

Background Guide

INTERNATIONAL MARITIME ORGANIZATION
Building Sustainable Supply Chains



JACKRABBIT MUN V

L.B. POLY - MAY 20th, 2023

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CO-HEAD CHAIR LETTER

Dear Esteemed Delegates,

I am Max Beranek, and I am ecstatic to be your co-chair for the Jackrabbit MUN V IMO committee. I am a Sophomore at Long Beach Poly High School, and this is my second year taking part in Model UN. During all my time in MUN, my speaking, research, and writing skills have improved exponentially, and it has been an absolute blast. I was also the rapporteur for our UNESCO room at Jackrabbit IV. Outside of MUN, I play tennis for Poly, and I play violin for the symphony orchestra. Additionally, I am part of Chess Club and Creative Writing Club. I am also an avid sports fan (Go 49ers!) and enjoy playing video games and collecting and listening to vinyl.

I am deeply grateful to assist you in your thoughtful debate in this IMO room. This is a very nuanced topic and any nation can bring something important to the table. Resilient and efficient supply chains are essential to the collective prosperity of our global economy. Coming out of the crisis of the pandemic, sweeping and creative solutions are vital to avoiding another economic collapse due to global crises.

This issue will require well-crafted research and thought, which I am sure all of you will bring to this committee. I greatly anticipate your thoughtful debate and your innovative and creative resolutions.

Sincerely,

Max Beranek

IMO Committee | Co-Head Chair

m45beranek@gmail.com



CO-HEAD CHAIR LETTER

Dear Esteemed Delegates,

I am Clark Otey and I am honored to be the co-chair of your committee on IMO. I am a senior at Polytechnic High School having done MUN for four years now.

Aside from MUN, I also like to play tennis, sail, and hangout with friends. I have been to many conferences, even having the chance to go to New York to debate at an international conference. For many years I have participated in crisis rooms as crisis staff and later taking leadership in the rooms as a vice chair.

This year I am privileged with being able to run my own room alongside Max. I hope in this committee that, through intelligent debate and precise resolutions, we will be able to come to a conclusion that would help us solve the issues of international supply chains.

Sincerely,

Clark Otey

IMO Committee | Co-Head Chair

clarkoteyo5@gmail.com



VICE CHAIR LETTER

Dear Esteemed Delegates,

My name is Nathan Brava-Partain and I am a junior at Long Beach Polytechnic High school. This is my second year doing Model United Nations here at our school and I greatly enjoy the sense of community I feel when participating in it. Along with Model UN, I am the number one varsity starter on our golf team and have participated in our jazz program for two years where I played both the bass and the guitar.

I'm looking forward to being the vice chair for the Sustainable Supply Chains, IMO room here at Jackrabbit MUN, as the IMO is an important initiative that has the potential to have lasting outreach to everyone across the globe.

I, along with the other chairs and dais in the room, look forward to seeing the ideas and solutions that are debated and I look forward to working with you all. Good Luck!

Nathan Brava-Partain

IMO Committee | Vice Chair

nathansblog2013@gmail.com



RAPPORTEUR LETTER

Dear Honorable Delegates,

I am Henry Otey and it is my pleasure to be your rapporteur today. This is my first year of model UN, and I am overjoyed to be in this position on this occasion.

Outside of MUN, I play the french horn here at Poly, both for our marching band and in the Symphonic Winds ensemble. I enjoy building tank models and consider myself to be a history fanatic. I also love to play video games and creatively write. Some other clubs I am involved in are Chess Club and the Creative Writing Club.

This room will be a thriller and as stated above, I am ecstatic to be your rapporteur. Sustainable supply chains are a difficult concept to master, let alone debate. Each individual standpoint from countries across the globe is bound to bring an extremely high level of debate in this room.

I am assured that you delegates will do incredibly well in this debate, and I wish you the best of luck.

With pleasure,

Henry Otey

IMO Committee | Rapporteur

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POSITION PAPER GUIDELINES

- Position Papers are due at 11:59 PM on **Wednesday, May 17** in order to receive feedback and be eligible for **research AND committee awards.**
- Position Papers are due at 11:59 PM on **Friday, May 19** in order to be eligible for **committee awards ONLY.**
- Position Papers can be submitted through the committee email:
 - **imojackrabbit2023@gmail.com**
- At the top of each paper, include your country, first and last name, and appropriate committee. Example:

United States
First Last
School Name
IMO
- Papers should be emailed as a PDF file
 - Paper content should also be copied and pasted into the body of the email so it can still be graded in the event of any technical difficulties
 - Please name the file and subject line of the email [Committee_Country]
 - Ex. **IMO_United States**
- Papers should be 1-2 pages in length with an additional Works Cited page in MLA format
- Papers should be single-spaced in Times New Roman 12 pt. font and include no pictures or graphics
- Please include the following sections for each committee topic:
 - Background & UN Involvement
 - Position of your Country
 - Possible Solutions

If you have any questions or concerns, please email one of your chairs.



COMMITTEE DESCRIPTION

The International Maritime Organization (IMO) is the United Nations agency responsible for the safety and security of shipping vessels and for keeping marine ecosystems and the atmosphere free of the pollution they might cause. Shipping accounts for more than 80% of global trade and is the most efficient and cost-effective way to transport goods from one country to another. As a primarily international industry, shipping is most efficient when the rules and standards are agreed upon.

The IMO aims to lay a foundation for worldwide standards that can be universally adopted and universally implemented, setting fair and effective measures for the shipping industry. Furthermore, as the IMO is a United Nations organ, they actively work towards achieving the 2030 Sustainable Development Goals, specifically Goal 14: Life Below Water. Therefore, energy efficiency, technology and innovation, maritime education and training, maritime security, maritime traffic management, and the development of marine infrastructure are all issues that the IMO address, providing the foundations for a green and sustainable marine transport system.



TOPIC SYNOPSIS

In a culture of increasing consumerism, global supply chains have become the backbone of the world economy, responsible for everything from the smallest pencil to the biggest car. However, this means that even the slightest disruption in supply chains has disastrous, cascading economic effects.

In the wake of major wars and a pandemic that significantly upset supply chains, causing worldwide inflation and financial ruin, delegates in this committee will be responsible for building more resilient supply chains. From shipping to ports to postal systems, delegates will have to work together to fix the many avenues of global transportation and trade in pursuit of a more prosperous future.



Topic: Building Sustainable Supply Chains

Background

When supply chain disruptions in February 2020 occurred in China due to outbreaks of COVID-19, few would have predicted how this disruption would expand to a worldwide supply chain catastrophe. The pandemic exposed for all to see the deficiencies and weaknesses in global supply chains. Facets like the extremely small diversity of suppliers for businesses were exposed when production ground to a halt. The crippling delays in transportation whether by land, air, or sea also showed the extreme unpreparedness of the global supply chain for crises like the pandemic.

An essential item on the agenda for any trading power or big business is to increase its supply chain's resilience. The pandemic catching the world economy by surprise showed that these lean supply chain practices with little room for disruptions are not sustainable. An expansion of inventory, diversification of suppliers and markets, and expansion of domestic industry are proposed remedies for this ongoing crisis affecting every product. The interconnectedness of this global economy allows for a dizzying diversity of products, international standards, and accelerated innovation due to specialization opportunities, but also is a fragile system that can be undermined by a single crisis.

Lack of Trading Diversity

One element which inhibits the development of resilient and sustainable supply chains is the limited number of trading partners for nations. This exposes their supplies and markets to the happenings of these few nations, and a few disruptive events can completely paralyze a nation's supply chains. If a nation gets large sums of



its imports or sends the majority of its exports to a select few nations, they are less resistant to disruptions, as alternative supply sources and markets aren't available. Much of the world is not in trading contact with each other, as 25% of all pairs of nations do not have any trading relations.

Also, trade between wealthy and developing countries has not increased in any dramatic way in the past decades. The lack of geographical diversity in international trade is especially shown in the fact that the EU has no principal trading partners in South America, Africa, or Oceania.

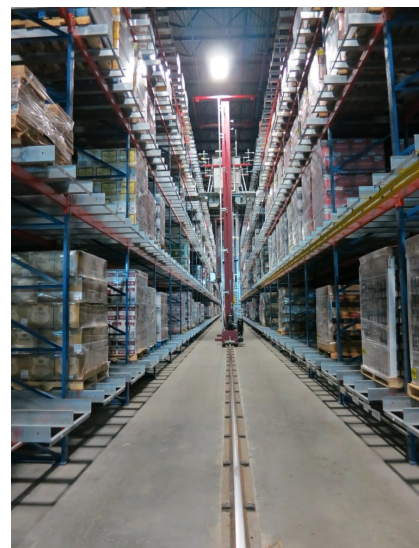
This fact prevents developing nations from reaping the immense benefits of trade connections with richer nations. Among these include better technologies being shared, more markets to sell their products, and cheaper production resulting from the growth in technology and industry.

Developing nations are often seen as unattractive trading partners due to possessing inadequate infrastructure to facilitate international trade and lacking connection to important information systems.

Convoluting regulation systems and uncompetitive markets dominated by monopolies or cartels also drive foreign investment away.

Emerging Technologies

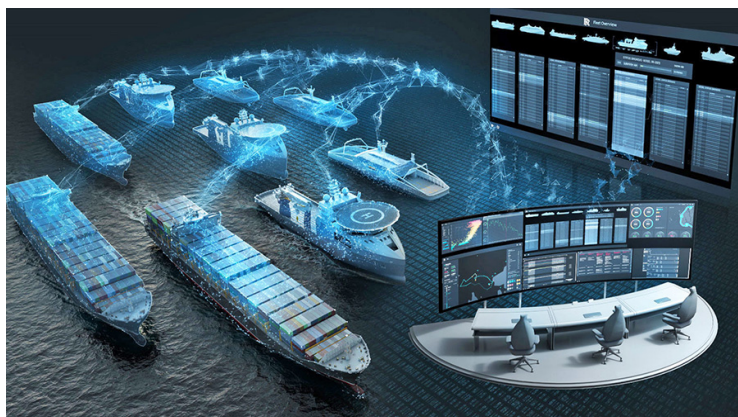
One innovation that aims to revolutionize how supply chains are run is automatic sorting and retrieval systems (AS/RS). These systems autonomously store and retrieve items in storage, negating the need for bulky and inefficient equipment like forklifts, conveyors, and racks. AS/RS also allows significantly less space to be needed for storage, as it has decreased the area needed



for storage by 40% for some companies. The demand for this technology is high, shown by the 80% growth of Autostore, a major supplier of AS/RS, between 2020 and 2021.

Additionally, important businesses have latched onto AS/RS, with a significant example being Siemens, who bought it for their warehouse in Germany. This significantly streamlined their warehousing process, cutting staffing costs by 60%. This technology can enable the more efficient and expansive storage of products, giving the world economy resilience if supply shortages were to occur.

Sourcing management software is another emerging technology, and it allows managers to make intelligent sourcing decisions through a wealth of data. Market changes and trends in the price of raw materials can be accessed more efficiently than ever, making sure that businesses have all the information necessary to make effective strategies regarding their supply. It is estimated that the market for this software is expected to grow by 10% from 2021-2027 as more businesses use this effective tool.



Additionally, inventory optimization programs made possible by AI have been introduced. These allow the business to make more informed decisions regarding their supply, with a much larger wealth of information at their disposal.

Mismanagement of supply which could cause supply chain and price disruptions would be mitigated with these programs. These tools have been extremely popular among manufacturers, 56% of manufacturers in the Asia-Pacific region have integrated these programs, 53% in North America and 52% in Europe.



Finally, new lot tracking technology allows real-time tracking of goods at any stage of the supply chain. This bevy of information allows companies to identify bottlenecks in their supply chains, and focus their resources on alleviating the problem. More than 130 suppliers offer this technology, and it has proven quite popular, with large shipping companies like Hapag Lloyd making large-scale integrations of IoT technology.

Logistics

Companies have seen very drastic changes in their prices over the last couple of years. According to the Organization for Economic Cooperation and Development (OECD), the annual growth rate of inflation in 2022 was 9.62%, while in 2021 the rate worldwide was 3.99%. The world economy has had a rise in cost to buy commodities and production has not been far behind. In the United States alone from May 2020 to May 2022, the price of products increased by 19%.

However, as the prices have increased, the need for materials has increased, but that need has shown to stagger against the pressure. Companies have had problems with different aspects of production. Companies have seen a 400% increase in warehouse prices when the space has decreased⁵. As well as warehouses, In other ways, transportation prices have increased as the need to transport the goods has increased.

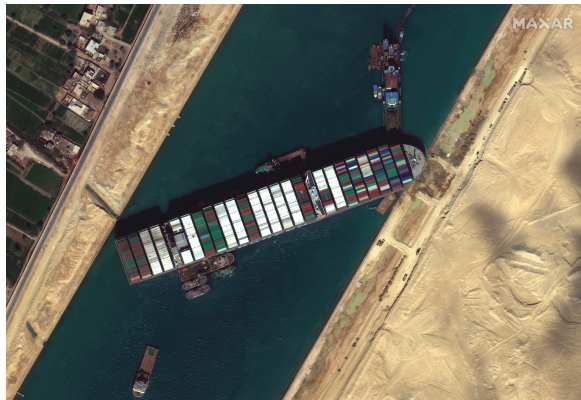
The CEO of Hapag-Lloyd, a German international container shipping company has seen to have a 20% to 30% increase in their rates than just a couple years ago . With only 60,000 larger merchant ships and 6,000 container ships that are operating the oceans of the world, companies are limited to the supplies they are able to ship in the demand that is in the current market of the world. The cost to ship a 40-foot container from Asia to the U.S. increased from \$1,326 in August of 2019 to \$18,425 in August 2021.



Production Delays

During the pandemic, there was a huge increase in production of products. However, companies did not have the resources to provide for the huge demand in need. For example, trucking costs increased by 36% in 2021.

In 2021, the Suez Canal was blocked off by the Ever Given container ship, creating a 6 day hold-up leading to \$60 billion of trade. Events like these have caused



companies to have a lack of resources to produce materials. Furthermore, the Long Beach port is backed up. The Los Angeles and Long Beach ports make up 40% of the containers that enter the United States, Los Angeles and Long Beach being the 17th and 22nd largest ports in the world, creating a

monopoly on the imports into the United States. However, an average of 50 ships or more sit outside the ports waiting. This is an inefficient system in the supply chains that are causing major production delays. California has only seen an increase in this issue, as the port's cargo has been up 30% compared to 2020 and 2019 combined.

Workforce and Labor

In the effects of COVID-19, companies have increased their capacity of the workforce. However, companies overcompensated and in 2022 there were around 11 million job vacancies worldwide with only 6.5 million workers who were listed as unemployed. According to Robert Swinney, operations professor at Duke University's Fuqua School of Business, these companies are experiencing the bullwhip effect. The bullwhip effect is where companies notice a demand for their products, then take action to be able to supply the demand, however creating a ripple in their supply



chains. Companies saw a large increase in their supply chain over COVID-19 and companies took advantage of that situation by creating more job opportunities.

However, as the need for demand decreased for supply, these companies had too many jobs to fill with not enough people to work. In Singapore in 2021, they saw 163 job vacancies for every 100 people who needed jobs. Country's companies have been over producing job opportunities for a lack of job applicants, creating a major disruption in the workforce needed to sustain the supply chain.

Commodity Pricing

In recent years the price of commodities have increased due to COVID-19 and recent wartime events. With Russia and Ukraine being $\frac{1}{3}$ of the world's export of corn, barley, and wheat. The UN's Food and Agriculture Organization (FAO) found that in 2023, the cereal price index worldwide grew 17.9% . Although recent mainstream events have caused the increase in commodity pricing, the effects of COVID-19 had on the economy is also causing increased commodity pricing.

From 2021 to 2022, global inflation increased by 4.1% to about 8.8%. A report from the FAO reported that there was a 12.6% increase in globally-traded food commodities, the highest increase since 1990. As developments in the Russia- Ukraine war and the side effects of the COVID-19 pandemic develop, the economy will increase and the prices for commodities will follow.



UNITED NATIONS INVOLVEMENT

In 1967, IMO took action to bring international standards to shipping, creating the Facilitation of International Maritime Traffic (FAL) convention. This annual convention authors standards in the construction, daily operation, and many more facets of international shipping. Recommended practices are also codified for the member states of FAL, including the implementation of a standard form of documentation, often called FAL Form. As recently as 2019, FAL has made it mandatory for all ships and ports of member states to exchange FAL data electronically.

IMO also began infusing environmental protection into their policies, creating the International Convention for the Prevention of Pollution from Ships (MARPOL) in 1973, and adopting its protocol in 1978. Annex VI, entered in 2005, set caps on nitrogen and sulfur oxide emissions from ships and prohibited any intentional releases of ozone-depleting pollutants. Mandatory energy efficiency standards for technical parts of ships and everyday operations were added in a chapter adopted in 2011.

This annex was further expanded upon in January 2020, when the maximum amount of sulfur allowed in ship fuel was reduced from 3.5% to 0.5%. New regulations from MARPOL in 2023 stated that all ships must submit data on their carbon emissions through an annual efficiency ratio (AER), which calculates the deadweight tonnage plus the amount and type of fuel used, and how much it traveled in the previous year. Ships will be graded A-E, and vessels graded D must comply with the standards within 3 years, while E-graded ships must be in one year.

$$AER = \frac{\text{Annual } CO_2 \text{ emissions}}{\text{Deadweight} \times \text{Distance sailed}} = \frac{\sum_j FC_j \times C_{Fj}}{DWT \times D} = \frac{g_{CO_2}}{DWT \text{ mile}}$$



In 2021, the United Nations Economic Commission for Europe (UNECE) and the United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT) adopted recommendations for the world’s major shipping players and any nation wishing to start their own national trade facilitation bodies (NTFBs). An emphasis was placed on supply chain resiliency, with recommendations such as improving adaptability, modularity, access to supplies and storage, the number of competent and



knowledgeable leaders, and transparency in all aspects of their supply chains.

Diversification of trading partners and the establishment of trading partnerships were also recommended.

Finally, in June 2020, IMO released a call to action for the digitalization and optimization of supply chains. This called for the universal adoption of single-window data systems to streamline

the exchange of information like arrival and departure times, customs, and cargo details. To facilitate these data systems, IMO called upon all member states to adopt Port Community Systems.

To prevent the formation of massive inequities in world trading, IMO emphasized the need to create frameworks to increase the capacity of less developed ports by introducing advanced technology and the training of qualified personnel. Technologies like robotics, AI, advanced analytics, and autonomous systems were also proposed to further streamline supply chains, in conjunction with competent security systems to protect these new technologies from cyber threats.



BLOC POSITIONS

African Bloc

The African market falls far behind those of other continents, only having a 2.4% share in global trade. Also heavily reliant upon European markets, Africa buys a staggering 24% of all imports from countries up north. To expand and integrate trade into this region, Africa as a whole relies upon mega regionals to help internal growth prosper. Africa loses over \$40 billion in tax avoidance, being 4% of its total GDP simply thrown away. Individual nations such as Nigeria and Egypt, having the largest and second largest GDPs in Africa respectively, are important to the economy from oil exports and the large tourist industry.

Asia-Pacific Bloc

Asia, a hub for manufacturing, is improving its supply chains by moving manufacturing companies to the Indo-Pacific regions, allowing for products to be more accessible and diverse. Many regions are low in Foreign Direct Investments (FDI) and focus on increasing said investments. Specifically, Japan, one of the most high tech industries in the world and holder of cutting edge research, focuses on increasing its FDI by implementing business friendly policies. China, the world's largest outputter of products, also welcomes foreign investment by loosening restrictions and lifting policies.

Central and South American Bloc:

In South America, a region notorious for its agricultural market, has many goals, including: 100% lumber purchased from sustainable forests, 40% women in



managerial roles, and to fight against food waste. Alongside its goals, many countries in South America believe that the USA should show support for their supply chains. working on making a resilient and sustainable supply chain. Also, a whopping 60% of the entire world's commerce goes through the Panama Canal.

Middle Eastern Bloc

The Middle East, most well known for its oil, centers its resources on localizing the supply chain. Currently heavily reliant on imports, the Middle East is also in an attempt to diversify the economy and shift reliance from oil to domestic industries. However, this low manufacturing issue is not so much a problem in the United Arab Emirates. The UAE is quickly becoming one of the most advanced 3d printing hubs on the globe. Additionally, Saudi Arabia focuses its resources on regional trade rather than international.

Western Bloc

Europe, the birthplace of the manufacturing industry, supports a relatively low percentage of global trade. As a whole, 72% of the region's manufacturers are attempting to optimize transportation networks, especially to combat the gargantuan disruption and crisis that is the Russo-Ukrainian war. Due to this, Europe is attempting to alienate itself from Russian energy exports.

Yet another issue being treated is the overland travel, with a possible solution being freight. In North America, a region with an internationally recognized superpower and the 2nd highest output of goods on the globe also seeks the attention of outside investment. The market of this region is simply incomparable to the low costs of manufacturers in Asia, but also not suited for foreign investment due to the lack of competitiveness on a global scale.



QUESTIONS TO CONSIDER

- How can supply chains be made resistant to various crises?
- How can businesses be encouraged to diversify their business partners?
- How can environmental sustainability be simultaneously advanced?
- How can new resolutions spur the economic development of developing nations?
- How can new resolutions utilize emerging technology?
- How can domineering and inequitable trading situations be avoided?



WORKS CITED

[IMO Works Cited](#)

