freer trade and fair competition – contribute, both positively and negatively, to greenhouse gas emissions in the production sector? What measures can be taken to improve the integrity and operativity to establish a low-carbon economy?

History/Background of the Problem

Although the World Trade Organization is not the place to establish global climate policy regulations, the WTO plays an important role in its part of governing taxes, tariffs, subsidies, regulatory measures, and other instruments that are relevant for implementing climate policies.[6] The relationship between the WTO agreements and various international environmental agreements and conventions lie in the 20 out of 200 multilateral environmental agreements (MEAs) – which are international agreements dealing with various environmental issues – that affect trade. They are the Montreal Protocol (for protection of the ozone layer), the Convention on International Trade in Endangered Species (also known as CITES – for regulation of international trade in species under threat), and the Basel Convention (for regulation of hazardous waste across international borders).[7]

As the WTO is only competent to deal with trade, its only task in environmental issues is to study the relationship between trade and the environment, making recommendations of issues arising when environmental policies have a significant impact on trade, and focusing its solutions to uphold the principles of the WTO trading system. This is because there are better qualified agencies that specialize in the national or international environmental policies or setting of environmental standards.[8]

Nonetheless, in the basic WTO principles, the clauses in the agreements on goods, services, and intellectual property allow governments to give priority to their domestic environmental policies. The WTO committee says that the most effective way to deal with international environmental problems is through the environmental agreements as it seeks internationally agreed solutions for trade problems[9]. With such, it is important to stand on WTO's principles, especially since WTO members generally are convinced that open, equitable, and

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[6] "“Trade Plays An Important Role In Climate Change Adaptation And Mitigation” — DDG Ellard". *Wto.Org*, 2021, https://www.wto.org/english/news_e/news21_e/ddgae_26oct21_e.htm.
[7] "WTO | Understanding The WTO - The Environment: A New High Profile". *Wto.Org*, 2022, https://www.wto.org/english/thewto_e/whatis_e/tif_e/bey2_e.htm.
[8] *Ibid*.
[9] “WTO | The environment: a specific concern”. *Wto.Org*, 2022, https://www.wto.org/english/thewto_e/whatis_e/tif_e/bey2_e.htm

non-discriminatory multilateral trading system has a key contribution to better protect and conserve environmental resources and promote sustainable development.[10]

One of the WTO's principles of the trading system includes freer trade: with the belief that lowering trade barriers (such as tariffs, import bans, or quotas) is the most obvious means of encouraging trade. For instance, through negotiations which have expanded to cover non-tariff barriers on goods (such as services and intellectual property), industrial countries' tariffs rates on industrial goods had fallen to less than 4% from 1948 to the 1990s.[11] Another WTO principle is promoting fair competition, a system that allows tariffs and other forms of protection. However, there has been research which mentions how sector-specific plurilateral trade agreements (PTAs) mostly appeal to developed countries, with the uptake among developing countries being very limited.[12] This directly affects climate contributions of developing countries as they do not have the bright accessibility of trading environmental sustainable products, services, amongst other things which influence their economy. This is because, according to officials interviewed, the agenda shaping for plurilateral negotiations has happened largely without developing country and LDC participation, causing developing countries and LDCs to fear having to give up their policy space to adopt agedas set without them and without due attention being given to their interests[13]. Additionally, there is a prime concern in the stagnation of the Doha Development Round (DDR) in relation to non-agricultural market access and agricultural goods.[14]

An example of a failed PTA in terms of environmental sustainability is the Environmental Goods Agreement (EGA). It failed in 2016 after two years of running due to the difficulty of extending the Asia-Pacific Economic Cooperation list. Participating countries saw how lowering tariffs of environmental goods would benefit both trade (lowering costs therefore increases trade) and the environment (better access to products and services to tackle environmental challenges) – however, with nuisance tariffs, it resulted in a tariff so low that it costs the government more to collect than the revenue it generates. With such, it is important to note how the existence of non-tariff barriers (which is more prevalent in high-income countries than lower-income countries) are restrictions to trade that do not correct for a market failure.[15]

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[10] "UNCED, Earth Summit: Sustainable Development Knowledge Platform". *Sustainabledevelopment.Un.Org*, 1992, https://sustainabledevelopment.un.org/milestones/unced.

[11] "WTO | Understanding The WTO - Principles Of The Trading System". *Wto.Org*, https://www.wto.org/english/thewto_e/whatis_e/tif_e/fact2_e.htm.

[12] Bertelsmann-Scott, Talitha et al. "The Impact Of Plurilateral Trade Agreements On Developing Countries – To Participate Or Not To Participate?". *South African Journal Of International Affairs*, vol 25, no. 2, 2018, pp. 177-198. *Informa UK Limited*, https://doi.org/10.1080/10220461.2018.1479655.

[13] "Final Report - Plulilateral Trade Agreements". *Assets.Publishing.Service.Gov.Uk*, 2017, https://assets.publishing.service.gov.uk/media/5a33d23fe5274a7908e350d7/PO_40104262_-_DFID_-_FINAL_REPORT.pdf.

[14] *Ibid*.

[15] de Melo, Jaime, and Jean-Marc Solleder. "Reviving The Environmental Goods Agreement: Why It Matters, Why It Is Stalled, And How To Move Forward". *Envirocenter.Yale.Edu*, 2019, https://envirocenter.yale.edu/sites/default/files/files/CoolHeads_deMelo(1).pdf.

Furthermore, another PTA is the Government Procurement Agreement (GPA) which includes procurement upon fulfillment of coverage of the procurement entity, specified procurement included in the relevant to the Party's commitments, and value procurement is above the threshold levels contained in the Party's schedules.[16]

Direct procurement directly affects the production process of manufacturing firms. The Procurement-Production relationship begins when the Production function transmits its materials requisitions to the Procurement function. When Procurement has inadequate time to develop competition or to negotiate properly, premium prices need to be paid for materials.[17]

Figure 1: The internal interfaces of the Procurement function[18]

With the GPA requiring regulatory and infrastructure overhaul for many developing countries (including developing the requisite technical expertise), there are many concerns that liberalizing government procurement would result in a loss of policy space for developing countries to fulfill their socio-economic development goals.[19]

Amongst other PTAs, it is important for delegates to dig deeper and study how member states may contribute to "free-riding" in many WTO policies when attempting to achieve the Paris Agreement goals – and if the occurring "free-riding" is worth it for growth specifically in environmental sustainability.

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[16] "The Environmental Goods Agreement (EGA): Liberalising Trade In Environmental Goods And Services". *Trade - European Commission*, 2016, https://trade.ec.europa.eu/doclib/press/index.cfm?id=1116.
[17] "Relations With Other Functions". *Procurementmanagement.Pressbooks.Com*, 2009, https://procurementmanagement.pressbooks.com/chapter/relations-with-other-functions/.
[18] *Ibid.*
[19] *Ibid.*

Recent Developments

In discussion of moving into a low-carbon economy, countries need affordable access to advanced technologies. Hence the many WTO policies (and attempts) in promoting open trade – lowering barriers of trade in environmental goods and services. However, the significant differences in policy approaches with countries moving at different speeds on decarbonizing their economies causes different outcomes to these developments.

1. **Carbon Pricing**
   Emissions trading systems and carbon taxes – carbon pricing is a valuable instrument to combat climate change.[20] However, the wide variance of carbon prices (from less than US$ 1 per ton of CO2 to more than US$ 130) only covers less than 22% of global emissions, despite having "almost 70 different carbon pricing schemes globally".[21] With border tax adjustment measures intended to ensure foreign competitors become subject to the same carbon costs as domestic producers, developing countries fear that their exports are targeted, and high carbon sectors in both the developed and developing world fear discrimination. Carbon pricing will generate significant trade frictions and create unpredictability for businesses seeking to decarbonize, a principle specifically focused by the WTO's trading system. Hence, it is believed by WTO members that these concerns would actually weaken the effectiveness of global efforts in tackling climate change.[22]

2. **Eco-labelling**
   Labeling environmentally-friendly products is important in the movement towards environmental sustainability as it directly ties into the production and consumption patterns of companies' environmental performance.[23] However, the question arises on how companies use these labels: do companies use ecolabels as a tool to improve their environmental performance, or is it just an effective employment of a tool of marketing? The impact of ecolabelling programs (such as WTO's rules of Technical Barrier to Trade Agreement) depend on how product groups and licenses are established. Luckily, there are several studies which show how the adoption of an ecolabel is frequently able to show the improvement of companies' environmental performance – but doubts still arise if there are changes in the production and consumption patterns themselves.[24] There are many discussions on how eco-labelling (and other similar "carbon footprint" labels and advertisements) only shift the blame from companies and producers of these greenhouse gasses to consumers – forcing

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[20] "Pricing Carbon". *The World Bank*, https://www.worldbank.org/en/programs/pricing-carbon#:~:text=There%20are%20two%20main%20types,extra%20allowances%20to%20larger%20emitters.
[21] *Ibid.*
[22] *Ibid.*
[23] Iraldo, Fabio et al. "The Future Of Ecolabels". *The International Journal Of Life Cycle Assessment*, vol 25, no. 5, 2020, pp. 833-839. https://doi.org/10.1007/s11367-020-01741-9.
[24] *Ibid.*

consumers to “take action” when significant change needs to be driven by major parties, not individuals as consumers. One may argue that the role of consumers is to create a supply and demand relationship which encompasses environmental sustainability; however, the many barriers that individuals face to make such choices (infrastructurally and financially) in contrast to the power a company holds seem to show how “carbon footprint” and “eco-labelling” only shift the attention away from the true influence and impact large institutions have in their own regulations, production, and procurement.[25]

3. **Liberalization and Sustainable Development**
   Members of the Trade and Environment Committee believe that removal of trade restrictions and distortions can yield benefits both for the multilateral trading system and the environment. However, questions still arise on if freer trade actually helps environmental protection or hinder it – which is why WTO is scheduling further discussions on this particular matter.

Relevant Actors/Institutions

Table 1.1: Major Parties Involved Regarding The Issue

Stakeholder	Role and Responsibility
The Committee on Trade and Environment (CTE)	The CTE is WTO’s regular trade and environment committee. The CTE’s mandate contributes to identifying and understanding the relationship between trade and the environment in order to promote sustainable development.[26]
The United Nations Environment Programme (UNEP)	The UNEP works across sectors of carbon production (energy, agriculture, etc.) to support the transition to a low-carbon future with reduced emissions. The UNEP enables science-based decision-making, support, and other tools of guidance on legal and financial frameworks that support sustainable development.[27]
Production businesses	The corporations which produce products play a large role in driving global climate change. A recent report announced that 100 energy companies have been

[25] *Ibid.*
[26] "The Committee On Trade And Environment (‘Regular’ CTE)". *Wto.Org*, https://www.wto.org/english/tratop_e/envir_e/wrk_committee_e.htm.
[27] "The Six-Sector Solution To The Climate Crisis". *UN Environment Programme*, https://www.unep.org/interactive/six-sector-solution-climate-change/.

	responsible for 71% of all industrial emissions.[28] Another source states that electricity production generates the second largest share in greenhouse gas (GHG) emissions.[29] However, almost all production sectors contribute. The production, transport, and storage in landfills produce GHG emissions that contribute to climate change.
Civil society organizations	Providing direct advocacy with policy and decision-makers and mobilizes public opinion and raises public awareness of the law.
Governments	The government plays an important role in reducing the amount of energy people use and working to create and maintain agreements made in conventions. The government can focus on GHG emission in energy efficiency, fuel switching, heat and power, use of renewable energy, and the efficient use and recycling of materials.[30]

Current and Existing International Actions

Table 1.2: International Approaches in mitigating the issue

Organization	Description
World Trade Organization (WTO)	**Aid for Trade** Aid for Trade is one of WTO's several transparency mechanisms on climate-related trade measures. The Aid for Trade initiative helps mobilize investments for critical infrastructure necessary for green transformation in developing countries. 40% of Aid for Trade's climate objective is funneled into renewable power generation, distribution, and energy conservation.[31] **WTO Plurilateral Initiatives**

[28] Axelrod, Joshua. "Corporate Honesty And Climate Change: Time To Own Up And Act". *NRDC*, 2019, https://www.nrdc.org/experts/josh-axelrod/corporate-honesty-and-climate-change-time-own-and-act#:~:text=Corporations%20produce%20just%20about%20everything,climate%20change%20was%20officially%20recognized.
[29] "Sources Of Greenhouse Gas Emissions | US EPA". *US EPA*, https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions.
[30] "Controlling Industrial Greenhouse Gas Emissions". *Center For Climate And Energy Solutions*, 2020, https://www.c2es.org/content/regulating-industrial-sector-carbon-emissions/.
[31] *Ibid.*

	Plurilateral agreements are non-binding voluntary agreements of a sectoral nature entered by two WTO member states, which negotiations are embarked independently. Specifically, the Environmental Goods Agreement (EGA) Negotiations were a piecemeal attempt to push the discussions on environmental goods liberalization in the WTO. [32]
United Nations Environment Programme (UNEP)	**Montreal Protocol** The Montreal Protocol on Substances that Deplete the Ozone Layer is an international treaty which was focused on regulating the production and consumption of nearly 100 ozone depleting substances (ODS).[33] As a result of the Montreal Protocol, parties of the protocol phased out 98 percent of their ozone-depleting substances, saving an estimated two million people from skin cancer every year.[34] **Basel Convention** The Basel Convention regulates the transboundary movements of hazardous wastes and other wastes, obliging its parties to ensure wastes are managed and disposed of in an environmentally sound manner.[35] This treaty directly changed the notion of a free and open global market, creating a global regulatory regime to control trade in hazardous wastes. As a result, it was widely hailed as a success, demonstrating its relevance to the emerging global environmental health crisis.[36]

[32] "Controlling Industrial Greenhouse Gas Emissions". *Center For Climate And Energy Solutions*, 2020, https://www.c2es.org/content/regulating-industrial-sector-carbon-emissions/..
[33] "About Montreal Protocol". *Ozonaction*, https://www.unep.org/ozonaction/who-we-are/about-montreal-protocol.
[34] UNEP. "Thirty Years On, What Is The Montreal Protocol Doing To Protect The Ozone?". 2019. https://www.unep.org/news-and-stories/story/thirty-years-what-montreal-protocol-doing-protect-ozone.
[35] UNEP. "Basel Convention On The Control Of Transboundary Movements Of Hazardous Wastes". https://www.unep.org/resources/report/basel-convention-control-transboundary-movements-hazardous-wastes.
[36] A. Khan, Sabaa. "Basel Convention Parties Take Global Lead On Mitigating Plastic Pollution | ASIL". *Asil.Org*, 2019, https://www.asil.org/insights/volume/23/issue/7/basel-convention-parties-take-global-lead-mitigating-plastic-pollution.

Transportation

Question: How can the Member States ensure to maintain the greenhouse gas emission produced from the transportation aspect of international trade?

Transportation is one of the key aspects for international trade to progress. To move the goods from one country to another, businesses need to utilize transportation either through land, sea, and air. These transportations emitted emissions due to their fuel usage, which can produce pollution that contains CO2. Thus, attention to the transportation aspect of international trade is needed to balance the environmental and trade necessities.

However, according to the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (AR5) from Working Group III, specifically on its Chapter 8 of Transport, the transportation sector produced one-quarter of the total global CO2 emissions. On road transportation itself, the emission rose to 80% from 1970 to 2010, with a figure of 7.0 GtCO2. With the rising good demands and growth of freight, if there is no mitigation plan to manage the greenhouse gas emission coming from the transportation aspect, the emission may rise to 50% by 2035 and even double by 2050. Also, according to the International Transport Forum (ITF), international-trade-related freight transport accounted for 30% of all transport-related CO2 on fuel combustion and 7% on global emission. The 2050 projection presents that CO2 emissions will increase by 290% in the baseline scenario. Road transport figures also will rise from 53% in 2010 to 56% by 2050, while air transport will rise from 7% to 9%. However, for maritime freight transport, the share will decrease from 37% to 32%.[37] The figure already shows the substantive importance for all member states to pay attention to trade-related freight transport to curb the rising emissions globally.

The rising projected emission from the transportation aspect in international trade comes from three main indicators, which are (1) impact of trade liberalization, (2) longer supply-chain, and (3) domestic share of global trade and its effect on global emission. Trade liberalization is a key component for all activities related to international trade in producing more global emissions due to its fossil fuel and coal combustion from production, manufacture, or even transportation phases. It is estimated that multilateral trade liberalization will increase global emission by 15% on trade-related transports above the business-as-usual scenario until 2050.[38] Asia, Africa, and the Indian Ocean will be the three main regions that will account for the trade-related freight transport emission, with, for example, Africa's share of 28%. Segregating the figure based on the transportation type, air transport will have more increase on emission than land or sea-based transports, due to increase of goods transfer to more distant partners and land-locked countries.[39]

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[37] Sims, Ralph and Roberto Schaeffer. "Transport (Climate Change 2014: Mitigation of Climate Change)." 2014. *Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change.*
[38] "The Carbon Footprint of Global Trade: Tackling Emissions from International Freight Transport." 2015. *International Transport Forum.*
[39] *Ibid*.

Due to trade liberalization, the supply chain will become longer due to distance with trading partners which resulted in more greenhouse gas emission production. Specifically, the North Pacific route, which connects North America and Asia, will have the opportunity to become the main route for international trade in the future and may surpass the North Atlantic route by 2050. It happens due to the emerging economies starting to develop their economy in several regions in Asia and Africa, thus increasing trade activities.[40] If we also take an account of domestic trade, which accounted for the 10% figure on international trade, it is estimated that it can also share about 30% of trade-related CO2 emissions. The significant use of road transport mode is one of the key examples of the rising CO2 emissions from domestic trade. However, the figure may differ by country based on its focused trade locations. For example, China's economic activities are mainly concentrated in coastal areas, which account for 9% of trade-related freight transport volume. In India, production and consumption happen inland which accounts for a 14% figure of the domestic share of trade-related freight transport.[41] Even though that country may have different economic-focused areas internally, it still accounts for global emission on trade-related transports in the international trade due to intense economic activities which increase the emission.

To face the impending issue on transportation, several international organizations have taken their initiative to curb such issues. Due to the nature of aviation and shipping at the international level, the emissions originating from the two sectors are not accounted for in the United Nations Framework Convention on Climate Change (UNFCCC) discussion. Instead, the International Maritime Organization (IMO) and International Civil Aviation Organization (ICAO) are "in charge" on the issue in the aviation and shipping sectors. IMO itself has implemented Energy Efficiency Design Index (EEDI) and Ship Energy Efficiency Management Plan (SEEMP) to improve the fuel efficiency of ships through standardization and vehicle design. It is estimated to reduce emissions by 180 Mt annually by 2020. For ICAO, it has established the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), which was effective from October 2016, where the Member States set its market-based mechanism to offset emission from aircraft using carbon credits. Fuel economy is also an initiative that has been done by several countries on maximizing the fuel efficiency of vehicles in long distances.[42]

If we take a look at the legal aspect of the environmental-driven measures, under the General Agreement on Tariffs and Trade (GATT), it prohibits differing treatments on goods from all countries. However, according to Article XX, there is an "exemption clause" wherein certain conditions, exceptions may be done for specific reasons with environmental issues is one of the included categories. It specifically says that:

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[40] "The Carbon Footprint of Global Trade: Tackling Emissions from International Freight Transport." 2015. *International Transport Forum.*
[41] *Ibid*.
[42] *Ibid*.

> *"Subject to the requirement that such measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade, nothing in this Agreement shall be construed to prevent the adoption or enforcement of measures:….*
> ***b) necessary to protect human, animal, or plant life or health; ….***
> ***g) relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption."***[43]

Thus, it is permitted if a state wants to put specific tariffs and measures based on environmental protection, relating also with the regulation on trade-related freight transports. However, there is a "legal leeway" from the clause interpretation, where it may interpret that the environmental measures may hold and even violate WTO rules to guarantee non-discriminatory principle for freer trade aspect.[44] Thus, it is also a "trap" for the Member States to measure the applicability of environmental measures to be synergized with WTO principles, so international trade can be optimal while it can also reduce greenhouse gas emission globally through all aspects (including on transportation).

Still, Member States must manage the global emission for environmental protection to be held accountable. To optimize the environmental-friendly aspect of transportation usage in international trade, several suggestions can be thought or planned for ensuring such measures are efficient, including but not limited to supply chain optimization, technology advancement, routing, policy setting, and alignment of international-national agreements. These measures can be formulated based on previous experiences or even constructed from literature, research, or policy recommendation. Thus, it is upon the delegates to think on Member States' effort in shaping the transportation aspect of international trade to be environmentally friendly, for global emission to be managed and even reduced in the future.

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[43] "International Transport, Climate Change, and Trade: What are the Options for Regulating Emissions from Aviation and Shipping and what will be their Impact on Trade?" 2010. *ICTSD Programme on Trade and Environment.*
[44] *Ibid*.

Distribution

Question: How can member states ensure that the efficacy of distribution services in the context of international trade is maintained while at the same time taking into account the greenhouse gas effect that it creates? What solutions can address the obstacles to achieving environmentally-friendly distribution procedures within international trade?

Although transportation and distribution sound similar, in practice, those two terms are very different. Transportation is the movement of things from one place to another while distribution is the system by which products are categorized, transported and distributed to their destination. Distribution encompasses services including wholesale trade services, retailing services, franchising and commission agents' services. The sector is diverse, covering various aspects such as location stores, electronic commerce, door-to-door sales, markets outlets (hypermarkets, supermarkets, department stores, convenience stores, small shops), product offerings (food vs. non-food, multi-product vs. specialized goods, etc.) and legal structures (e.g. independent, integrated groups, franchises).[45]

The establishment and maintenance of distribution in global trade is a complex issue which involves most domestic distribution affairs and logistics functions and additions of requirements which are associated with channels of structuring the global market, financing and terms of sale. Moreover, the key areas of the functions in distribution vary between nations, according to the structure and performance criteria of each nation. In addition to that, research found that the level of distribution channel structure development found in one country paralleled the structures of other countries that had attained a similar degree of economic and technological development. In fact, although some of the aspects in the distribution aspects consist of different components, there are some similarities and patterns that can be found in several states in accordance with the situations and the degree of distribution level that they have.[46]

One of the major issues of distribution in international trade is the lack of standardized transportation which makes the duration of transported good vary according to the region of origin and/or destination. This issue goes beyond obstacles created by government policies, legal frameworks, or financial barriers. Material-handling equipment, containerization, warehousing, port facilities, communications and technology vary across countries which makes the distribution of goods more difficult – occasionally, products even need to be loaded and unloaded by hand due to the lack of proper equipment. What makes it more critical is that some nations are yet to have sufficient and necessary logistics of infrastructures to support the distribution. Basic transportation infrastructure, such as roads, rail lines, fuel depots, and customs agencies are often found rudimentary or, in some cases, non-existent. A typical international shipment is estimated to have an average of 17-20 parties touch the goods – goods move between carriers, brokers, and forwarders, and through customs. Even

[45] "Distribution Services". WTO. ttps://www.wto.org/english/tratop_e/serv_e/distribution_e/distribution_e.htm.
[46] David Frederick Ross. "International Distribution". *NIH*. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7176197/.

the smallest problems in the global supply chain can be the cause of major shipment delays as every stage is intertwined.

Globalization and the advancement in technology have also impacted international trade development. Technological tools, specifically, facilitate the management of goods distribution and allow the tracking of the transportation across global networks. This is especially important in cases of intermodal transportation that combine *ocean-land bridge* (ocean, rail or motor, and ocean), all water, or *ocean/mini-land bridge* (ocean and rail or motor) transport.

Once the issues with distributional management are dealt with, there are still concerns regarding the impact international goods distribution on the environment. The impact on the environment can be assessed in terms of pollutant emissions which depend on the order volumes, shipping methods which may or may not be environmentally friendly, production and consumption distances. This means that, at every stage, one must consider the possible emissions it might create and the impact it might have on the environment. When optimizing chain operating costs, there are considerations to be made about the creation of sustainable chains of supply, the associated costs of emissions and the emission of pollutants themselves during the distribution.

The global trade channels move goods through a number of levels in the geographically dispersed channels. It can be seen in figure 2 below.

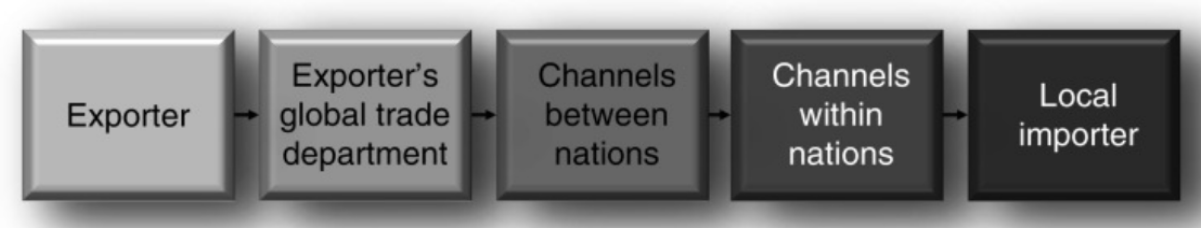


Figure 2: The general sequence of distribution within the global trade

Delegates are encouraged to identify existing and suggest new ideas to sustain the effective environmental policies in international trade. Institutional frameworks, for instance, are at the basis of the successful application of such policies. Therefore, it is essential to uphold these institutional frameworks at the local, regional, national, and international levels. One of these institutional frameworks is trade liberalization which also impacts the state's welfare depending on whether appropriate environmental policies are already in place or not.

Furthermore, delegates are challenged to discuss the obstacles that maritime shipping faces during the international distribution of goods. For instance, opening shipping routes through the Arctic might have a detrimental environmental impact on the region. Therefore, one of the solutions that can be implemented to address this is shifting the existing supply chain strategies to eco-friendlier ones. This must be supported by appropriate management tools and appropriate qualitative and quantitative methods.

There are several models that can be used to adjust and reconfigure the supply chains to more eco-friendly solutions, such as operations management (OM), technology investment (TI), and supply chain design and coordination (SCD-C). These models are key to a systematic transition towards an eco-friendlier distribution process. Therefore, with the new system, the existing distribution chains would be improved and re-configured to serve the same purpose with lower impact on the environment. Finally, delegates are encouraged to identify loopholes within the current distribution process and find alternative solutions while also considering the potential environmental impact of every distributional step.

Consumption

Question: To what extent do consumption-based carbon emissions affect global emissions in international trade? Does the WTO need to also pay attention to the carbon emission emitted from the consumption aspect of trade? If it is needed, how can it be formulated and implemented?

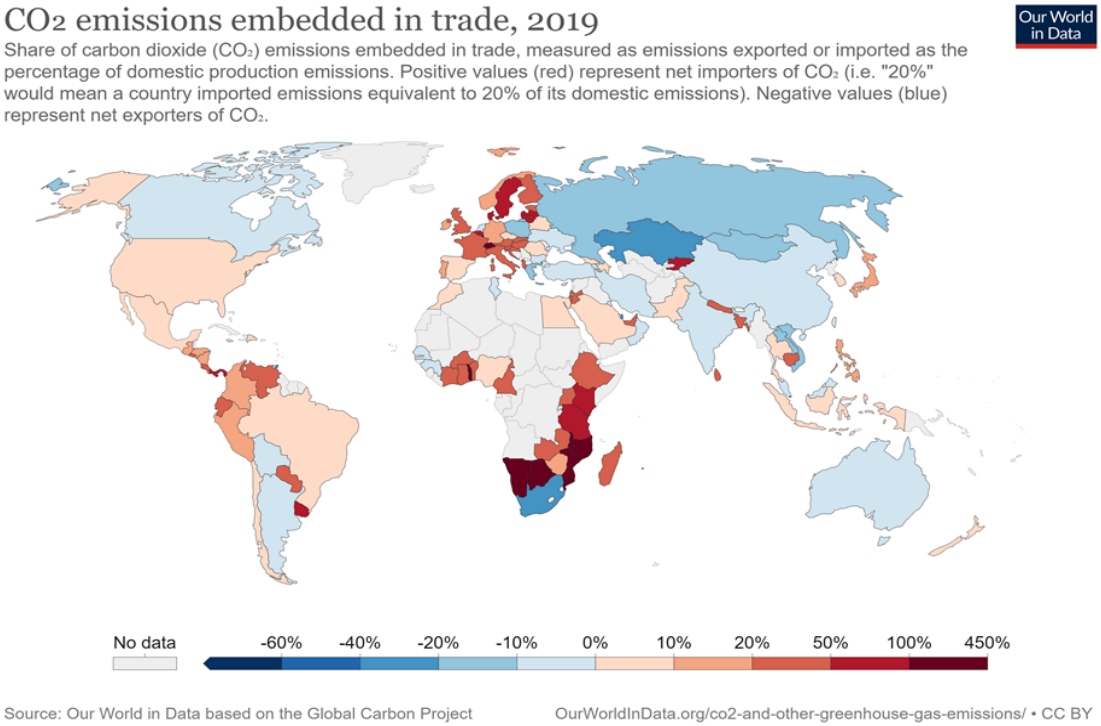
The consumption component of international trade is the "least" prioritized issue in the context of environmental concerns. This can be explained by the least direct connection between consumption and emissions, compared to production and transportation have a straightforward impact on emissions. However, Member States should pay more attention to the consumption stage since it is still constituent of the international trade process. To successfully tackle the environmental issues created by international trade, consumption should be included in the discourse among Member States. As a result, there is a higher chance of achieving long-lasting solutions to the environmental crisis.

There is still little evidence on the contribution of consumption-based carbon emission to the global trade. However, Hassan, Song, and Kirikkaleli (2022) have looked into whether consumption-based emissions have a direct or indirect impact on global trade. They focused on reviewing the consumption-based CO_2 emissions of Regional Comprehensive Economic Cooperation (RCEP) countries from 1990 to 2020 through various aspects, such as financial, economic, political, and composite risks and exports and imports volumes. Meanwhile, similar pieces of literature are Safi et al. (2021) on E-7 countries, Hasanov et al. (2021) on BRICS countries, and Ali et al. (2020) on the top 10 carbon-emitting countries. Other studies – Safi et al. (2021), Hasanov et al. (2021) and Ali et al. (2020) – have reached similar conclusion: exports, renewable energy, and environmental-friendly policies contribute to lower global emissions, while imports, exports and increase in GDP result in an increase in emissions.[47]

[47] Hassan, Taimoor, Huaming Song and Dervis Kirikkaleli. "International Trade and Consumption-Based Carbon Emissions: Evaluating the Role of Composite Risk for RCEP Economies." *Environmental Science and Pollution Research* 29 (2022): 3417-3437.

The GDP is connected to the volume of emissions because an increase in domestic consumption leads to an increase in the demand for imports, thus, transportation and global emissions increase as well. Contrary, renewable energy supply and usage decreases the amount of CO2 emitted into the atmosphere, thus, has a positive impact on the environment if compared with current modes of transportation.[48] It was also found that top importing countries share more consumption-related emissions than exporting countries, while in terms of production, it is the exporting countries which yield most emissions. Thus, it is very important for the Member States to either balance their export-import figure or manage the issue through an environmental-based approach.

Below is a visual representation of net importers (red) and net exporters (blue). Most Western Europe, America, and some African countries have substantial net import figures, while most Eastern European and Asian countries are the net exporters.[49]



Picture 3: CO_2 Emissions Embedded in Trade

There are multiple methods that the Member States employ to tackle the consumption-based emissions. For instance, states can impose border carbon adjustments (BCAs) to levy a domestic carbon price on imports of selected goods from countries without carbon-price

[48] Hassan, Taimoor, Huaming Song and Dervis Kirikkaleli. "International Trade and Consumption-Based Carbon Emissions: Evaluating the Role of Composite Risk for RCEP Economies." *Environmental Science and Pollution Research* 29 (2022): 3417-3437.
[49] Ritchie, Hannah. "How Do CO2 Emissions Compare when We Adjust for Trade?" (2019). https://ourworldindata.org/consumption-based-co2#:~:text=To%20calculate%20consumption%2Dbased%20emissions,production%20of%20goods%20that%20were)

measures. It can be implemented through border tax or allowance sharing from the importers. The aim is to manage carbon leakage from emission-intensive industries that frequently conduct international trade. However, some stakeholders are afraid of the BCAs implementation due to the possible violation of WTO's non-discriminatory principle since tariffs are imposed on importers, thus creating discriminatory trade measures.[50] An alternative to the BCAs is the carbon tax, which puts the levy on the end-users of the consumed goods. It is believed to be more viable than border-adjusted measures since it can "pass-through" political and legal challenges. A carbon tax can be in a form of a sector-specific benchmark or goods labelling.[51]

To avoid such challenges, some Member States focus on making policy options based on the production and/or consumption aspect which do not concern border-related measures. For example, Japan puts a carbon tax on domestic consumption-based emissions from electricity and fossil fuels sectors through the emission trading scheme. Another example is South Korea where they mix the carbon tax on the production with the domestic consumption tax.[52] Therefore, it is imperative that, when proposing solutions to the global emissions issues, multiple aspects are considered – from the political to the legal to the environmental. The goal is to reduce global emissions while maintaining WTO principles.

[50] Rafaty, Ryan and Michael Grubb. "How Can Consumption-Based Carbon Pricing Address Carbon Leakage and Competitiveness Concerns?" *Climate Strategies* (2018): 1-9.
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[52] *Ibid.*

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