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TOXIC COLONIALISM IN REVERSE

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ABSTRACT

The exponential growth of the human population in the last 5 decades has been accompanied by an increase in consumption of food and natural resources. The result of this has been a proportionate increase in waste production. In the 1980's, fast-expanding municipalities in the Global North turned to illegal exportation of their cities' waste as a solution to curtail the shortage of waste-storage infrastructure. The result of this is Toxic Colonialism, in which this waste is illegally moved to countries in the Global South with inadequate resources, knowledge, infrastructure, and policies to prevent this practice. The emergent multi-billion-dollar illegal International waste-trade has exacerbated this problem by incentivizing criminal actors to engage in the practice. The main problem lies in that additional pollutants are introduced into Global South environments with no safe method of disposal, to the detriment of those communities. This article posits that shifting to Waste-to-Energy in fact provides a solution to this problem, by facilitating a way for Global South countries to accept waste from other nations and use these pollutants to fuel their energy sector with a sustainable source of renewable and clean energy.

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INTRODUCTION

In 1966, Jamaican poet, folklorist, and activist Louise Bennett penned the poem "Colonization in Reverse."[1] The poem provides a vibrant and witty, analytical perspective of the ironic mass-migration of Africo-Jamaicans to the United Kingdom during the Windrush era.[2] Her poem implicitly suggests that this migration is a willful and aggressive act that arose as cultural retribution for the bloodstained history of colonialism and slavery in the Caribbean.[3] While removing the subtext of willful aggression, this article will, similarly, be a poignant assessment Global-North/Global-South country relations through the scope of systemic oppression and harmful colonialism. Specifically, the article proposes that establishing a legal framework that facilitates and regulates waste importation in Global-South countries from Global-North countries can curtail the rampant illegal waste trading that currently transpires. The

[1] *Colonization in Reverse*, POETRY BY HEART *https*://www.poetrybyheart.org.uk/poems/colonization-in-reverse-2/ (last accessed May 14, 2022).
[2] *Short History of Immigration*, BBC http://news.bbc.co.uk/hi/english/static/in_depth/uk/2002/race/short_history_of_immigration.stm (last accessed May 13, 2022).
[3] ASHLEY DAWSON, MONGREL NATION: DIASPORIC CULTURE AND THE MAKING OF POSTCOLONIAL BRITAIN (2021).

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article will also highlight the socio-economic and environmental benefits that Global South countries may enjoy, should they begin to use their own pollution, as well as the Global North's, to generate a sustainable, renewable energy source to address the energy poverty that is often rife within these regions.

Toxic Colonialism was defined in 1992 by Jim Puckett as the export of toxic waste from the West to "third-world countries" for disposal. Affected communities typically lack the resources, knowledge, political organization, or capital to resist the practice.[4] In the 1980s, developed nations began tightening legislation surrounding waste disposal and health standards.[5] As a result, in order to avoid their own environmental regulations and the high cost associated with them, wealthy nations began to export their rubbish to developing nations.[6] Rather than managing and containing their own plastic and hazardous waste, developed nations exported it by the container load to developing nations, which lacked adequate facilities to store or dispose of it.[7] In the 1980s a new term was coined to describe this practice: "Waste colonialism".[8] On August 31, 1986, Liberian cargo ship *Khian Sea* was loaded with more than 14,000 tons of ash from waste incinerators in Philadelphia, Pennsylvania.[9] The company subcontracted to ship the waste intended to dump the ash in the Bahamas, however the Bahamian government refused the shipment.[10] Over the next 16 months, and after a failed return to Philadelphia,

[4] T.V. Reed, *Toxic Colonialism, Environmental Justice and Native Resistance in Silko's Almanac of the Dead*, 34 MELUS 25, (2009).
[5] Shona Warren, *Asia Stands up to 'Waste Colonialism*,' THE DIPLOMAT (June 20, 2019), https://thediplomat.com/2019/06/asia-stands-up-to-waste-colonialism/.
[6] *Id.*
[7] *Id.*
[8] *Id.*
[9] WILLIAM P. CUNNINGHAM & MARY A. CUNNINGHAM PRINCIPLES OF ENVIRONMENTAL SCIENCE AT # (2004).
[10] *Id.*

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the ship's crew arrived in Haiti.[11] Once in Haiti, the *Khian Sea* unloaded approximately 4,000 tons of ash onto the beaches of Gonaïves before environmentalists were able to inform Haiti of the potential risks.[12] The Haitian government ordered the ship to reload the ash, however, the ship had slipped away.[13] The abandoned ash is believed to have killed fish, marine life, goats, and other animals grazing in the area, and adversely impacted the health of the estimated 5,000 people living nearby.[14] The ship's captain later testified that the crew used a front-end loader to dump the ash overboard, part of it into the Atlantic Ocean and part in the Indian Ocean.[15]

As noted above, excessive land pollution often has detrimental effects on the health of communities to which it is exposed. Decades of illegal practices of waste dumping and consequent environmental abuse have made the Campania region of Southern Italy a unique case in the context of waste-related health outcomes.[16] Scientific evidence is mounting in support of a significant increase in cancer mortality and malformation occurrence in specific areas of the Campania region, where improper waste management and illegal waste trafficking have been repeatedly documented.[17]

During the last few decades, electronic waste has raised a great concern in most of the developed- and in developing countries.[18] Large quantities of e-waste represent

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[11] *Id.*
[12] Bob Corbett, *The full story of the Khian Sea and the Gonaives ash mountain*, WEBSTER U. (Sep. 5, 2000), http://faculty.webster.edu/corbetre/haiti-archive/msg05049.html; *see also* Mark Jaffe, *Garbage Barge (Khian Sea)*, PHILADELPHIA ENCYCLOPEDIA (2016), https://philadelphiaencyclopedia.org/essays/garbage-barge-khian-sea/.
[13] CUNNINGHAM *supra* note 5 at #.
[14] Rich Winkel, *US refuses to remove Philadelphia's toxic ash from Gonaives*, HARTFORD HWP (Nov. 17, 1995), http://www.hartford-hwp.com/archives/43a/259.html.
[15] Jaffe *supra* note 6.
[16] Maddalena Barba et. al, *Wasting lives: The effects of toxic waste exposure on health. The case of Campania, Southern Italy, Cancer Biology & Therapy*, 12 CANCER, BIOLOGY & THERAPY 106, # (2011).
[17] *Id.*
[18] *See generally* Samuel Abalansa et. al, *Electronic Waste, an Environmental Problem Exported to Developing Countries: The GOOD, the BAD and the UGLY*, 13 SUSTAINABILITY 5302 (2021).

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an emerging environmental problem, as electrical and electronic waste equipment already constitutes more than 5% of municipal waste and is still growing fast in the developed countries.[19] The e-waste has raised great concerns as many components in these products are hazardous, toxic and non-biodegradable.[20] Globalization of e-waste has adverse environmental and public health implications as the developing countries face economic challenges and lack the infrastructure for proactive management of hazardous wastes.[21] What is known is that the pollution generated by e-waste handling and processing brings about toxic or genotoxic effects on the human body, threatening the health not only of workers but also of current residents and future generations living in the local environment.

Energy services underpin almost all aspects of human activity.[22] Energy security is the ability to access adequate, affordable, reliable, and diverse energy sources required for a country's development needs.[23] Conversely, Energy Poverty is described by lack of access to one or several types of basic energy services, including electricity, clean cooking fuels, and adequate means of transportation.[24] This lack of modern energy services stifles income-generating activities and hampers the provision of basic services such as health care and education.[25] In addition, smoke from polluting and inefficient cooking, lighting, and heating devices kills an estimated four million people a year and

[19] Shamim Ahsan et. al, *E-Waste Trading Impact on Public Health and Ecosystem Services in Developing Countries*, 5 INT'L J. WASTE RESOURCES 188, # (2015).
[20] *Id.*
[21] *Id.*
[22] Ambuj D. Sagar et. al, *Climate Change, Energy, and Developing Countries*, 7 VT. J. OF ENV'T L. 71, # (2013). [hereinafter CLIMATE CHANGE, ENERGY AND DEVELOPING COUNTRIES 2013].
[23] *Id.*
[24] *Id.*
[25] *Id.*

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causes a range of chronic illnesses and other negative health impacts.[26] These emissions are also important drivers of climate change and local environmental degradation.[27] Lack of access to energy services poses as a serious hindrance to social and economic development. Access to basic electricity provides further access to clean water, healthcare, and sanitary living conditions as well as transportation and telecommunication.[28] Insufficient and unreliable power can also constrain industrial production.[29] An estimated 940 million people – 13% of the global population – did not have access to energy in 2016.[30] A further estimated 95% of these people live in rural sub-Saharan Africa or developing Asia.[31] Predominantly rural areas in developing countries do not have modern energy infrastructure and have relied heavily on traditional biomass such as wood, charcoal, crop residual, pellets and the like.[32] The lack of modern energy infrastructure like power plants, transmission lines, and underground pipelines to deliver energy resources such as natural gas, petroleum are beyond the financial reach of these communities.[33] The most immediate energy priority for many developing countries is to expand access. Providing safe, clean, reliable and affordable energy to

[26] *Id.*
[27] *What is Climate Change?*, UNITED NATIONS, https://www.un.org/en/climatechange/what-is-climate-change (last accessed May 13, 2022).
[28] *Defining energy access: 2020 methodology*, IEA (Oct. 13, 2020), https://www.iea.org/articles/defining-energy-access-2020-methodology.
[29] *World Energy Assessment Overview: 2004 Update*, UNITED NATIONS DEV. PROGRAM (Nov. 28, 2015), https://www.undp.org/publications/world-energy-assessment-overview-2004-update.
[30] Hannah Ritchie & Max Roser, *Access to Energy*, OUR WORLD IN DATA https://ourworldindata.org/energy-access (last accessed May 14, 2022).
[31] *Id.*
[32] *Id.*
[33] Sagar *supra* note 22

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those who currently have no access is widely viewed as critical for advancing other development objectives.[34]

This article theorizes that sovereign developing states have the ability to control and curtail illegal waste trading by creating and implementing a stringent regulatory framework which allows for the legal trade of very specific forms of toxic waste to be used to convert to Energy. The Waste-to-Energy model for renewable energy has, in the past, waivered in its credibility.[35] This has been due to previous practices which yielded a carbon-heavy bi-product.[36] Throughout the last decade, however, great strides have been made to modernize the industry, and provide carbon-neutral, efficient ways of converting the planet's increasing waste into clean, renewable energy – one form of which will be discussed is Renewable Natural Gas (RNG).[37] In the article, Ethiopia's Waste-to-Energy plant will be used as the model for other developing nations, assessing the strengths, weakness, scale, and transferability of the infrastructure and underlying regulatory framework for the operation of the Waste-to-Energy plant.

This article posits that, given the infrastructure and the legal foundation, the benefit of safely accepting the Global North's Waste at a cost, can have substantial benefits financially and to public health. This article aims to highlight the advantages of this model and outline the regulatory and infrastructural process successfully utilized by

[34] *Sustainable Energy for Developing Countries*, THE ACADEMY OF SCIENCES FOR THE DEV. WORLD (2008), https://twas.org/sites/default/files/sustainenergyreport.pdf.
[35] *Energy from Waste: A Guide to the Debate*, UK DEP'T OF ENV'T & RURAL AFFAIRS (Feb. 2014), https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/284612/pb14130-energy-waste-201402.pdf.
[36] *Id.*
[37] *See generally* Fang Wang et. al, *Technologies and perspectives for achieving carbon neutrality*, 2 THE INNOVATION (2021).

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other countries with an honest look at their respective climate impact. The International community may then use this information for future waste policy and decision making.

I. AN ASSESSMENT OF THE CRIME OF TOXIC COLONIALISM

Human population has doubled over the last 50 years, now approaching eight billion.[38] Along with population growth, the world has witnessed a proportional increase in consumption of food and natural resources.[39] As a result, there has been an increase of waste production.[40] The intensity of consumption and overall quality of life varies greatly by country though, sometimes creating an unequal power dynamic that may allow more economically developed countries to take advantage of those struggling to provide basic needs.[41] The export of hazardous wastes and garbage from wealthier nations to less developed regions accelerated dramatically beginning in the 1980s and 1990s.[42] The process of globalization and the liberalization of international trade policies coupled with tighter environmental regulations and the rising cost of legal waste disposal in developed nations precipitated a North to South trade in hazardous wastes. Much of this trade is illicit—as much as 500 million tons of hazardous waste is produced each year, with perhaps 35–40 million tons per year crossing international borders.[43] The

[38] Andrew Hwang, *7.5 billion and counting: How many humans can the Earth support?*, THE CONVERSATION (July 9, 2018), https://theconversation.com/7-5-billion-and-counting-how-many-humans-can-the-earth-support-98797.
[39] *See generally* Wolfgang Lutz et. *al, Population, Natural Resources, and Food Security: Lessons from Comparing Full and Reduced-Form Models*, 28 SUPPLEMENT: POPULATION AND ENV'T: METHODS OF ANALYSIS 199 (2002).
[40] ⁎
[41] John K. Powell, *Transboundary Shipment of Waste: Threats of War, Toxic Colonialism, and Memories*, AM. BAR ASS'N (July 31, 2019), https://www.americanbar.org/groups/environment_energy_resources/publications/wrr/20190730-transboundary-shipment-of-waste/.
[42] Emily Benson, *The Basel Convention: From Hazardous Waste to Plastic Pollution*, CSIS (Oct. 7, 2021), https://www.csis.org/analysis/basel-convention-hazardous-waste-plastic-pollution.
[43] Don Liddick, *The traffic in garbage and hazardous wastes: an overview*, 13 TRENDS IN ORGANIZED CRIMES 134, 135 (2010).

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environmental and social consequences of the illicit traffic in garbage and hazardous wastes are prodigious and global in scope. Just one of countless examples that highlight the impact of the problem is the Pacific Ocean "garbage patch," a swirling vortex of plastic waste estimated to be twice the size of the state of Texas.[44] Even when international regulations are implemented, new markets soon appear. For example, the 1991 Bamako Convention banned the import of hazardous waste into various African, Caribbean, and Pacific nations, but traffickers adapted by switching routes and destinations to China and Eastern Europe.[45] The problem is exacerbated by weak or non-existent environmental laws in developing nations, and corruption at high levels of government.[46] For example, in Guinea, government officials and the Norwegian ambassador were implicated in a hazardous waste trade deal (Clapp 1994). In sum, the economic incentives for illegal waste disposal are large, while the incentives for safe disposal are minimal.[47] The environmental and social consequences of waste trafficking are greatest on the Earth's poorer nations. For example, in 1991, in the midst of famine and war, Somalia received a waste disposal proposal that was originally accepted by the health minister of the deposed government.[48] The official was allegedly offered a large bribe for accepting the contract.[49] The deal was believed to have been canceled, but several European waste trading firms agreed to pay the Somali government $80 million

[44] *The Great Pacific Garbage Patch*, OCEAN CLEANUP https://theoceancleanup.com/great-pacific-garbage-patch/#:~:text=ESTIMATION%20OF%20SIZE,times%20the%20size%20of%20France.&text=To%20formulate%20this%20number%2C%20the,elaborate%20sampling%20method%20ever%20coordinated (last accessed May 14, 2022).
[45] Liddick *supra* note 43 at 136.
[46] *Id.*
[47] *Id.*
[48] *Id.* at 137.
[49] *Id.*

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to take 500,000 metric tons of waste over 20 years.[50] The firms stood to make $8–10 million per shipment.[51]

One of the more severe problems associated with hazardous waste is the increasing amount of global electronic waste (e-waste), including computer components, cell phones, and cathode ray tubes.[52] When disposed of improperly, e- waste poisons land and water with a number of toxins, including lead and cadmium. Perhaps 4 million tons of e-waste is produced annually.[53] Of the 20 million to 50 million metric tons of e-waste generated annually, it is estimated that 75 to 80% of that is shipped to developing countries especially in Asia and Africa for "recycling" and disposal.[54] Several studies have reported that a majority of the e-waste was being exported to China and India.[55] Moreover, other identified hot spots for e-waste destinations are Thailand, Philippines, Vietnam Ghana, Nigeria and Kenya.[56] However, the handling and recycling techniques in these countries are often primitive and there is a little esteem for worker's safety or environmental protection, which are illegal under the Basel Convention of 1992 or any other existing national environmental legislations.[57]

Recently, Filipino President Rodrigo Duterte made international headlines when a Canadian company shipped nearly 2,500 tons of waste to the Philippines without securing the proper import permits or permissions. When the more than 100 containers

[50] *Id.*
[51] Liddick *supra* note 43 at 137.
[52] *Id.*
[53] *Id.*
[54] *Id.*
[55] Monika and Jugal Kishore, *E-Waste Management: As a Challenge to Public Health in India*, 35 INDIAN J CMTY. MED. 382, 382 (2010).
[56] Devin Perkins et. al, *E-Waste: A Global Hazard*, 80 ANNALS OF GLOBAL HEALTH 286, 290 (2014).
[57] Liddick *supra* note 43 at 137.

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arrived in Manila in 2013 and 2014, they were mislabeled as recyclable plastics, only to be later discovered as containing household waste, newspapers, and even diapers.[58] Just days earlier, Malaysia announced it was shipping 450 tonnes of imported plastic waste back to its sources, including Australia, Bangladesh, Canada, China, Japan, Saudi Arabia and the United States.[59] China had long received the bulk of scrap plastic from around the world.[60] In 2019, however, it closed its doors to foreign refuse in an effort to clean up its environment, causing other Southeast Asian nations to become new destinations.[61] China's decision to refuse all public refuse presents a poignant example to outline the opportunity this article proposes.

A. CHINA

China is aiming to go one step further by focusing its efforts on converting waste into energy at never-before-seen levels. The latest and impressive project aimed at contributing to this goal can be found at the mega-plant that is being built in the city of Shenzhen.[62] Chinese cities produce more waste than any other city in the world. In the case of Shenzhen and, according to SHL, the company behind the project, the city has to deal with around 15,000 tons of waste every day.[63] Furthermore, the problem is not

[58] Ahsan *supra* note 11 at #.
[59] *Philippines' Duterte loses patience, orders trash shipped back Canada*, REUTERS (May 22, 2019), https://www.reuters.com/article/us-philippines-canada-waste-idUKKCN1SS14D.
[60] Aaron Mak, *Why Does Half of the World's Used Plastic End Up in China?*, SLATE (June 21, 2018), https://slate.com/technology/2018/06/why-china-import-half-world-used-plastic.html.
[61] Aarushi Jain, *Trash Trade Wars: Southeast Asia's Problem With the World's Waste*, COUNCIL OF FOREIGN REL. (May 8, 2020), https://www.cfr.org/in-brief/trash-trade-wars-southeast-asias-problem-worlds-waste.
[62] *Philippines' Duterte in War of Words Over Canada Garbage Row*, YAHOO NEWS (Apr. 23, 2019), https://news.yahoo.com/philippines-duterte-war-words-over-canada-garbage-row-163711625.html.}
[63] Jaime Ramos, *The Chinese Dilemma of Waste-to-Energy Plants*, TOMORROW CITY (Mar. 9, 2021), https://tomorrow.city/a/the-chinese-dilemma-of-waste-to-energy-plants.

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just about existing waste practices, but also what to do with future waste. The increase in the population of Shenzhen means that waste generation will increase by around 7% each year.[64] Dozens of protests and lawsuits that have sprung up in China in recent years over the spread of waste-to-energy incineration plants, a technology that the central government and regional authorities view as essential to dealing with China's rapidly growing solid waste problem.[65] As China's economy has boomed in recent decades, the amount of garbage and solid waste generated in the country has soared from roughly 30 million tons in 1980 to 200 million tons today, most of it winding up in ill-tended landfills around major cities.[66] Those landfills are at or near capacity, spawning illegal waste dumping and burning.[67] The World Bank estimates that by 2025, China's solid waste generation will double to more than 500 million tons annually.[68] Those opposing the construction of the Shenzhen East Waste-to-Energy Plant – which will produce enough electricity to power roughly 100,000 apartments – fear the facility will emit high levels of dioxins and other toxins.[69] As opposed to using traditional incineration methods for Waste-to-Energy, renewable natural gas (RNG) could play a unique and valuable role in China's decarbonization efforts.[70] Unlike the carbon-heavy process of incineration, RNG is produced from various biomass sources through a biochemical process, such as anaerobic digestion, or through thermochemical means such as

[64] *Id.*
[65] *Philippines ships 69 containers of dumped rubbish back to Canada*, AL JAREEZA (May 31, 2019), https://www.aljazeera.com/news/2019/5/31/philippines-ships-69-containers-of-dumped-rubbish-back-to-canada.
[66] Michael Standaert, As China Pushes Waste-to-Energy Incinerators, Protests Are Mounting, Yale Env't 360 (Apr. 20, 2017), https://e360.yale.edu/features/as-china-pushes-waste-to-energy-incinerators-protests-are-mounting
[67] Ramos *supra* note 63.
[68] *Id.*
[69] Standaert *supra* note 66.
[70] *Id.*

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gasification.[71] The production and use of renewable natural gas made from organic waste is growing rapidly in the United States. [72] In the last five years, the number of production facilities has grown about threefold, with about 115 facilities making the fuel — which is interchangeable with fossil natural gas — out of landfill waste, animal manure, wastewater, food waste and other organic feedstocks.[73] Due to the potential benefits of renewable natural gas as an alternative to fossil fuels, a handful of states including California, Washington and Oregon have integrated it into climate goals.[74]

II. ETHIOPIA AS A GLOBAL MODEL

As part of its plan to attain middle-income country status by 2025, the Ethiopian government has set an ambitious target to reach universal coverage of electricity and become a power hub for East Africa by 2030.[75] In recent years, Ethiopia has become a regional leader in solid waste management.[76] Waste to Energy facility are being built in Ethiopia.[77] The country transformed the Koshe dump site, the only landfill in Addis Ababa, into a new waste-to-energy plant.[78] For half a century, the Koshe dump site has

[71] *Id.*
[72] Tom Cyrs & John Feldman, *7 things to know about renewable natural gas*, GREENBIZ (Jan. 7, 2021), https://www.greenbiz.com/article/7-things-know-about-renewable-natural-gas.
[73] *Renewable Natural Gas as a Climate Strategy: Guidance for State Policymakers*, WORLD RESOURCES INST. (Dec. 17, 2020), https://www.wri.org/research/renewable-natural-gas-climate-strategy-guidance-state-policymakers.
[74] *Renewable Natural Gas Production*, ALTERNATIVE FUELS DATA CTR. https://afdc.energy.gov/fuels/natural_gas_renewable.html (last accessed May 13, 2022).
[75] Mesfin Tafesse et. al, *Electricity regulation in Ethiopia: overview*, THOMSON REUTERS (Oct. 1, 2020), https://uk.practicallaw.thomsonreuters.com/w-028-1702?transitionType=Default&contextData=(sc.Default)&firstPage=true.
[76] *Ethiopia enhances environmental protections through waste management*, UNITED NATIONS ENV'T PROGRAM (Sep. 24, 2019), https://www.unep.org/news-and-stories/story/ethiopia-enhances-environmental-protections-through-waste-management#:~:text=Chemicals%20%26%20pollution%20action-,Ethiopia%20enhances%20environmental%20protections%20through%20waste%20management,such%20project%20on%20the%20continent.
[77] *Id.*
[78] *Id.*

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been the only landfill in Addis Ababa.[79] As the city has expanded, the landfill – which used to lie on the outskirts of the Ethiopian capital – has become part of the urban landscape, sprawling over an area the size of 36 football pitches.[80] According to the article, a new waste-to-energy plant was set to transform the site and revolutionize the entire city's approach to dealing with waste.[81] The plant was set to incinerate 1,400 tons of waste every day – that's roughly 80 per cent of the city's rubbish – all while supplying Addis with 30 per cent of its household electricity needs and meeting European standards on air emissions.[82] The facility, which is the result of a partnership between the Government of Ethiopia and a consortium of international companies, is the first of its kind in Africa.[83] According to Ethiopian Government officials, "The Reppie project is just one component of Ethiopia's broader strategy to address pollution and embrace renewable energy across all sectors of the economy."[84] In August 2018, the plant began operations, effectively making it is the first waste-to-energy plant in Africa.[85] The plant incinerates up to 1,400 tons of waste every day—roughly 80 per cent of the city's rubbish—supplying the capital with 25 per cent of its household electricity needs.[86]

Unlike China, Ethiopia's municipal waste output is not enough to sustain the energy plant for long periods of time.[87] To their benefit, however, there are several developed nations seeking places to dispose of their municipal waste.[88] It follows, then, that

[79] *Ethiopia's waste-to-energy plant is a first in Africa*, UNITED NATIONS ENV'T PROGRAM (Nov. 24, 2017), https://www.unep.org/es/node/19776.
[80] *Id.*
[81] *Id.*
[82] UNITED NATIONS ENV'T PROGRAM *supra* note 76.
[83] UNITED NATIONS ENV'T PROGRAM *supra* note 79.
[84] *Id.*
[85] *Id.*
[86] UNITED NATIONS ENV'T PROGRAM *supra* note 76.
[87] *
[88] *

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Ethiopia has the capacity to legally accept waste from these nations at a cost, to be used in their Waste-to-Energy plant. Ethiopia's energy policy included the exportation of energy to surrounding East African nations to their economic advantage.[89] Analogous to Somali's 1991 agreement, this model would further enrich Ethiopia's energy economy through both importation and exporting their energy resources.[90]

Despite these important strides, challenges remain in Ethiopia. Although the country has ratified the Basel, Stockholm and Rotterdam conventions, legislation and policies for environmentally sound management of hazardous chemicals and wastes are still at a very early stage and not effective in preventing illegal dumping of waste as well as contamination of water, soil and air resources.[91] Ethiopia's current legislative framework, which, despite numerous advances in recent years, does not specifically target the importation, production, transport, use and disposal of hazardous waste.[92] While this is proving challenging for Ethiopia, this article proposes that Energy sectors of sovereignties construct underlying regulatory framework in tandem with the infrastructure. It is paramount that illegal waste disposal be addressed through a regulatory framework, specifying the parameters of legal waste-trade which facilitates the waste-to-energy technology being used. In addition to regulations and laws, it is also important that enforcement be strengthened, addressing criminal actors at all levels of the illegal waste trade. In efforts to accomplish this, and unlike Ethiopia, sovereignties would be required to update existing policies, strategies and regulatory frameworks,

[89] E.G. Woldegebriel, *Ethiopia to step up role as regional clean power exporter*, REUTERS (May 13, 2015) https://www.reuters.com/article/us-ethiopia-energy/ethiopia-to-step-up-role-as-regional-clean-power-exporter-idUSKBN0NY1EK20150513.
[90] *
[91] *Id.*
[92] *Id.*

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particularly enforcement mechanisms, which would be facilitated by both the reduced need of criminal actors to resort to illegal waste-trading given the legal channel provided, and the economic gain of the model affording receiving countries to finance the training and equipping of law enforcement to prevent the continued practice.

Ethiopia's current Energy sector is such that the country does not import electricity and uses 100% locally produced energy.[93] Ethiopia only imports fossil fuel products such as gasoil, kerosene, and heavy and light fuel.[94] Expanding access to electricity has been a priority focus for the government in recent years.[95] Policy, institutional and legislative reforms and infrastructure developments have been implemented to increase the capacity of the national grid.[96] Reform has been enacted to encourage private sector participation in electricity generation.[97]

Key energy legislation was revised in 2013, 2018 and 2019, and a Public Private Partnership Proclamation enacted in 2018.[98] Ethiopia exported electricity worth USD66 million in 2019/2020 through its high voltage connections to Djibouti and Sudan. Ethiopia aims to extend this interconnection to Egypt, Kenya and Tanzania by 2030 and become a power hub for the region.[99] Ethiopian energy policy sees regional energy interconnection as an opportunity to use its large hydropower and other renewable energy sources to stabilize the geopolitics of the region. It is also a source of foreign currency. [100]

[93] Tafesse *supra* note 75.
[94] *Id.*
[95] *Id.*
[96] *Id.*
[97] *Id.*
[98] *Id.*
[99] Tafesse *supra* note 75.
[100] *Id.*

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Even with an impressive Energy sector, there are still several regulatory and institutional challenges to developing renewable energy in Ethiopia.[101] As Ethiopia is relatively new to private development of energy sources, the legal and regulatory system is not robust.[102] Some sectors remain unregulated and lack detailed rules and guidelines.[103] The regulatory capacity of the EEA has not been strengthened to meet the growing demand and interest in the energy sector.[104] Nevertheless, having constructed and currently operating the continent of Africa's only waste-to-energy plant, and as the energy hub of East Africa, global south countries have a great deal from Ethiopia – its strengths and shortcomings.[105]

CONCLUSION

As environmental regulations tighten and the costs of legal disposal subsequently increase, opportunities for illicit traffickers in hazardous wastes will continue to expand[106] While regulatory and criminal justice efforts have been mostly ineffective, technological innovations that reduce waste and the costs of safe disposal may limit opportunities for waste traffickers[107]. The right mix of subsidies and taxation as well as monitoring and compliance at the local level could make legal disposal more attractive, and thus further inhibit criminal opportunities[108]. By converting waste into a clean energy resource, global-south nations are able to build a sustainable future. It is a

[101] *Id.*
[102] *Id.*
[103] *Id.*
[104] *Id.*
[105] *Id.*
[106] Cyrs *supra* note 33.
[107] *Id.*
[108] *Id.*

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structure that significantly benefits the environment, Public Health, and stimulates local economies through multiple facets. Toxic Colonialism in Reverse may be achieved through the facilitation of this model by the mechanism that encourages, enables, and allows for developed nations to dispose of their municipal waste at a cost to them, while simultaneously fueling these nations plagued with energy poverty due to their own exploitation.