BME Model United Nations Conference 2019
Budapest University of Technology and Economics, Budapest, HU
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Background Guide

United Nations: Environment Assembly

Topic: Promoting the Responsible Disposal of Electronic and Hazardous Waste

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Introduction

The mission of the United Nations Environment Programme (UN EP) is to "provide leadership and encourage partnership in caring for the environment" toward environmentally friendly practices and policies in the United Nations (UN) system. It is a programme and fund of the UN that ensures international, regional, and local coordination for environmental issues, and it also ensures that various other UN entities take environmental impacts into account when executing their missions. UN Environment reports to the General Assembly (GA) and the Economic and Social Council (ECOSOC).

UN Environment was created at the recommendation of the 1972 UN Conference on Human Environment in Stockholm, Sweden. Six months later, the General Assembly adopted resolution 2997 (XXVII) of 1972 on "Institutional and financial arrangements for international environmental cooperation," which established UN Environment as the official body concerned with environmental issues within the UN. Since 1972, UN Environment has played a significant role in coordinating environmental policy across various UN agencies. UN Environment helped in the planning and execution of the UN Conference on Environment and Development (UNCED) in 1992, which led to the adoption of the Rio Declaration on Environment and Development (1992) as well as Agenda 21 (1992). These landmark agreements provided further guidance and renewed support for UN Environment's role in international cooperation on environmental protection. UNCED marked a turning point for international collaboration to preserve biodiversity and the climate, with the Convention on Biological Diversity and the UN Framework Convention on Climate Change opened for signature at the summit and the Convention to Combat Desertification (1994) adopted in its aftermath. While the three Rio Conventions are each administered by a secretariat of their own, UN Environment played a key role in negotiating the conventions and was tasked with promoting their implementation through Agenda 21. Twenty years after the adoption of the Rio Declaration, the UN Conference on Sustainable Development (Rio+20) called for the creation of the United Nations Environment Assembly to better execute the mandate of UN Environment and place environmental issues in the same standing as health, security, and economics.

To better promote environmentally friendly practices and the coordination of environmental affairs, the General Assembly adopted resolution 67/251 of 2013 on "Change of the designation of the Governing Council of the United Nations Environment Programme," which formally established the Environment Assembly. Through its universal membership, the Assembly aims to strengthen the role of UN

Environment in international affairs and increase the responsiveness and accountability of Member States in developing environmental policy.[1] The Assembly has held three universal sessions since its creation.

Governance, Structure, and Membership

The UN Environment Assembly serves as the governing body for UN Environment.[12] The Assembly replaced the former Governing Council of 58 members, which oversaw UN Environment from its inception until 2013.[16] Comprised of all Member States, the Assembly meets biennially to set the global environmental agenda, to discuss emerging environmental challenges, and to provide guidance to UN Environment in its strategic plans of actions.[17] The UN Environment Secretariat is responsible for supporting the Environment Assembly and consists of a rotating President, three Vice-Presidents, and a Rapporteur.[18] The Committee of

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[1] UN Environment, About the UN Environmental Assembly; UN General Assembly, Report of the Governing Council of the United Nations Environment Programme on its twelfth special session and the implementation of

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Permanent Representatives, which meets at least four times a year, is a permanent subsidiary body of the Assembly that prepares its meetings, monitors the implementation of its decisions, and provides advice to UN Environment between the sessions of the Assembly.[19] It is composed of all accredited Permanent Representatives to UN Environment and thereby represents an important link between the programme and national governments. In addition to the core funding it receives through the UN Regular Budget, UN Environment collects financial contributions from Member States to implement its global and regional work through its Environment Fund.[21] Member States' financial contributions to the fund are based upon the Voluntary Indicative Scale of Contributions, which takes into account their respective economic and social situation.[22] Additional funds for project implementation are generated through Earmarked Contributions and the Global Environment Facility (GEF), which together account for 91% of UN Environment's annual expenditures.[23]

Aside from its headquarters in Nairobi, Kenya, UN Environment has six offices dispersed globally that undertake projects on regional and local levels.[24] Each office holds yearly Regional Consultation Meetings where representatives from various civil society organizations (CSOs) and other stakeholders are invited to engage in an environmental policy dialogue.[25] Those offices bring any concerns or ideas from these meetings to the next Environment Assembly meeting for wider discussion and possible implementation.[26]

Mandate, Functions, and Powers

Upon the adoption of General Assembly resolution 2997 (XXVII) of 1972 on "Institutional and financial arrangements for international environmental cooperation," UN Environment was established with a mandate to promote international and regional environmental cooperation, develop environmental policy,

highlight global and regional problems, facilitate the transfer of scientific knowledge, assist developing Member States in environmental matters, review reports of the Executive Director, and approve the annual program on the allocation of the Environment Fund.[2] With the creation of the Environment Assembly as a governing body with universal membership pursuant to the Rio+20 conference, UN Environment's mandate was reaffirmed with stronger accountability toward Member States in implementing this mandate.[3]

The first expansion of UN Environment's mandate came after the 1992 Rio summit via *Agenda 21*, which outlined a list of priority areas for its future work and called for the programme to gain "access to greater expertise and provision of adequate financial resources" as well as closer collaboration with the rest of the UN system to fulfil these new tasks.[4] On the occasion of its 25th anniversary, the Governing Council of UN Environment held an extensive discussion on the future role of the programme that resulted in the adoption of the *Nairobi Declaration on the Role and Mandate of the United Nations Environment Programme* (1997).[5] With a view to the special session of the General Assembly later that year that was scheduled to review the implementation of *Agenda 21*, the declaration represented a call to governments and the UN system to acknowledge UN Environment's leadership role.[6] The General Assembly endorsed the Nairobi Declaration and

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[2] UN General Assembly, Institutional and financial arrangements for international environmental co-operation (A/RES/2997(XXVII)), 1972.

[3] UN General Assembly, The Future We Want (A/RES/66/288), 2012, p. 18.

[4] UNCED, Agenda 21, 1992, par. 38.21-38.23.

[5] Governing Council of UN Environment, Proceedings of the Governing Council at its Nineteenth Session (UNEP/GC.19/34), 1997, pp. 52-56.

[6] UN Environment, The First 40 Years: A Narrative by Stanley Johnson, 2012, p. 155.

reaffirmed that "UN Environment is to be the leading global environmental authority that sets the global environmental agenda."[7]

This assessment was further corroborated in the course of the UN reform agenda of Secretary-General Kofi Annan, who advocated for strengthening UN Environment's role as "the focal point for harmonization and coordination of environment-related activities."[8] In October 1998, per the guidance of the Secretary General's Task Force on environment and human settlements, the General Assembly put forth a set of recommendations that would further modify UN Environment's mandate.[9] As a result, the Executive Director of UN Environment was placed in charge of a new committee called the Environment Management Group. The key purpose of the Environment Management Group is to coordinate and facilitate access to relevant information and findings concerning the environment and human settlements, in order to ensure the most efficient and cost-effective allocation of resources and information.

Upon the adoption of the Nairobi Declaration at the 19th session of the UN Environment Governing Council in 1997, UN Environment realigned its core mandate to ensure a more modern and technological approach to environmental issues.[10] The new core mandate made UN Environment responsible for using the best available scientific methods and evidence to analyze global environmental trends, utilizing early warning systems, furthering the development of international environmental law and policy, monitoring and fostering Member State compliance with existing international environmental norms, strengthening its role in coordinating UN environmental activities, serving as a link between the scientific community and the UN, and providing key policy advice for UN bodies, governments, and other institutions.[11] In 2002, the *Johannesburg Declaration on Sustainable Development* called upon UN Environment and its partners to cooperate more closely across sustainable development initiatives for the implementation of *Agenda 21*.[12]

Guided by the broader substantive priorities of UN Environment, the Environment Assembly is tasked to make major strategic decisions for UN Environment, provide political guidance for state and regional programs, and promote scientifically based environmental policies.[13] With the move toward universal membership, the vision for the Environment Assembly is to ensure better monitoring and foster of Member State compliance in environmental protection while creating an atmosphere for collaboration between Member States, UN entities, and CSOs.[14]

UN Environment ensures the implementation of the Environment Assembly's agenda by promoting international cooperation on existing environmental policies, guides the creation of new environmental policies, and uses environmental awareness to help Member States and CSOs respond to environmental threats.[15] UN Environment also monitors the state of the global environment on both an international and regional scale and shares that information with interested parties.[16] Under the direction of the Environment Assembly, UN Environment works

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[7] UN General Assembly, Programme for the Further Implementation of Agenda 21 (A/RES/S-19/2), 1997, par. 123.

[8] UN General Assembly, Renewing the United Nations: A Programme for Reform (A/51/950), p. 58.

[9] UN General Assembly, Environment and human settlements: Report of the Secretary-General (A/53/463), 1998.

[10] Governing Council of UN Environment, Proceedings of the Governing Council at its Nineteenth Session (UNEP/GC.19/34), 1997, pp. 52-56.

[11] New Zealand Ministry of Foreign Affairs and Trade, United Nations Handbook 2017-18, 2017.

[12] World Summit on Sustainable Development, Report of the World Summit on Sustainable Development (A/CONF.199/20), 2002.

[13] UN Environment, About the UN Environment Assembly.

[14] UN General Assembly, The Future We Want (A/RES/66/288), 2012, pp. 17-18.

[15] UNSCEB, United Nations Environment Programme.

[16] UN Environment, Programme Performance Report 2016, 2016, pp. 57.

to develop international environmental law and ensure the proper use of environmental information and instruments. To help achieve its mandate, UN Environment can create task forces and subsidiaries to implement environmental policies.[17] However, the General Assembly or ECOSOC must approve any resolutions adopted by the Environment Assembly on environmental policy or creating new bodies.

Recent Sessions and Current Priorities

With the adoption of the 2030 Agenda, the responsibility of UN Environment has further moved toward realizing environmental protection as part of an integrated vision of sustainable development rather than within a silo of its own.[18] UN Environment assesses that 86 of the 169 targets across the 17 Sustainable Development Goals (SDGs) are concerned with environmental sustainability.[19] The paradigm change toward an integrated approach is reflected in the *Medium Term Strategy 2018-2021* that envisions UN Environment to "provide an environmental lens through which to view, understand and advise on sustainable development."[20] UN Environment's vision for 2030 is built upon the benefits of sustainable natural resource use for sustainable development, the reduction of social and economic cost through improvements in environmental sustainability, and finally the increased well-being of marginalized populations as a consequence of integrating environmental considerations into development planning. To work toward its vision, UN Environment has established in its *Medium-Term Strategy 2018-2021* five operating principles that guide the agency's actions and decisions. Those principles include the adoption of a globally coherent and locally responsive approach, the use of results-based management, the development of synergy from strategic partnerships between stakeholders, the strengthening of regional presence to tailor efforts to the needs of regions, and the integration of environment-related frameworks in other UN entities' thematic or functional areas.

UN Environment currently operates under seven thematic priorities: climate change; resilience to disasters and conflicts; healthy and productive ecosystems; environmental governance; chemicals, waste and air quality; resource efficiency; and environment under review.[53] The *Medium-Term Strategy 20182021* outlines long-term goals under each of the thematic areas that are operationalized in more detail in two biennial programmes of work, following outcome maps that sketch out logical paths toward long-term goals. UN Environment is now encouraged to adopt a more results-oriented planning approach that maintains focus on long-term outcomes. In response to increasing resource demands and changing demographics, the *Medium-Term Strategy 2018-2021* focuses on improving utilization of natural resources and sound management of waste that influence the social and economic dimensions of sustainable development.

The upcoming meeting of the Environment Assembly, UNEA-4, will be held from 11-15 March 2019 under the overarching topic of "Innovative solutions for environmental challenges and sustainable consumption and production."[21] Environment Assembly members will particularly focus on enabling globally innovative

solutions to environmental challenges and favoring sustainable consumption and production.[22] Stakeholders will address necessary mechanisms and supports, such as the enhancement of partnerships with the private sector and the civil society, to create favorable conditions for

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[17] UNSCEB, United Nations Environment Programme.

[18] UN General Assembly, transforming our world: the 2030 Agenda for Sustainable Development (A/RES/70/1), 2015; UN Environment Assembly, Delivering on the environmental dimensions of the 2030 Agenda: Information note of the Executive Director (UNEP/EA.2/INF/4), 2016.

[19] UN Environment Assembly, delivering on the environmental dimensions of the 2030 Agenda: Information note of the Executive Director (UNEP/EA.2/INF/4), 2016, p. 1.

[20] UN Environment, Medium-Term Strategy 2018-2021, 2016, p. 2.

[21] UN Environment, UN Environment Assembly and Governing Council.

[22] UN Environment Assembly, Concept note for the theme of the 4th United Nations Environment Assembly, 2018.

innovation. Members will develop strategies to better implement the *10-Year Framework of Programmes on Sustainable Consumption and Production*. The Framework of Programmes supports the shift toward sustainable consumption and production in various areas, such as sustainable tourism, buildings, and construction.[23]

Conclusion

UN Environment is the UN's official programme concerned with the environment and put into actions recommendations adopted by the Environment Assembly, its governing body.[24] The reform process that UN Environment underwent throughout the 1990s consolidated the thematic leadership role of the programme within the UN system.[25] The recent creation of the Environment Assembly represents another key step in UN Environment's mission to ensure that the work of all UN entities, Member States, and CSOs are environmentally sustainable and in line with international laws and norms concerning the environment.[26] The creation of an environmental entity with universal membership that oversees the world's environmental policy agenda reflects the growing importance of environmental issues and allows for an integrated approach to environmental protection through the *2030 Agenda for Sustainable Development*.[27] By combating pollution and enhancing sustainable production and consumption, the Assembly is in a lead role to resolve these challenges threatening global sustainable development.[28]

Promoting the Responsible Disposal of Electronic and Hazardous Waste

Introduction

As the governing body of the United Nations Environment Programme (UN Environment), the United Nations Environment Assembly (UNEA) acts as a forum to address the complex nature of hazardous and electronic waste within the United Nations (UN) system.[29] UN Environment is able to provide systemwide guidance on the potential risks and opportunities of waste disposal, and to assist in coordinating the efforts of other UN organs and agencies. Electronic waste (e-waste) is one form of hazardous waste.[30] It is the world's fastest growing waste stream, with 44.7 million metric tons generated in 2016. This is the equivalent to 6.1 kilograms of e-waste generated per global citizen, a number that rose from 5.8 kilograms per person in 2014. At the current rate, by the year 2021 each global citizen is expected to generate 6.8 kilograms of e-waste annually. The rapid spread and development of electronics, like information and communication technology (ICTs), has improved the social and economic well-being of both developed and developing societies. However, technological advancement, the ready availability of new technology, and the fast-growing number of global users has led to shorter replacement cycles for ICTs devices.

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[23] UN Environment, The 10-YFP Framework of Programmes on Sustainable Consumption and Production, 2017.

[24] New Zealand Ministry of Foreign Affairs and Trade, United Nations Handbook 2017-18, 2017, p. 256.

[25] UN Environment, The First 40 Years: A Narrative by Stanley Johnson, 2012, p. 155.

[26] World Summit on Sustainable Development, Report of the World Summit on Sustainable Development (A/CONF.199/20), 2002.

[27] UN Environment Assembly, delivering on the environmental dimensions of the 2030 Agenda: Information note of the Executive Director (UNEP/EA.2/INF/4), 2016.

[28] UN Environment, UN Environment Assembly and Governing Council.

[29] UNEA, Ministerial outcome document of the first session of the United Nations Environment Assembly of the United Nations Environment Programme (UNEP/EA.1/RES.1), 2014.

[30] United Nations University et al., Global E-Waste Monitor, 2017, p. 2.

Consequently, this has resulted in more waste generation and raised concerns about the impact of e-waste disposal on public health and the environment.[31]

Hazardous waste is material that contains various toxic components including lead, cadmium, mercury, and copper.[32] Some hazardous wastes may also have particularly hazardous characteristics, such as being corrosive, explosive, oxidizing, or causing toxic effects. Many of these materials are classified as ecotoxic, which means they result in "immediate or delayed adverse impacts to the environment by means of bioaccumulation and/or toxic effects upon biotic systems." E-waste refers to "any item with circuitry or electrical components with power or battery supply […] that have been discarded by their owner as waste without the intention of re-use."[33] E-waste is considered hazardous because of the presence of several persistent, bio-accumulative and toxic substances present in the items themselves.[34] E-waste includes cooling and freezing equipment, screens and monitors, small equipment, large equipment, lamps, and small information technology and telecommunication equipment.[35]

Responsible disposal techniques ensure that hazardous materials are treated in an environmentally sound way to protect human health and the environment.[36] Sites responsible for hazardous waste management are specifically authorized by the state or regional authority to operate for that specific purpose. Generally, only 20% of hazardous and electronic waste reaches these facilities and is recycled through suitable, environmentally sound methods.[37] The remaining 80% of e-waste is disposed of through general waste streams like landfills.[38] The toxic substances in e-waste can therefore leach into the surrounding soil and water, contaminating ecosystems and harming human health and biodiversity.[39]

International and Regional Framework

In 1989, the United Nations Environment Programme (UN Environment) held the Conference of the Plenipotentiaries, comprised of 116 Member States, as a response to the growing concerns over rising hazardous waste disposal challenges. The Conference adopted the *Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal* (1989) to regulate the increased amount of hazardous waste moving across international borders.[40] The Basel Convention requires that Member States adhere to the basic principles of managing waste in an environmentally sound manner and dispose of wastes in their state of origin to the greatest extent possible. In 1995, an amendment was adopted by the members of the Basel Convention that aimed to extend the Basel Convention to cover the movement of hazardous waste intended for final disposal, re-use, recycling, and recovery. However, a debate on the costs and benefits of implementation has left the amendment stalled.

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[31] ILO, The Global Impact of E-waste: Addressing the Challenge, 2012, p. 12.
[32] UN Environment, The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, 1989, p. 47.
[33] Solving the E-Waste Problem, One Global Definition, 2014, p. 4.
[34] ILO, The Global Impact of E-waste: Addressing the Challenge, 2012, p. 12.
[35] United Nations University et al., Global E-Waste Monitor, 2017, p. 11.
[36] UN Environment, The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, 1989, p. 11.
[37] United Nations University et al., Global E-Waste Monitor, 2017, p. 2.
[38] ILO, The Global Impact of E-waste: Addressing the Challenge, 2012, p. 9.
[39] United Nations Secretariat of the Basel Convention, Basel Convention Milestones, 2011.
[40] UN Environment, The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, 1989.

The United Nations Conference on Environment and Development adopted *Agenda 21* in 1992.[41] *Agenda 21* represents an international commitment to push for sustainable development and address all areas where humans impact the environment through a dynamic set of objectives, activities, and means of implementation. Chapter 20 of *Agenda 21* has multiple goals, including minimizing waste, preventing illegal hazardous waste trafficking, and establishing long-term, environmentally responsible programs for both manufacturers and recyclers. Another provision focuses on the impact of industrial production and encourages producers to reduce the amount of waste generated at the beginning stages of production, as well as during end-of-life recycling.

The Bali Declaration on Waste Management for Human Health and Livelihood was adopted at the ninth Conference of the Parties (COP 9) in 2008 and encouraged greater regional and sub regional coordination, awareness-raising, and increased capacity building.[42] In 2017, the *Minamata Convention on Mercury* came into force to protect people and the environment from the adverse effects of mercury exposure, one of the most potent heavy metals found in toxic e-waste.[43] Mercury is one of the most dangerous elements used in electronic production and dismantling and sits on the UN's list of top ten chemicals of major concern.[44] As there is no known safe level of exposure to lead or mercury, the lack of awareness and the use of proper handling techniques places both humans and the environment at risk.[45] The Convention particularly insists that each Party must identify sources of mercury compounds released in the environment and adopt national plans to control releases.[46] Also in 2017, UNEA adopted a resolution to eradicate exposure to lead paint and promote the sustainable management of waste lead acid batteries.[47] The resolution calls on Member States to increase coordination for hazardous waste management, address emissions and exposure, and implement responsible disposal practices.

The European Union (EU) developed legislation on electronic waste with the *Waste Electrical and Electronic Equipment Directive* (WEEE) in 2002.[48] The directive promotes the recovery, preparation for re-use and recycling mechanisms for electronic waste, and it provides treatment standards for producers, businesses, and individuals. The directive provides several technical guidelines for disposal facilities, including the requirement to remove hazardous material from the equipment to be treated separately, to have appropriate storage containers and surfaces, and to have appropriate water treatment capabilities to prevent damage to humans and the environment. Another recommendation is for states to delegate responsibility to the producers for the full waste chain of their products, including recycling and disposal.

Similarly, the International Telecommunications Union (ITU) recognized the need for more producer accountability in the *Connect 2020 Agenda for Global Telecommunication/ICTs Development* in 2014.[49] The signatories on this agenda aim to increase the interconnectedness of the world through ICTs while simultaneously accelerating sustainable social, economic, and environmental practices. In order to address the potentially negative impacts of expanding ICTs use and access, Goal 3 of the Connect 2020 Agenda aims to reduce the volume of redundant e-waste by 50% by the year 2020. The International Labour Organization (ILO) also provides expertise on labor

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[41] UNCED, Agenda 21, 1992.
[42] UN Environment, The Bali Declaration on Waste Management for Human Health and Livelihood, 2008.
[43] UN Environment, Minamata Convention on Mercury, 2017.
[44] WHO, Mercury and Health Fact Sheet, 2018?
[45] UNEA, eliminating exposure to lead paint and promoting environmentally sound management of waste lead-acid batteries (UNEP/EA.3/RES.9), 2017.
[46] UN Environment, Minamata Convention on Mercury, 2017.
[47] UNEA, eliminating exposure to lead paint and promoting environmentally sound management of waste lead-acid batteries (UNEP/EA.3/RES.9), 2017.
[48] EU, Waste Electrical and Electronic Equipment Directive, 2002.
[49] ITU, Connect 2020 Agenda for Global Telecommunication/ICTs Development, 2014.

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standards and employment guidelines for transitioning economies.[50] The ILO's *Convention on Chemicals* provides further safety standards for individuals working with chemicals and hazardous materials.

In 2015, the UN adopted the *2030 Agenda for Sustainable Development* and the Sustainable Development Goals (SDGs) as new global commitments to be achieved by 2030.[51] Many targets are linked to hazardous waste disposal, three of which are particularly related to the responsible disposal of hazardous and electronic waste. SDG 3 aims to reduce the number of deaths and illnesses caused by hazardous waste contamination of the air, water, and soil by 2030. SDG 8 addresses labor rights, safety, and development of working environments, including formalizing dangerous sectors and increasing access to financial resources. Finally, SDG 12 aims to encourage prevention and repurposing techniques to tackle excess waste creation, and to adopt a life-cycle view of hazardous waste to minimize their overall effect on humans and the environment by 2020. Overall, sound chemical management through inter-organizational cooperation is a key aspect of sustainable development.[52]

Role of the International System

UN Environment has taken the lead role on setting normative standards on the management of hazardous waste and e-waste throughout its life-cycle.[53] The Assembly has adopted resolutions focused on the sound management of chemicals and waste since its first session.[54] UNEA also supports and oversees the United Nations Environment Management Group (EMG), which is comprised of specialized agencies and organs within the UN. The EMG identifies environmental issues that require cooperation and engages the international community to respond to those issues. One subset of the EMG is the Issue Management Group on Tackling E-waste.[55] The goal of this group is to strengthen and enhance existing policies and programs to address pressing issues throughout the UN system, such as developing eco-design mechanisms and e-waste prevention and management.

One group coordinated under the EMG is the International Environmental Technology Centre (IETC), the foremost UN agency focusing on waste management and environmentally sound technology.[56] This body is composed of industry specialists and offers guidelines on inventory best practices, management techniques, and take-back systems. The IETC has produced reports on waste management outlooks, provided technological support, and led capacity-building initiatives.[57] The EMG works alongside the United Nations University (UNU), an international community of scholars established by the UN, on hazardous and electronic waste research.[58] In 2017, the UNU and EMG published a report examining the adverse health impacts affecting those working in and around disposal sites.[59]

The UNU also hosts the Solving the E-Waste Problem (StEP) initiative, an international project with membership comprised of various industry, government, and academic stakeholders to address the ewaste life-cycle at all stages. The initiative researches and publishes various reports

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[50] UN EMG, United Nations System-wide Response to Tackling E-waste, 2017, p. 25.
[51] UN General Assembly, Transforming our world: the 2030 Agenda for Sustainable Development (A/RES/70/1), 2015.
[52] UN EMG, United Nations and Sound Chemicals Management Coordinating deliver for Member States and sustainable development, 2015, p. 4.
[53] UN EMG, United Nations System-wide Response to Tackling E-waste, 2017, p. 29.
[54] UNEA, Sound Management of Chemicals and Waste (UNEP/EA.2/RES.7), 2016.
[55] UN Environment, The United Nations tackles electronic waste, 2017.
[56] UN EMG, United Nations System-wide Response to Tackling E-waste, 2017, p. 29.
[57] UN Environment, Who We Are, 2018.
[58] United Nations University, About UNU, 2018.
[59] UN EMG, United Nations System-wide Response to Tackling E-waste, 2017, p. 28.

and statistics on regional practices, business implementation models, and online resources, including an interactive global waste data map. The StEP Initiative also published the *Business Plan Calculation Tool for Manual Dismantling Facilities* as a framework for entrepreneurs to set up e-waste recycling businesses that have responsible disposal practices and are economically feasible.[60] Similarly, the Global Partnership on Waste Management (GPWM) was formed in 2010 with the aim of creating an open-ended organization to

foster a holistic approach to international waste management. GPWM includes international organizations, governments, businesses, academics, and civil society actors to enhance cooperation on this topic. The Basel Action Network (BAN) is a non-governmental organization (NGO) watchdog dedicated to transparency in global waste disposal. BAN installed 200 GPS tracking devices into electronic equipment destined for dismantling and has published their findings on waste movements.

Environmental and Health Impacts of Irresponsible Disposal Methods

The toxic and complex design of electronics makes the environmentally-sound dismantling and separation of materials labor intensive and technologically demanding.[61] Approximately 60% of electronic equipment's constituent parts are potentially, or known to be, hazardous.[62] There is a lack of comprehensive knowledge on the dangers that irresponsible disposal can wreak on human and the environmental health.[63] In many regions, disposal workshops are run out of homes in small communities with dangerous, primitive methods such as manual disassembly.[64] Despite encouragement from the international system, there is little incentive to adopt responsible disposal methods.[65] Safe recycling centers are expensive to build and maintain, and require a high degree of technical skill.[66] Often times the cost and time needed to create facilities, coupled with a lack of awareness of the dangers of unsound disposal, means that there is little incentive for authorities to encourage the transition to green disposal techniques.[67]

One common method used in home or community recycling operations is to burn e-waste at a low temperature to melt down the product components and pull valuable metals from the ashes.[68] This results in airborne toxins, such as mercury and lead, to sweep through the recycling sites and neighboring communities. These particles settle into toxic dust, which is then inhaled by workers or brought home on their clothes and ingested second-hand by their families. Toxic dust leaches into the local water supply and pollutes daily drinking water and agricultural activities. High concentrations of toxic substances cause higher rates of reproductive issues in women including stillbirths, miscarriages, and distorted cell function.[69] Workers expose their children to the toxic substances through second-hand contact, which can cause neurodevelopmental and neurobehavioral problems, including changes in mental health, behavior disturbances,

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[60] Solving the E-waste Problem, Business Plan Calculation Tool for Manual Dismantling Facilities, 2016, p. 3.

[61] ILO, The Global Impact of E-waste: Addressing the Challenge, 2012, p. 12.

[62] Heacock et. al., E-waste and Harm to Vulnerable Populations: A Growing Global Problem, 2016, p. 551.

[63] ILO, The Global Impact of E-waste: Addressing the Challenge, 2012, p. 19.

[64] Srigboh et. al., Multiple Elemental Exposures Amongst Workers at the Agbogbloshie Electronic Waste (E-Waste) Site in Ghana, 2016.

[65] ILO, The Global Impact of E-waste: Addressing the Challenge, 2012, p. 19.

[66] Grant et al., Health consequences of exposure to e-waste: a systematic review, 2013, p. 351.

[67] Solving the E-waste Problem, Guiding Principles to Develop E-Waste Management Systems and Legislation, 2016.

[68] Srigboh et. al., Multiple Elemental Exposures Amongst Workers at the Agbogbloshie Electronic Waste (E-Waste) Site in Ghana, 2016.

[69] Grant et al., Health consequences of exposure to e-waste: a systematic review, 2013, p. 353.

hyperactivity, and schizophrenia. In extreme cases, water can become so highly polluted that it can disintegrate metal in a matter of hours.[70]

The environmental impacts of these chemicals do not only affect the workers at the disposal sites.[71] Chronic air, water, and soil pollution can do irreversible damage to regional biodiversity.[72] As plants draw their nutrients from the soil and water, they absorb the chemical pollutants and pass them up the food chain to humans and animals.[73] Lead, mercury, and other toxic substances released as a part of the recycling process very often exceed the international standards of acceptable concentrations. Mercury poses danger to humans and the environment when integrated into a water system, such as a river or lake.[74] There, bacteria transform the mercury into a more toxic compound, which then biomagnifies in the water and is once again ingested by plants, animals, and humans. Acidification can also kill marine and freshwater organisms, causing a chain reaction of disrupted ecosystems that extends far from the original recycling operation.[75] The informal nature of recycling operations and lack of oversight make long-term data on the concrete environmental and health impacts of remains difficult to collect and examine.[76]

Gaps and Opportunities

One of the greatest challenges in addressing the responsible disposal of hazardous materials is understanding the full scope of the issue, which is difficult to do without proper data and information.[383] The transboundary movement of waste is prohibited, yet waste does travel from the country of origin to other countries for disposal. One reason why waste is difficult to track is that many countries classify tech as "used electronics," which is equipment intended to be refurbished and reused in the country of import, when reporting on the kinds of waste being moved across borders. These items are not reused but disposed of through irresponsible methods. During the BAN campaign to track waste, the study found that 93% of the electronics tracked were illegally exported from developed states to developing states where no proper disposal was undertaken. Although the BAN initiative provided some data, it was only one project piloted for a short time. 80% of the world's electronic and hazardous waste is still unreported or mislabeled, meaning that there can be no accountability for producers, importers, exporters, and recyclers.[77]

Aside from the broader issue of where waste comes from and where it goes, there is the problem of disposal itself.[78] For transitioning and emerging economies, there are three main barriers to the successful implementation of sustainable practices with economic benefit, which are: policy and legislation, technologies and technical capabilities, and business and finance models.[79] Many regulatory frameworks have legal loopholes that allow for the informal recycling sector to be unregulated, unstandardized, and problematic. Some countries have no laws on e-waste altogether. Without mandatory regulatory mechanisms, the specialized knowledge required to operate responsible recycling facilities cannot be transferred between states or individual recycling

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[73] Srigboh et. al., Multiple Elemental Exposures Amongst Workers at the Agbogbloshie Electronic Waste (E-Waste) Site in Ghana, 2016.

[74] UN Environment, Global Mercury Assessment: Sources, Emissions, Releases and Environmental Transport, 2013.

[75] University of Washington, WEEE: Waste Electrical and Electronic Equipment, 2016.

[76] Heacock et. al., E-waste and Harm to Vulnerable Populations: A Growing Global Problem, 2016, p. 550. [383] United Nations University et al., Global E-Waste Monitor, 2017, p. 44.

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operations.[80] Although there are new models for safe disposal, there is a lack of cooperation between urban and local authorities, regional bodies, the international system, and business sector stakeholders, which makes regulation an ongoing challenge.[81]

In line with SDG 8 on decent work and economic growth, transitioning the informal recycling sector to a formal, green economy can be achieved through innovation and entrepreneurship in micro-, small-, and medium-sized enterprises.[82] Urban mining, for example, is an economic model that aims to eliminate waste by recovering and reusing valuable materials. Urban mining is the practice of reclaiming metals and other valuable components to reuse them as secondary resources.[83] Overall, the UNU estimates that 55 billion euros of raw materials have been consumed in e-waste and could be recovered.[84] Insufficient resources and a lack of proper management systems limit the recovery to only 25% of such valuable materials in electronic products.[85] Reclaiming these metals mean they can then be resold, creating a circular economic model with economic incentive to properly manage waste. This can both reduce the demand on the environment for raw material mining and transform the recycling and disposal sector into a market for green jobs.

Technical capability is another barrier to implementing responsible recycling models due to the complex design of the products themselves.[86] Electronics are designed with toxic and non-toxic materials fixed together in complex ways, making separation and reclamation difficult. The more difficult this process is, the more labor intensive and technologically advanced recycling is. To counter this challenge, the principle of Extended Producer Responsibility (EPR) was developed by the Organization for Economic Cooperation and Development (OECD), which assigns responsibility to producers during the full life-cycle of a product.[87] Fundamentally, EPR encourages technology manufacturers to consider the environmental impact of their product from design to manufacturing to disposal in order to improve waste management and recycling.[88] Some states have successfully implemented EPR legislation and programs. However, integrating the principle into both the informal recycling sector and existing programs has proved difficult.[89] Insufficient financial contributions, the increasing volume of technology, and a lack of regulation and enforcement have made EPR compliance inconsistent.

Batteries are one product that poses significant challenges for proper disposal.[90] The chemical composition of batteries classifies them as a particularly hazardous form of waste, having a significant environmental impact both during their creation and end-of-life disposal.[91] Batteries are often imbedded into electronic equipment and consumed at a high rate. While building batteries with toxic substances such as mercury and lead-acid is closely regulated, these materials still pose a threat to humans and the environment. In response, Umicore, a materials technology and recycling group involved in chemicals, electronics, and precious metals, worked to address some of these challenges.[92] In 2006, Umicore launched a battery-recycling program to recover

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[80] UN Environment, Waste Management in ASEAN Countries.
[81] ILO, The Global Impact of E-waste: Addressing the Challenge, 2012, p. 12.
[82] United Nations University et al., Global E-Waste Monitor, 2017, p. 55.
[83] ITU et al., Sustainable management of waste electrical and electronic equipment in Latin America, 2016, p. 8.
[84] United Nations University et al., Global E-Waste Monitor, 2017, p. 52.
[85] Heacock et. al., E-waste and Harm to Vulnerable Populations: A Growing Global Problem, 2016, p. 551.
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[87] OECD, Extended Producer Responsibility, 2000.
[88] ITU et al., Sustainable management of waste electrical and electronic equipment in Latin America, 2016, p. 28.
[89] ITU et al., Sustainable management of waste electrical and electronic equipment in Latin America, 2016, p. 28.
[90] Umicore, Battery Recycling, 2018.
[91] ITU, Toolkit on environmental sustainability for the ICTs sector, 2012, p. 90.
[92] Umicore, About Us, 2018.

valuable materials, reuse them in rechargeable batteries, and decrease the amount of hazardous substances that would otherwise be released through improper disposal.[93]

Conclusion

Electronic and hazardous waste is the world's fastest growing waste stream, and implementing ways to mitigate the negative effects to humans and the environment during their disposal is a global challenge.[94] UN Environment has taken the lead in coordinating efforts within the international system to address the issue, as can be seen with the Basel Convention, Minamata Convention, and the StEP Initiative, but there are still significant barriers to the successful implementation of these regulations and frameworks. There are many opportunities for public and private sector involvement, and delegates can recommend action on the various challenges presented by e-waste disposal from a variety of angles. With the complex, heterogeneous nature of hazardous and electronic waste, delegates should consider how to incorporate the wide range of relevant SDGs, global partners, technical experts, and local communities into their discussions.[95]

Questions to Answer

In conducting further research on this topic, delegates should consider the following questions:

1. Which other UN bodies and international stakeholders can create partnerships to address the vast challenges this topic presents?
2. How can the SDGs help raise awareness and incorporate solutions to fight against the negative impacts related to electronic and hazardous waste?
3. What mechanisms can UNEA recommend actors adopt to facilitate tracking transboundary transports of chemicals and e-waste?
4. What can be done to improve international regulation and compliance?
5. What role can the international community play to support implementation of sound disposal plans in developing states?
6. What steps can UNEA recommend improving waste disposal methods to prevent negative health effects to workers and communities?
7. What measures can be taken to mitigate environmental damage and biodiversity loss?
8. How can the private sector become more engaged in EPR and life-cycle eco design?

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Global E-Waste Statistics Partnership. (2017). The Global E-waste Monitor 2017: Quantities, Flows, and Resources [Report]. Retrieved 5 July 2018 from:
https://collections.unu.edu/eserv/UNU:6341/Global-Ewaste_Monitor_2017__electronic_single_pages_.pdf
The 2017 edition of the Global E-waste Monitor aims to raise awareness of the potential threats and opportunities posed by e-waste across the world in relation to the SDGs. The report covers global and regional consumption and management trends, legislation, and e-waste statistics. Delegates may be particularly interested in the section on urban mining and the creation of

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[93] Umicore, Battery Recycling, 2018.
[94] United Nations University et al., Global E-Waste Monitor, 2017, p. 2.
[95] ITU et al., Sustainable management of waste electrical and electronic equipment in Latin America, 2016, p. 2.

circular economic models to transition illegal recycling operations into formal small- and medium-business enterprises to understand the opportunities and challenges faced by entrepreneurs.

International Labour Organization. (2012). The Global Impact of E-waste: Addressing the Challenge [Report]. Retrieved 7 July 2018 from: http://www.ilo.org/wcmsp5/groups/public/---ed_dialogue/--sector/documents/publication/wcms_196105.pdf
This report explores the labor, health, and environmental concerns of e-waste workers, especially for vulnerable populations and those in the informal sector. To demonstrate the dangerous conditions of e-waste workers, the report provides an overview of the complex chemical substances found in electronics and created as by-products of unsafe disposal. The report explores the health and environmental impacts of these substances with a focus on vulnerable populations including children, pregnant women, and minorities. The set of recommendations at the end of the report draws upon brief case studies and is an informative place for delegates to further their understanding of the technical side of the issue and develop solutions.

International Telecommunications Union. (2016). Sustainable management of waste electrical and electronic equipment in Latin America [Report]. Retrieved 9 July 2018 from: https://www.uncclearn.org/sites/default/files/inventory/integrated_weee_management_and_disposal-395429-normal-e.pdf
This report discusses global sustainable e-waste management in the context of Latin America. The recommendations are likewise focused on management practices specific to the region. After a review of the international framework, the report discusses the ewaste situation in 10 Latin American states and provides an assessment of the regional management challenges. Specifically, the report calls for precise legal action, clear governance mechanisms, increased consumer knowledge of the risks of e-waste disposal, a higher level of technical capability, and the integration of sustainable economic models for environmentally sound e-waste management in the region. Delegates would benefit from this regional overview of the situation specific to Latin America as well as the sustainable management recommendations found at the end of the report.

Solving the E-Waste Problem. (2014). One Global Definition of E-waste [Report]. Retrieved 7 July 2018 from: https://i.unu.edu/media/ias.unu.edu-en/news/3774/StEP_WP_One-Global-Definition-of-Ewaste_20140603.pdf
This document is a good introduction for delegates to understand the complexity of the definition of "e-waste" and other terms crucial to ensuring proper disposal. This brief report also introduces some international action guidelines and frameworks, such as the EU's WEEE Directive. Most importantly, this document provides the baseline definitions that are used throughout the international community, which should be considered as delegates think critically about the topic.

Solving the E-Waste Problem. (2016). Evaluation of Reuse Opportunities within WEEE Compliance Schemes [Report]. Retrieved 9 July 2018 from: https://www.itu.int/en/ITU-T/climatechange/resources/Documents/Global-ortal/Step_GP_Reuse%20Potential_final.pdf
This report examines reuse and recycling potential through two case studies in the United Kingdom and Belgium. Throughout the analysis, the report focuses on overviews of each waste management system, factors contributing to their successes, and barriers within each system. The report concludes with a set of recommendations on the future of addressing e-waste management. In this document delegates can find an overview of the more technical reporting aspects on this topic, contextualizing the difficulties in data collection and compliance throughout the world.

United Nations Conference on Environment and Development. (1992). Agenda 21 [Outcome Document]. Retrieved 3 August 2018 from https://sustainabledevelopment.un.org/outcomedocuments/agenda21 Chapter 20 of Agenda 21 outlines four program areas that address hazardous waste. Each program area provides the basis of action, objectives, activities, and means of implementation that frame the issue and provide details on how to minimize waste and protect the environment to the greatest possible extent. The four program areas look at minimizing hazardous waste, strengthening institutional capacity, promoting international cooperation, and preventing illegal trafficking. Each program area will help to guide delegates in their research by providing further background on each objective along with the substantive implementation mechanisms that will inspire future solutions.

United Nations Environment Management Group. (2017). United Nations System-wide Response to Tackling E-Waste [Report]. Retrieved 4 July 2018 from: https://unemg.org/images/emgdocs/ewaste/EWaste-EMG-FINAL.pdf Published by the Issue Management Group on Tackling E-Waste, this report provides a comprehensive overview of the role of the international system in addressing global ewaste. After providing a discussion on the global e-waste challenge and its relationship to specific SDGs, the report identifies the role of UN entities with expertise involved in ewaste management, notable partnerships and collaborations, and global initiatives. The involvement analysis is followed by a set of recommendations, including increased collaboration with the private sector, adopting the electronic life-cycle principle, addressing security issues regarding the transport of e-waste, and increased coordination between UN entities. This report highlights the complex nature of the topic and the various actors involved by providing key information on e-waste and the SDGs, international and regional frameworks, and areas for improvement.

United Nations Environment Programme. (2017). Waste Management in ASEAN Countries [Report]. Retrieved 4 July 2018 from: https://wedocs.unep.org/handle/20.500.11822/21134 This summary report highlights the country-specific waste management data of 10 ASEAN countries, including generation, common practices, governance, gaps, and recommendations. E-waste is identified as an emerging waste stream and is measured against a set of management goals for each country. The report follows with an individual assessment of policy, programs, technology, and institutional capabilities. The recommendations relevant to e-waste management provide strategic measures for policy and regulation, institutional and technical performance, funding and financing, life cycle design, and stakeholder collaboration. This resource provides a detailed overview of the political and administrative aspects of e-waste management in the ASEAN region and provides delegates with resources for further research.

United Nations, General Assembly, Seventieth session. (2015). Transforming our world: the 2030 Agenda for Sustainable Development (A/RES/70/1). Retrieved 6 August 2018 from http://undocs.org/A/RES/70/1 The 2030 Agenda is a foundational document for the current direction of United Nations and the international system. The 2030 Agenda for Sustainable Development consists of 17 Goals specified into169 targets. Delegates would benefit from familiarizing themselves with the comprehensive range of the goals to understand how they intersect between issues, the United Nations system, and in the greater international context. With analytical and creative thinking, delegates will be able to apply numerous goals and targets to their work on this topic.

United Nations Secretariat of the Basel Convention. (2011). Basel Convention Milestones [Website]. Retrieved 6 July 2018 from: http://basel.int/TheConvention/Overview/Milestones/tabid/2270/Default.aspx While the

Basel Convention is a comprehensive and highly technical document, the Secretariat has compiled a list of historical milestones to both provide a historical context and introduce related initiatives or bodies. This source refers to the developments the Basel Convention has seen since its inception nearly three decades ago. Delegates can look to this website to find a clear timeline of events relating to the Basel Convention and other related international frameworks. In their research, delegates can be guided by the resources on the website to understand the scope and direction of various aspects of the topic.

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