

Forum: General Assembly 1 (GA1)

Issue: (402) The Question of Regulating the Maintenance of Hazardous Materials

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Introduction

From industrial chemicals and radioactive waste to household detergents and batteries, hazardous materials (HAZMAT) are part of our everyday lives. The unprecedented increase in HAZMAT usage has resulted in a significant upward trend in HAZMAT-related incidents--with approximately 80-90 % occurring at fixed sites, such as storage facilities and factories, and 10-20 % taking place during its transportation.

HAZMAT emergencies such as fuel tank explosions, chemical spills on highways, and gasoline pipeline explosions can be complex because of their varied chemical properties: they can disperse through the water or air, enter the human body through the respiratory or digestive system, or react with other daily-used substances. Each HAZMAT requires a different disaster relief response and maintenance procedure, which can be tricky in drafting regulatory measures for the inventory and transportation of HAZMATs. With thousands of recorded incidents annually involving HAZMAT release into the environment, these substances not only pose a threat towards the wellbeing of people--resulting in long-term side-effects or even casualties--and environment but also cause substantial economic loss involved with the large-scale cleanup projects and infrastructure repairs that are to be implemented.

In response to the risks associated with hazardous materials, numerous federal governments have taken action in drafting their own storage, transport, workplace, consumer and environment protection regulations. Moreover, the United Nations (UN) has developed multiple recommended guidelines--especially in transportation--as the basis for most regulatory schemes in HAZMAT maintenance. Despite the United Nations' attempts in harmonizing HAZMAT management internationally, due to its non-compulsory nature, many nations, especially the less economically developed countries (LEDs), have yet adopted or structured feasible measures in protecting their peoples, environment, and property against HAZMATs. The rise in production of HAZMATs then poses a new issue: hazardous waste management. Because of the unharmonized regulations across the globe, many global corporations producing large quantities of HAZMATs choose to transport hazardous waste to LEDs

(notably Southeast Asian countries), where waste management laws are less strict and waste-dumping is cheaper. Although waste transportation has been a large source of income to some, many activities like these are often conducted illegally. More so, shipping hazardous waste only adds on to the ongoing water pollution crisis.

In adopting the 2030 Agenda for Sustainable Development, HAZMAT and waste management is vital to achieving each of the 17 goals. With the rising demand and production of hazardous materials, nations must come together to adopt a globally-recognized and cost-effective framework for the management and maintenance of HAZMATs in order to minimize casualties, environmental damage, and economic loss that come along with HAZMAT incidents.

Definition of Key Terms

Hazardous Materials (HAZMAT) -

Hazardous materials, also known as HAZMAT, is characterized as any substance or material that could **pose a risk to the safety or health of the public, property, or the environment**. The most commonly used types of hazmats are corrosives, toxics, and irritants. This includes substances such as pesticides, heavy metals, and acids. The United Nations developed the first set of mechanisms to harmonize hazard classification criteria across global regulatory systems, known as the Globally Harmonized System of Classification and Labeling Chemicals (GHS). This system, shown in Figure 1.1, currently acts as the basis for HAZMAT classifications used during transportation purposes.

Dangerous Goods -

Oftentimes interchangeably used with the term HAZMATs, dangerous goods are substances that are a risk to safety, health, property, or the environment **when being transported**. Products like these can seem harmless; however, simple vibrations, temperature or pressure variations, and static electricity can be extremely dangerous--resulting in damaging effects such as leakages, explosions, or fire. Evaluating ways to reduce the risks of dangerous goods through proper packaging, handling, and stowage is crucial.

Inventory of Hazardous Materials (IHM) -

The inventory of hazardous materials is a structured system to control HAZMATs onboard ships. An effective IHM keeps track of, identifies, and controls the hazardous materials shipped overseas, which can help prevent disastrous incidents during IHM transportation. Moreover, establishing a clear outline for IHM is extremely crucial to minimize casualties, financial loss, and environmental damage. One of the most well-known IHM regulatory systems is established under the EU, where the EU requires all corporations transporting shipped goods to or out an EU port to complete an IHM declaration with its certification by December 31, 2020. The European Commission has been one of the most active in regards to proposing harmonized approaches towards

IHM regulations.

Hazardous Waste -

Hazardous waste is defined as waste that carries potential threats to the environment or public health. They are often characterized by hazardous traits--like reactivity, corrosivity, ignitability, and toxicity-- and can exist in various states of matter--gas, liquid, and solid. This is especially important when dealing with the disposal of hazardous waste because it cannot be simply treated by common means to control its reactivity. Due to its varying chemical properties and physical composition, specific treatments and solidification processes must be carried out. With approximately 400 million tons hazardous waste produced annually, effective management is vital to environmental compliance and human wellbeing.

Globally Harmonized System of Classification and Labeling Chemicals (GHS)-

Developed in the 1992 Rio Conference on Environment and Development under the United Nations, the GHS was an agreement made by various global leaders and stakeholders to create a globally harmonized HAZMAT classification and labeling system. Substances are mainly classified by its chemical property and effect on the environment--as presented in Figure 1.1. The goal of the GHS was to act as a replacement for the diverse classification systems across the globe. Yet, since it is not part of a compulsory provision to any treaty, many member states have still not formally adopted it.

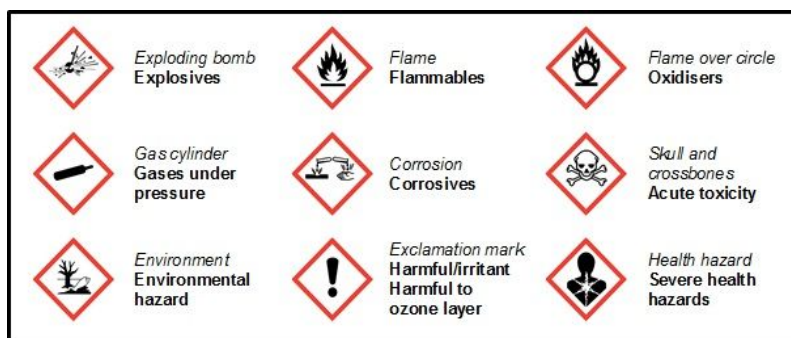


Figure 1.1

Sustainable Development Goals (SDGs) -

Adopted by all UN member states in 2015, the 2030 agenda for sustainable development seeks to build towards peace and prosperity across the globe. The 17 Sustainable Development Goals (SDGs)--shown in figure 1.2--calls for global partnership in developing strategies to improve health and education, spur economic growth, and reduce inequality, while working towards preserving our forests and oceans and tackling climate change. In achieving every part of this transformational course, sound management of HAZMATs is essential in avoiding risks--associated with human health, the ecosystem, and costs to national economies--and maximizing potential

benefits to human well-being. Either explicitly or implicitly correlated with the SDG goals, mainstreaming the management of HAZMATs and hazardous waste within both national and global development plans is vital for avoiding adverse impacts on human health, the environment, and economic development.



Figure 1.2

HAZMAT Spills -

Hazardous material spills are marked by the release of HAZMATs into the environment, such as oil spills in the oceans or chemical accidents on highways. They can include the leaking of chemical, radiological, or biological agents, and can be very dangerous if touched, inhaled, or consumed. Spills do not only threaten life, public natural resources, and property but also can often result in widespread economic impacts with its required case-specific response.

HAZMAT Warehousing -

Warehousing refers to the storage of hazardous materials and controlled chemicals. Due to the differing chemical properties of each substance, methods of HAZMAT warehousing are case-specific according to its chemical class, and regulations can be difficult to implement without experts in the field. Currently, national governments have independent measures in warehouse qualification processes and safety requirements. Through the UN's efforts in developing global standards--such as the GHS and the UN Recommendation on the Transport of Dangerous Goods--some member states, such as the U.S. and those under the EU, have been formally adopting them into their national laws and working towards unity in international HAZMAT standards.

History

Although hazardous materials have been known to exist for centuries, global regulations were only first developed in the late 1800s after disastrous incidents focused world-wide attention on the dangers of HAZMAT

usage and storage. Most notably was the **1984 Bhopal disaster** in India that was known as the worst industrial accident in history.

On December 3 (1984), approximately 45 tons of methyl isocyanate gas escaped from a pesticide plant owned by Union Carbide India Limited (UCIL). The highly toxic substance drifted over densely populated neighborhoods, affecting approximately 550,000 people, in which over 2,200 faced immediate death. Of those surviving, around half a million suffered from respiratory problems, eyesight deficiency, and other maladies caused by exposure to the gas. Moreover, land around the area became barren, and animal carcasses piled up. The cause of the industrial disaster remains controversial but later investigations suggested that ineffective safety procedures at the understaffed site led to the catastrophic incident. Further examination on the case revealed that there were multiple causes: underinvestment in safety, malfunctioning alarm systems, and undertrained workers. In the early 21st century, 400 tons of hazardous waste still remain, which has been said to have caused water and soil contamination that have led to multiple child genetic defect cases around the area, indicating negative effects on the environment. Since the HAZMAT incident, multiple nations--specifically India and USA--have taken actions in modifying existing regulations and passing new legislation on prescribing safeguards, regulating the environment, and protecting laborers. The widespread and long-lasting effect of the isocyanate gas leak is just one example that points to the necessity in developing effective harmonized measures for the safety protocols of warehousing HAZMATs, proper training courses for such workers, and cost-effective clean-up responses to hazardous waste.

In the 1900s, there were over 100 verified cases of oil spills--release of crude oil such as through offshore platforms, tankers, or drilling of wells--with most occurring during its transportation due to mishaps in operational procedures and equipment breaking down, such as the **Exxon Valdez oil spill** at Prince William Sound (Gulf of Alaska), Alaska in 1989. The spill, a result of the collision with the Bligh Reef, released around 11 million gallons of crude oil into the water, covering 1,300 miles of the coastline, and killing up to hundreds of thousands of marine animals. Two main causes were said to have led to the accident: overworked (and underqualified) crew members and damaged alert systems.

In response to the increasing number of incidents, various governments, alongside the International Labor Organization (ILO) and the Organization for Economic Co-operation and Development (OECD), came together at the 1992 Earth Summit in cooperating on the question of hazardous materials. *The development of the GHS was the first step towards harmonizing HAZMAT usage across the globe.*

Despite the establishment of multiple recommended guidelines for HAZMAT maintenance under organizations, such as the UN, the International Maritime Organization, and the International Civil Aviation Organization, no internationally-recognized formula is enforced as part of any multilateral agreement. Furthermore, many LEDCs, due to the fragmented responsibilities among local authorities and government

departments and the lack of resources (both financially and humanitarian in terms of experts in the field), still have not developed practical solutions to HAZMAT and hazardous waste management. As a result, most corporations in the LEDCs continue to deal with HAZMATs without safety protocols--putting the lives of their workers, the surrounding communities, and the environment at risk--while many companies in MEDCs move their sites, such as their heavy industry manufacturing sectors, and hazardous waste to LEDCs--seeing the "advantage" that HAZMAT laws in LEDCs are comparably less strict and hazardous waste is cheaper to get rid of. This, then, adds on to the pollution crisis many developing countries, especially India and the PRC, are currently tackling.

Key Issues

The most prominent issue in HAZMAT usage is its short-term and long-term health risks to laborers and surrounding communities. According to the WHO, approximately a quarter of reported deaths in workplaces are caused by exposure to hazardous materials. Furthermore, inadequate HAZMAT maintenance has led to uncountable cases of toxic pollution--negatively impacting over 200 million people globally, in which tens of thousands are poisoned annually. This can be attributed ineffective regulations on HAZMAT management, which has led to thousands of recorded HAZMAT incidents, keeping in mind that some remain undocumented. Further investigations on these incidents show that they have recurring causes--the lack of safety protocols, regular checkups (and maintenance) on equipment, sufficient training for workers dealing with HAZMATs, and transparency and hazard identification with IHMs.

Despite the establishment of multiple recommended guidelines under the UN and other international organizations, many nations, especially developing countries, still refrain from implementing them as a basis for HAZMAT maintenance in their national laws, which is often a by-product of government instability. Fragmented responsibilities between local authorities and government departments can often lead to stagnation in taking the "next-steps". As most industrial and manufacturing sectors are set in the LEDCs, their economy relies heavily on this secondary sector. If stricter laws were to be imposed, many LEDCs could face substantial economic loss as industrial sites close and low-income laborers lose their jobs--a main concern of governments in such LEDCs that depend heavily on the manufacturing industry. However, with the industrial pollution crisis taking place in developing countries and multiple HAZMAT disasters throughout history, sound maintenance of HAZMAT is absolutely essential and would be beneficial in the long-term. Moreover, without strict regulations on the maintenance of hazardous materials, corporations in MEDCs will continue to move industrial sites and their hazardous waste into LEDCs, which gives rise to a new series of issues.

Seeing that labor protection laws, environmental protection laws, and HAZMAT regulatory standards are easier to follow in LEDCs, industries, such as corporations under heavy industry, heavily dependent on the usage of HAZMATs often set their storage and manufacturing sites in such LEDCs. This only gives rise to more problematic issues such as pollution, inadequate treatment of the labor force, and abuse of existing LEDC regulations--since

they can often be under poor surveillance. In the case of implementing regulations, the drafting process can be troubling as a complete ban or limitation on certain HAZMATs production cannot be done due to economic reliance on HAZMATs--especially with how integrated the heavy industry, where its products are mostly based upon HAZMATs, is with daily life around the world. Besides being inseparable from the heavy industry, HAZMATs are difficult to deal with due to its distinctive range of chemical properties and clean-up response required. Thus, comprehensive HAZMAT regulations require a time and money consuming process of expert assessments and cost-effective analysis, which many countries often fail to take action towards.

Another issue with the disparity in HAZMAT maintenance laws across different nations is MEDCs waste dumping in LEDCs. Rather than using machinery or domestic money to sustainably get rid of their waste, many developed countries tend to dump their waste (referred to as “dumping”), especially hazardous waste, to LEDCs--such as China, India, and most African countries--through cargo ships. The chemicals in this toxic waste can easily seep through the environment, contaminating the air, land, and water. For MEDCs, this is an advantage as they can save money by sending their hazardous waste to LEDCs. In contrast, however, the disadvantages outweigh the advantages for LEDCs. Although it provides jobs to citizens, especially minors, the risk of health hazards and environmental damage done is incomparable. Furthermore, poorly managed hazardous waste systems give rise to illicit activities: waste trafficking to black markets, labeling hazardous waste as non-hazardous, and mixing hazardous waste with non-hazardous waste in hope to disguise.

Thus, global effort is essential: for LEDCs to establish sound HAZMAT maintenance policies, MEDCs to restructure existing regulations on transporting HAZMATs, and cooperation from both sides on providing transparent data to raise awareness.

Major Parties Involved and Their Views

United States of America

The United States has faced some of the worst HAZMAT-related incidents in history--for instance, the Exxon Valdez Oil Spill. At the same time, it is also one of the most active nations in implementing regulations on HAZMATs. The Occupational Safety and Health Administration (OSHA) founded in 1971, for instance, has been regulating HAZMAT usage in the workplace as well as response protocols like the Hazardous Waste Operations and Emergency Response (HAZWOPER) to HAZMAT-related incidents. Moreover, the US has special agencies, such as the Environmental Protection Agency (EPA), and passed multiple laws in dealing with the handling and cleanup of HAZMAT to protect human wellbeing, especially those in the workplace, and environmental health. Despite having effective HAZMAT maintenance systems, the US

European Union (EU)

As one of the biggest industrial sectors, the European chemical industry has a workforce of up to 1.2 million. With such a prominent chemical industry, a large amount of workers are exposed to hazardous materials everyday. In response, the EU is also known to have developed the most stringent safety regulations. The EU has also passed numerous regulations and directives in restricting and regulating the use of hazardous substances, such as the Restriction of Hazardous Substances Directive and the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) both placed into action in the early 2000s. Many treaties have also been established for HAZMAT transportation and IHM tracking that follows the UN-recommended model. All guidelines developed set a clear distinction between regulation on hazardous materials--warehousing and usage of HAZMATs--and dangerous goods, which is important because of the differences in chemical properties and required response for the varying substances.

People's Republic of China

The largest industrial output country, China is also one of the largest HAZMAT manufacturing and storing countries. In March 2011, its State Council published and implemented a revised version of its main law regulating existing chemicals in China and adopting GHS in China: Regulations on Safe Management of Hazardous Chemicals in China. It is said that the law covers everything on the production, storage, use, import, transporting, and sales of hazardous chemicals. Besides the regulation, not much can be known about the Chinese government's actions towards dealing with HAZMATs specifically. Besides HAZMAT maintenance, hazardous waste management stands as a more pressing issue. Producing approximately 64.6 million tons of hazardous waste in 2018, China leads as one of the most industrial-hazardous-waste-producing countries and currently faces serious industrial pollution. This then traces back to the importance of HAZMAT maintenance and casts doubt on the effectiveness of the aforementioned law. Despite NGOs' effort in raising public awareness on hazardous materials and its dangers to the Chinese citizens, due to the government's resistance in permitting public access to such data, however, not much can be done to ameliorate the situation.

United Nations Environment Programme (UNEP)

Founded in 1972, the UNEP is responsible for managing environmental activities under the UN and assisting developing countries in developing environmentally sound practices. It covers a wide range of environmental aspects, including marine ecosystems, terrestrial ecosystems, the atmosphere, and many more. On the issue of HAZMAT, the UNEP has a specific sub-programme on United Nations and Sound Chemicals Management, which covers possible next steps in the sound management of HAZMAT and hazardous waste.

International Labor Organization (ILO)

The International Labor Organization (ILO) is a specialized agency under the UN that aims to promote international labor standards. Established by the Treaty of Versailles in 1919, the ILO became officially affiliated with the UN in 1948. The main functions of the ILO include promoting labor policies for national legislation and providing technical assistance in administration and training. One of the ILO's main areas of study is hazardous work, where the organization is currently prompting standards, technical guides, and training materials as protection measures of laborers in hazardous conditions.

International Maritime Organization (IMO)

Established in 1948 as a specialized agency under the UN, the International Maritime Organization aims to create a framework for regulating the shipping industry that is universally adopted and implemented. It is the global authority for the security, safety, and environmental performance of the international shipping industry. The IMO is currently working on all aspects of shipping--equipment, manning, operation and disposal--which are crucial aspects to consider when maintaining the shipment of HAZMATs. Some of its past efforts include the development of the International Maritime Dangerous Goods Code (IMDG Code) and the Hazardous and Noxious Substance (HNS) Convention, which provides compensation for damages caused by dangerous goods spills during maritime transportation.

International Civil Aviation Organization (ICAO) -

Founded in 1947 by 193 national governments, the International Civil Aviation Organization is a specialized agency under the UN that supports diplomatic interactions and develops air transport policies to support cooperation in air transport. The ICAO adopts recommended practices and adopts standards relating to air navigation, flight inspection, infrastructure, and safety protocols. Pertaining to the topic of hazardous materials, the organization has adopted several air transport of hazardous materials--all based upon the recommended UN model.

Timeline of Relevant Resolutions, Treaties and Events

Date	Event
October 29, 1919	ILO Established- The International Labor Organization was officially established to develop policies in protecting the labor force and promoting social justice.
April 4, 1947	ICAO Established- Under the UN, the ICAO works as a specialized agency promoting efficient and safe civil aviation regarding topics such as international aviation standards of dangerous goods.
March 17, 1948	IMO Established- The IMO created under the UN to develop

	internationally-enforced treaties in supporting and enhancing all aspects of international trade on maritime safety.
March 8, 1995	The “Special Rapporteur on Toxics and Human Rights” Mandated by the UN- Under the Commission on Human Rights, the mandate was established to investigate human rights implications on exposure to hazardous materials and waste. Its scope includes examinations on release of toxic products during conflict and industries using large amounts of HAZMATs. Recently renewed in 2020, the newest version of the mandate can be found in A/HRC/RES/45/17.
October 1956	UN Recommendations on the Transport of Dangerous Goods Implemented- The UN recommended guideline was established by the Experts on Transport of Dangerous Goods Subcommittee under the UN Economic and Social Council (ECOSOC). Although not legally binding to any nation, the guideline has gained a substantial amount of international acceptance and is the basis to many national laws. Its scope extends over the transport of dangerous goods (and HAZMATs) in most modes of transport. The regulation, however, fails to cover the manufacture, storing, or disposal of dangerous goods
December 3, 1984	The Bhopal Disaster in Bhopal, India- Considered one of the worst industrial accidents in history, the Bhopal disaster, caused by dangerous methyl isocyanate gas leakage from the Union Carbide plant, resulted in a final death toll of around 15,000 to 20,000—including those who suffered from respiratory problems later on.
March 22, 1989	Basel Convention Signed- The international treaty was signed by 186 parties to limit the movement of hazardous waste across borders, especially on the export of waste to LEDCs. Moreover, it aims to promote and oversee the sound management of hazardous waste.
March 24, 1989	Exxon Valdez Oil Spill- After the Exxon Valdez crashed into a reef in Alaska’s Prince William Sound, the tanker released around 11 million gallons of crude oil, causing the death of some hundreds of thousands of marine animals.
June 22, 1993	Establishment of C174 on the Prevention of Major Industrial Accidents Convention- As an ILO convention, C174 was created to prevent industrial accidents regarding the use of hazardous substances. Currently having 18 parties involved, the convention aims to guide nations in formulating and implementing national policies on HAZMAT management in industries to protect workers and communities nearby against possible risks from hazards.
December 2002	First Edition of GHS Adopted- The development of the GHS began during the 1992 Earth Summit. However, it was only formally adopted by the UN as the basis for the harmonization of classifying hazardous substances in 2002.
February 6, 2006	The Strategic Approach to International Chemicals Management (SAICM) adopted- During the International Conference on Chemical Management, the SAICM, developed under the United Nations Environment Programme, was adopted as a global policy to foster sound management of chemicals. It’s main objective is to serve as a framework for nations to minimize the adverse impacts of chemicals and hazardous substances to human wellbeing and the

	environment.
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Evaluation of Previous Attempts to Resolve the Issue

Strategic Approach to International Chemicals Management (SAICM adopted under the UNEP as an international framework in regulating the maintenance of chemicals, 2006)

Adopted during the International Conference on Chemicals Management in Dubai, the Strategic Approach to International Chemicals Management oversees the sound management of chemicals. Although not directly related to HAZMAT, the regulatory framework focuses on certain subtopics, such as hazardous materials in the electronic industry and toxic chemicals, that are deemed as a part of HAZMATs. Compared to previous approaches for the past 30 years, the SAICM attempts to engage all sectors of society that are either implicitly or explicitly affected by chemical substances: environment, agriculture, health, labor, development, and industry. While its key feature was to bring together various organizations--which aims to resolve any problems concerning chemical safety--participation rates from non-health and non-environmental sectors remain low due to lack of commitment; essentially, this hinders its purpose and points to its inefficacy, as chemical and HAZMAT management is multifaceted. Furthermore, the SAICM approach has failed to implement many of its activities in achieving its outcomes due to an under-capacity of staff and lack of funds (with an annual shortfall up to 43% for six of the years since it was created). However, in recent years, as the UNEP continues to expand upon and conduct close evaluation on SAICM, collaboration and coordination among stakeholders on SAICM implementation has been reported to improve.

UN Recommendations on the Transport of Dangerous Goods (developed by the ECOSOC Subcommittee of Experts on the Transport of Dangerous Goods, 1956)

In an attempt to assist member states in constructing cost-effective strategies in transporting HAZMATs, the Subcommittee of Experts on the Transport of Dangerous Goods, under the United Nations Economic and Social Council, published the UN Recommendations on the Transport of Dangerous Goods in the UN Model Regulations. The guideline covers the transport of dangerous goods (HAZMATs) from identification and identification to the actual transportation process. It is *not a legally binding document* to member states, but is included as the basis to several national laws--namely the United States of America and Canada--and international agreements. Considering its effectiveness in regulating and preventing major HAZMAT-related transportation incidents, the document has been successful to countries that have implemented it. However, its impact has been limited, especially in LEDCs where HAZMAT maintenance laws are comparably less strict, due to its non-obligatory nature.

Basel Convention (UN treaty signed by 186 states, designed to reduce the movement of hazardous waste to LEDCs, 1989)

The Basel Convention, also known as the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, aims at reducing hazardous waste trading between nations, especially from MEDCs to LEDCs. Its most notable effort was the Basel Ban Amendment, a strengthened modification to previous bans, that came into force in 2019--after three-fourths of the member states finally ratified the amendment created in 1995. The ban prohibits movements of hazardous waste between a listed number of developed countries. At first glance, the amendment may be considered successful as it allows countries to refuse imports of hazardous waste into their boundaries without prior consent and assists LEDCs in recovering from HAZMAT pollution. However, its lack of coordination across member states casts doubt on its efficacy. In fact, the Basel Ban Amendment allows its members to decide on their list “hazardous waste” based on their own national legislation and, furthermore, recognizes the rights of each party in setting their individual requirements on hazardous-waste-transboundary-movement procedures. Without a harmonized system governing the amendment, member states continue to export hazardous waste, under a non-transparent system, into developing countries not listed in the ban, which places a larger environmental toll on those countries and hinders its ability to regulate transboundary movements of hazardous waste.

Possible Solutions

- Decoupling economic growth from negative (and growing) impacts, thus maximizing societal benefits.
- Increased political priority, commitment and resources for the sound management of chemicals and waste.
- Integrating the sound management of chemicals and waste into environmental, public health, labour, social and economic development programs.
- Adopting and implementing legal instruments that define the responsibilities of the public and private sector for chemicals and waste control and improve administrative coordination for compliance and enforcement

As hazardous materials have become so incorporated into our daily lives, simply eliminating its production would not be feasible and could lead to drastic economic downturns. Instead, consider ways in which effective regulations on its sound maintenance can be put in place to oversee all aspects of HAZMATs in order to limit its risks to the environment, human wellbeing, and property.

The first issue to tackle on the question on regulating the maintenance of hazardous materials is to decouple economic growth from negative impacts. Secondary sectors--industrial and manufacturing-- of HAZMATs are mainly located in LEDCS. However, many of the national laws on HAZMAT maintenance in such

countries fail to keep up and respond to the hazard risks due to two main reasons: fragmented governmental responsibilities and lack of resources. As their economy heavily relies on the HAZMAT industry, several national governments, concerned over possible downturns in the economy due to strengthened regulation on HAZMATs, choose to refrain from taking action. Besides, many of these governments do not have adequate financial resources to construct new guidelines--as conducting cost-effective research and analysis can be costly. Not only in LEDCs, many MEDCs also fail to actively protect its environment and people against HAZMATs for similar concerns over negative economic impacts. However, in the long term, HAZMAT warehousing guidelines, IHM transportation codes, and cost-effective safety protocols are essential in minimizing major HAZMAT-related industrial incidents and its deadly impacts. Consider adopting measures in which member states can regulate the production, storage, and transportation of HAMATs that would maximize societal benefits and increase political commitment--always remember to weigh the advantages and disadvantages to each step taken.

Furthermore, another important issue to take into consideration is the disparity between HAZMAT maintenance in national laws around the world. In most cases, MEDCs have more comprehensive and stricter laws dealing with HAZMATs, which leads to corporations targeting LEDCs as sites for their HAZMAT facilities and hazardous waste. This, in turn, puts a larger toll on the environment in LEDCs and adds on to the industrial pollution crisis. Thus, global cooperation in developing harmonized regulations is vital. An effective approach might be to coordinate with relevant organizations listed or integrate sound maintenance of HAZMATs and hazardous waste into labor, social, environmental, and economic development programs.

Remember that this topic is in Generally Assembly 1, meaning that resolutions are recommendatory and strong operative clauses are highly discouraged. Further, specific financial figures should not be included, but rather consider mentioning sources that could provide financial aid. When drafting resolutions, analyze previous attempts to implement international laws for hazardous waste and HAZMAT management. Research on their goals, and compare them with their impact: Were they effective? If yes, how so? If not, evaluate their drawbacks, and present ways in which they could be modified to maximize its potential. As some countries have independently incorporated HAZMAT management in national laws, consider their positive and negative effects on HAZMAT-related industries and on society at large.

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Appendix or Appendices

- I. Latest Version Regarding the Classification of Hazardous Materials
https://unece.org/fileadmin/DAM/trans/danger/publi/ghs/ghs_rev08/ST-SG-AC10-30-Rev8e.pdf
- II. UN Recommendation on the Transport of Dangerous Goods
https://unece.org/fileadmin/DAM/trans/danger/publi/unrec/rev21/ST-SG-AC10-1r21e_Vol1_WEB.pdf
- III. United Nations and Sound Chemical Management
https://unemg.org/images/emgdocs/SOMMeetings/2015/chemical_report.pdf

