

Dirty new natures: infrastructures and the global waste economy

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Giacomo Bonan, Katia Occhi (Eds.)

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Simone M. Müller

Dirty New Natures

Infrastructures and the Global Waste Economy

1 Introduction

The ash would no doubt bring progress to the village of Puerto Castilla, or so thought Edgardo A. Pascall, proprietor of Almacenadora Amodami, a one-size-fits-all construction and import company from San Pedro Sula, Honduras' commercial capital and second largest city. It would revive the small Honduran port city on the Caribbean Sea, where Christopher Columbus allegedly first set foot on the Central American mainland, and which had been a key port for the US American United Fruit Company until early in the twentieth century. In a letter to the Honduran National Port Authority, Pascall detailed the many benefits of importing up to 200,000 tons of incinerator ash from Philadelphia for this coastal region, which had been disconnected from larger national and international trade and travel networks for much of the twentieth century. By using the ash as landfill for the swamp and mangrove area around the port of Puerto Castilla, they could reclaim wetlands for road construction, eventually reaching isolated communities further inland. According to Pascall, the project would create jobs, revenues, and eradicate malaria. Although he did mention the potential contamination of the incinerator ash with heavy metals and trace chemicals, the Honduran businessman from San Pedro Sula almost entirely disregarded the potential environmental and health implications that might derive from using such materials for land reclamation in a wetland area. Instead, he expressed his sincere belief that his country would greatly “benefit from this project because [the] material afford[ed them] a good opportunity for stabilizing areas that currently present hostile environments”¹.

Using potentially hazardous waste to transform “hostile environments” into what would implicitly become “civilized” and manufactured landscapes, according to a Western model of progress, was a defining feature of the global waste economy and the unequal international trade of hazardous waste materials that had developed since the 1970s. The 1987 Honduran waste import scheme for incinerator ash from Philadelphia exemplifies hundreds of similar cases, when potentially hazardous waste from industrial countries like the United States was sent to what was then framed as “the developing world”. The story of US waste in Honduras as described in this chapter, illustrates how

¹ Translation of a letter from Edgardo A. Pascall to Jorge E. Cramiotis, General Manager, National Port Authority (Honduras), March 1987, Jim Vallette Private Archive.

Note: Research for this essay has been made possible through funding from the Germany Research Foundation (DFG).

the creation of infrastructures, and the conception of nature as being hostile to progress, became oddly intertwined with the globalization of hazardous waste, to create what the author calls “dirty new natures”.

“Dirty new natures” are emblematic both of the widening gap since the advent of modern environmentalism between greening industrial countries in the Global North and economically struggling countries of the Global South, and of the asynchronous nature of global environmental protection processes. They became fundamental components of an unequal trading system that allowed people in the Global North to safeguard their own health and environment at the expense of others far away. The same system forced people in the Global South to decide whether they would rather suffer from hunger and unemployment, or accept the detrimental effects of living alongside a hazardous-waste dump². In that sense, “dirty new natures” equally embodied a promise and a threat.

Infrastructures, here represented by roads and port facilities, together with human-made commercial lands that could be used to erect further transport and business facilities, played a key role in the production of “dirty new natures” all across the Global South. As the case of Puerto Castilla illustrates, infrastructures made those (hazardous) import schemes attractive for actors in Honduras despite their known trade-offs. The building, repair, or improvement of roads, railways, or port facilities became almost inseparably connected to trajectories of an American model of economic growth and prosperity in which ‘unused’ and even ‘dangerous’ wastelands, like the mosquito-prone mangrove wetlands surrounding Puerto Castilla, could be transformed into productive sites for commerce³. The wetlands, in turn, were reduced to a mere (re) source for local development to achieve (re)connection into global networks. This particular narrative of infrastructure and nature being mutually exclusive along Honduras’ path to progress appeared to overwrite any concerns for potential damage to the local environment and ultimately human health at remote and often disconnected places like Puerto Castilla. However, it happened at a time when the American model for this form of progress had come under scrutiny in the United States and in other parts of the industrialized world, creating an asynchronous relationship between importing and exporting nations.

2 S. Lessenich, *Living Well at Others' Expense: The Hidden Costs of Western Prosperity*, Cambridge 2019; J.W. Moore, *Capitalism in the Web of Life: Ecology and the Accumulation of Capital*, London / New York 2015.

3 They thus bought into a narrative of infrastructures, such as communication (telegraphy) and transport (railways, steam- and containerships) as gateways to globalization, which first appeared in the nineteenth century, see S.M. Müller, *Wiring the World. The Social and Cultural Creation of Global Telegraph Networks*, New York 2016; S.M. Müller / H.J.S. Tworek, *The Telegraphy and the Bank. On the Interdependence of Global Communications and Capitalism, 1866–1914*, in “Journal of Global History”, 10, 2015, 2, pp. 259–283; W. Schivelbusch, *The Railway Journey. The Industrialization of Space and Time in the 19th Century*, Leamington Spa 1986; M. Levinson, *The Box. How the Shipping Container Made the World Smaller and the World Economy Bigger*, Oxford 2008.

The observations in *Dirty New Natures: Infrastructures and the Global Waste Economy* draw inspiration from the work of cultural anthropologists Ashley Carse and Kegg Hetherington (and others), as set out in *Infrastructure, Environment, and Life in the Anthropocene*⁴. Both scholars emphasize how boundaries and gaps, like those between environment and infrastructure, are conceptual spaces and cultural artifacts that are highly charged with meaning and value. Focusing on the proposed import of up to 200,000 tons of incinerator ash from Philadelphia arriving in Puerto Castilla, the chapter teases out the competing narratives that populate this conceptual space between mangrove forests, incinerator ash, and construction space. This includes negotiations of environmental protection vs. economic development, or the value and meaning of mangrove forests as such.

The title of this chapter, *Dirty New Natures*, is an acknowledgement of the work of scholars in the fields of environmental history and the history of science and technology, that seek to build bridges between their respective fields in their analysis of “new natures” created at the crossing of technology and the environment⁵. While this chapter interprets infrastructures on wetlands as envirotechnical systems, its focus is primarily on the socio-cultural spaces emerging within such a system. This perspective highlights the power dynamics in play between Global North and South, but also between the Honduran center and periphery. It observes how asynchronous narratives and approaches to environmental protection and economic progress, combined with legacies of colonial exploitation, determined the waste transfer deal⁶.

The chapter covers the time period from the 1920s and the presence of the US company United Fruit Inc. at Puerto Castilla, until the 1980s and the emergence of the US waste traders. It begins with a short introduction to the mechanisms of the global waste trade and then teases out the asynchronous nature of the proposed deal, before ending with a discussion of wetlands and wastelands from a Honduran perspective. Overall, the chapter explains how actors in the global waste economy, both buyers and sellers, packaged their waste deals as essential to an American model of progress, built on the transformation of ‘wastelands’ by way of infrastructures, despite known ecological side-effects. It also underlines how this was done at a time when the very same model was already being questioned in some parts of the world, and it extrapolates how the hazardous waste deal was still attractive from an import perspective⁷.

4 K. Hetherington, *Infrastructure, Environment, and Life in the Anthropocene*, Durham NC 2019; A. Carse, *Dirty Landscapes: How Weediness Indexes State Disinvestment and Global Disconnection*, in K. Hetherington (ed.), *Infrastructure, Environment, and Life in the Anthropocene*, pp. 97–114.

5 D. Jørgensen / F.A. Jørgensen / S.B. Pritchard, *New Natures. Joining Environmental History with Science and Technology Studies*, Pittsburg PA 2013.

6 This makes it also a study of (global) environmental justice based on the works of S. Lessenich, *Living Well at Others' Expense* and D. Pellow, *Resisting Global Toxics: Transnational Movements for Environmental Justice*, Cambridge MA / London 2007.

7 On envirotechnical systems see S.B. Pritchard, *An Envirotechnical Disaster. Nature, Technology, and the Politics at Fukushima*, in “Environmental History”, 17, 2012, 2, pp. 219–243.

2 Growing pressure on the US waste system

Edgardo A. Pascall's letter to the Honduran National Port Authority in March 1987 was written during the heyday of unequal export/import schemes of hazardous waste materials globally. Modern environmentalism in the richer parts of the world had started in the 1970s and intensified over the 1980s giving birth to an ever stricter system of waste classification and disposal regulations. The combination of rising waste levels, increasing disposal costs, and conflicts about location of waste in industrial countries led waste traders to look South⁸. In the Greater Caribbean, Western Africa, or Southeastern Europe (and other places in the developing global South) hazardous waste regulations were less stringent or even non-existing. Meanwhile, the same areas were hungry for infrastructural development and foreign currency, with a perceived need to participate in global networks of trade and commerce in order to boost the local economy. All this made waste transfer a cheap and attractive trading scheme for both sides, albeit especially for the industrial countries⁹. The resulting global waste economy was often an amoral, but legal trading system based on a global patchwork of regulations regarding what constituted (hazardous) waste and its disposal, allowing traders to move waste down the most economic path for disposal.

This chapter singles out the United States, both as the largest producer of (hazardous) waste materials and most prolific trader of (hazardous) waste in the 1980s. Over the course of the twentieth century, the United States became the global leader in mass consumption and associated waste production¹⁰. According to estimates from the US Environmental Protection Agency (EPA) and the US General Accounting Office (GAO), the country's production of municipal solid waste (MSW) rose from 88.1 million tons in 1960 to 267.8 million tons in 2017. The hazardous waste output was between 264 million and 400 million tons annually in the 1980s alone. Today the country remains at the top of global per-capita waste charts, where it has been for almost six decades¹¹.

⁸ S.M. Müller, *Hidden Externalities. The Globalization of Hazardous Waste*, in "Business History Review", 93, 2019, 1, pp. 51–74.

⁹ For a list of unequal trading schemes, see J. Vallette / H. Spalding (eds.), *The International Trade in Wastes. A Greenpeace Inventory*, Washington DC 1990. For a historical perspective on global inequality in the postwar era see C.O. Christiansen / S. Jensen, *Histories of Global Inequalities. New Perspectives*, Cham 2019.

¹⁰ On the nexus between waste and consumption see S. Strasser, *Waste and Want. A Social History of Trash*, New York 2013.

¹¹ J. Karliner, "Backyard Dumping: Toxic Waste Export to the Third World" undated, *Delaware Valley Toxic Coalition Records*, Urban Archives, Temple University, Philadelphia PA; J. Goldstein, "Waste", in F. Trentmann (ed.), *The Oxford Handbook of the History of Consumption*, Oxford 2012, p. 336; United States Environmental Protection Agency, *National Overview: Facts and Figures on Materials, Wastes and Recycling*, <https://www.epa.gov/facts-and-figures-about-materials-waste-and-recycling/national-overview-facts-and-figures-materials#Trends1960-Today>, last accessed July 16, 2020.

In the face of massively growing trash heaps, waste emerged as an environmental and regulatory problem in the United States, and with the rise of modern environmentalism in the 1960s and 1970s, scientists, politicians, and citizen activist groups increasingly turned their attention to the issue¹². The potential health and environmental threats from leaking sanitary landfills or waste incinerators became a focus of attention and there was increasing public opposition to existing or potential waste disposal facilities near human settlements¹³. All across the United States people took to the streets to protest for better environmental and ultimately health protection from waste¹⁴.

The growing volumes of waste and public concern about disposal sites led to a major regulatory shift in the United States. This is crucial for understanding the dynamics of waste exports heading South and the asynchronous nature of the global waste economy. The 1976 Resource Conservation and Recovery Act (RCRA) was implemented in the United States in 1980, and combined with the HSWA Amendments of 1984, this greatly increased the number of waste export notifications¹⁵. Standards for the safe treatment, storage, and disposal of hazardous waste, together with an elaborate tracking system, came into force on November 19, 1980. The amended RCRA mandated state or regional waste management plans and established standards for sanitary landfills, as well as guidelines for upgrading existing open dumps¹⁶. Prior to RCRA, corporations producing hazardous waste had usually hired external haulers or chemical brokers to take the waste off their hands and free them of liability for the materials, for a small fee. Many states did not require permits for waste haulers to operate, and so anyone who owned or rented a truck could enter the business, and hazardous materials ended up wherever these freelance haulers dumped them¹⁷. After RCRA, waste

12 See for example M.V. Melosi, *Down in the Dumps: Is there a Garbage Crisis in America?*, in M.V. Melosi (eds.), *Urban Public Policy: Historical Modes and Methods*, University Park PA 2010; L. Blumberg / R. Gottlieb, *War on Waste: Can America Win Its Battle With Garbage?*, Washington DC 1989, or D. Sicotte, *From Workshop to Waste Magnet: Environmental Inequality in the Philadelphia Region*, New Brunswick 2016.

13 On waste siting: C.O. Uzo / A. Armour, *Post-Landfill Siting Perceptions of Nearby Residents. A Case Study of Halton Landfill*, in "Applied Geography", 20, 2000, 2, pp. 137–154, or B.G. Rabe, *Beyond Nimby. Hazardous Waste Siting in Canada and the United States*, Washington DC 1994.

14 For waste protests see J. Sze, *Noxious New York. The Racial Politics of Urban Health and Environmental Justice*, Cambridge MA / London 2007.

15 P.E. Rosenfeld / L.G.H. Feng, *Risks of Hazardous Wastes*, Oxford 2011, p. 1.

16 Environmental Protection Agency, *EPA's Program to Control Exports of Hazardous Wastes Report of Audit*, Washington DC 1988, 8; G.E. Louis, *A Historical Context of Municipal Solid Waste Management in the United States*, in "Waste Management & Research: The Journal for a Sustainable Circular Economy", 22, 2004, 4, p. 317; H.L. Hickman, *American Alchemy: The History of Solid Waste Management in the United States*, Santa Barbara CA 2003, pp. 70–73.

17 R. Nordland, *Poison at Our Doorsteps*, in "Philadelphia Inquirer", September 23, 1979.

producers had to differentiate between hazardous and non-hazardous waste and follow a strict protocol for the disposal of the new hazardous waste category¹⁸.

The new process was complicated and expensive for landfill operators and waste producers alike. Across the United States, the number of landfills fell by almost 50 percent compared to 1976 due to their failure to satisfy the new environmental standards. Between 1982 and 1987 around 2,700 landfills closed across the country¹⁹. As a consequence, problems of trash disposal became so severe that prices exploded and producers faced the prospect of paying double or even higher disposal costs²⁰. In 1978, landfill disposal of one ton of toxic material cost US \$ 2.50, but by 1987 this had risen to US \$ 200²¹. Costs for the landfill disposal of hazardous waste materials according to legal requirements soared to US \$ 2,500 per ton²². It soon became cheaper to consider international options for waste disposal.

3 US waste in the Greater Caribbean

As a result of soaring prices and public protests, US hazardous waste materials started going South as early as 1970, but this increased massively after RCRA came into effect in 1980. In 1979, for instance, Nedlog Technology Group of Colorado negotiated a deal with Sierra Leone worth US \$ 25 million if the country agreed to accept the company's hazardous waste for disposal and recycling²³. In 1980, the US company Arbuckle Machinery successfully shipped PCB waste to the Dominican Republic. In 1982, Stewards Environmental Systems attempted to sell hazardous waste from a nuclear plant to Haiti. Starting in 1986, thousands of tons of toxic furnace dust crossed the US-Mexico border on a regular basis for recycling. In 1987, Allied Technology negotiated the consignment of dioxin waste from Love Canal to Morocco. From 1986 onwards, Thor Chemicals and American Cyanamid exported around 120 drums of mercury-contaminated waste annually to South Africa²⁴. There was a direct correlation between the increasing resistance

18 C.E. Davis / J.P. Lester, *Hazardous Waste Politics and the Policy Process*, in C.E. Davis / J.P. Lester (eds.), *Dimensions of Hazardous Waste Politics and Policy*, New York 1988, pp. 2–3.

19 G.E. Louis, *A Historical Context of Municipal Solid Waste Management in the United States*, p. 317; C. Hilz / J.R. Ehrenfeld, *Transboundary Movements of Hazardous Wastes*, in "International Environmental Affairs", 3, 1991, 1, pp. 26–63, here p. 31.

20 R. Nordland, *In New Jersey the Trash Piles Runneth*, in "Philadelphia Inquirer", August 19, 1973.

21 B.D. Moyers / L. Bergman, *Global Dumping Ground*, with the assistance of Center for Investigative Reporting, October 2, 1990, p. 7.

22 P. Shabecoff, *Irate and Afraid, Poor Nations Fight Effort to Use Them as Toxic Dumps*, "New York Times", July 5, 1988.

23 L. Dash, *Sierra Leone Bristles with Economic Discontent*, in "Washington Post", July 14, 1980.

24 J. Vallette / H. Spalding, *The International Trade in Wastes: A Greenpeace Inventory*, Washington DC 1990, pp. 17–40.

to local waste disposal in the United States, and the number of waste export notifications, rising from 12 in 1980 to 570 in 1988²⁵. The scheme to export up to 200,000 tons of incinerator ash from Philadelphia to Puerto Castilla, Honduras was only one among hundreds.

In the case of Puerto Castilla, Edgardo A. Pascall's potential trading partners were the Bahamas based Amalgamated Shipping Corporation, which served as an extension of the US American company Coastal Carriers Corporation, based in Annapolis. Coastal Carriers was in turn a subcontractor for a local Philadelphian firm that had acquired a contract for the disposal of 200,000 tons of municipal incinerator ash from Philadelphia. Originally, Coastal Carriers and Amalgamated Shipping Corporation had secured a deal with Panama for the disposal of the material. However, increasing anti-Americanism in Panama had caused the Panamanian government of General Noriega to cancel the deal²⁶. Coastal Carriers were therefore looking for alternatives and they initiated negotiations with agents in the Bahamas, Cost Rica, Jamaica, the Cayman Islands, the Dominican Republic, Chile, and Honduras.

At the time, the Greater Caribbean was the primary destination for US waste traders aiming to find a bargain under the unequal trade relations. Waste destinations all shared a number of key characteristics, including unstable political systems as states transitioned from (military) dictatorships to civilian rule, weak or failing domestic economies still trying to overcome the Latin American debt crisis, and less strict or even nonexistent environmental, health, and labor protection regulations, all of which made the disposal of US hazardous waste materials economically attractive. Honduras in the 1980s was a typical case. It was generally perceived as the most moderate example in Central America's history of brutal repression, when class and political struggles were accompanied by extreme violence, but the country was nevertheless still struggling severely on several fronts in the 1980s. Civil wars in all of Honduras' bordering nations (Nicaragua, El Salvador, and Guatemala) challenged the state politically and militarily at a time when Honduras was transitioning from a military dictatorship to civilian rule over the course of the decade. By the mid-1980s, Honduras was stuck in an economic depression that made the country increasingly dependent on foreign currency, primarily in the form of US investments or foreign aid. Per capita income massively declined over the decade and only one in ten Hondurans had what could be described as a stable job. In response to the generally unstable political climate in Central America at the time, the United States increased its presence in Honduras, both in terms of financial support and military presence²⁷. In the face of these economic, political, and military

25 C. Hilz / J.R. Ehrenfeld, *Transboundary Movements of Hazardous Wastes*, p. 29.

26 T.A. Meade, *A History of Modern Latin America. 1800 to the Present*, Chichester UK / Malden MA 2009, p. 301.

27 T.L. Percy, *The History of Central America*, Westport, Conn. 2006, pp. 13–14; B. Sewell, *Intervention in Honduras*, in A. McPherson (ed.), *Encyclopedia of U.S. Military Interventions in Latin America*, Santa

challenges, environmental issues were largely ignored in Honduras. A general environmental law was only adopted in 1993, creating the Ministry of the Environment and other environmental institutions to encourage environmental protection in the country²⁸.

Alongside these socio-political aspects, there was also an ecological and an infrastructural perspective that drew waste traders to Greater Caribbean countries like Honduras: their coastal wetlands. These were seen as ideal locations for transforming unused, disease-prone wastelands into commercial land. As Coastal Carriers' representatives explained to Edgardo A. Pascall, the Americans were looking for "countries where there [were] disposal sites near a dock which must be filled in in order to improve humid health conditions"²⁹. Mangrove wetlands and swamps were characteristic of the coastlines from Honduras to Panama and from the Cayman Islands to Puerto Rico. There were also extensive and industrially undeveloped shorelines dotted with small ports that theoretically could enable access to global networks of trade, tourism, and migration. The remote Honduran village of Puerto Castilla with its port surrounded by mangroves and wetlands, a historically important landing point for the United Fruit Company, was a perfect fit for what the US traders were looking for.

By the mid-1980s, deals to reuse US dirt or waste to create new land and space for more people, businesses, and port facilities were widespread. Waste traders like Coastal Carriers had learned that their projects sold more easily if packaged together with an American model for modernization that included land-filling and ultimately infrastructures as a means to economic and social development in the importing region. Their sales packages drew on an old and pervasive practice that had been central to the industrial development of the US and other countries centuries earlier. All around the globe from medieval times onwards, people had felt the need to "drain wetlands and to fill them in so that they could build on them, grow crops on them, and build roads across them"³⁰. Filling marshes and swamps served "to convert a problematic or useless site into solid ground", and extending landfill into oceans and rivers "replaced what appeared to be an inexhaustible aquatic space with a more serviceable terrestrial one"³¹.

Barbara CA 2013, p. 293; T. Barry, *Central America Inside Out. The Essential Guide to Its Societies, Politics, and Economies*, New York 1991, p. 288.

²⁸ Pan American Health Organization, *Health in the Americas 1998. Honduras*, last updated in 2001, <https://www.paho.org/english/sha/prflhon.htm>, last accessed November 23, 2021.

²⁹ Translation of a letter from Edgardo A. Pascall to Jorge E. Cramiotis, General Manager, National Port Authority (Honduras), March 1987, Jim Vallette Private Archive.

³⁰ Berkshire Environmental Action Team, *A History of Wetlands Protection in the United States*, 2021, <https://www.thebeatnews.org/BeatTeam/history-federal-wetland-protection/>, last accessed November 25, 2021.

³¹ M.V. Melosi, *Fresh Kills. A History of Consuming and Discarding in New York City*, New York 2020, p. 35.

The benefits appeared obvious. The soil under wetlands is very rich in plant nutrients, making these human-made lands especially attractive for agriculture. Many coastal and riparian cities had successfully expanded by building on human-made land reclaimed with landfills. In the United States, the Swamp Land Acts of 1849, 1850, and 1860 turned federal land over to states that agreed to drain the land and so serve the massive US population expansion of the nineteenth century. About 1/3 of present day Manhattan and as much as 1/6 of Boston is reclaimed marshland filled with rubble, dirt, and waste. Around the world, parts of Amsterdam, Brussels, Dublin, Saint Petersburg, Helsinki, Beirut, Mumbai, Rio de Janeiro, Manila, and Singapore were constructed on human-made land. These policies led to a vast reduction in wetlands across the United States and by the late twentieth century the country had lost more than 50 percent of its wetlands overall, since the arrival of European settlers³².

4 An asynchronous system

Promoting the practice of land reclamation together with the export of hazardous waste US waste traders attempted to reproduce an American practice under entirely different conditions, both in time and materials. Coastal Carriers were promoting the ecological destruction of wetlands in Honduras and other countries in the Greater Caribbean, at a time when a variety of social actors in their own country no longer viewed them as wastelands, instead emphasizing their ecological importance as natural habitats, flood protection, shoreline erosion control, or natural water quality improvement zones. For centuries, people all around the world had treated wetlands as wastelands, useless impediments to human expansion and progress. Commencing in the 1960s, and underlined in 1971 with the UN Convention on *Wetlands of International Importance Especially as Waterfowl Habitats*, this perspective had started to shift fundamentally, at least in the industrial countries³³. In the United States, hunters and biologists had been arguing for the protection of wetlands as wildlife habitats since the 1900s, but they had remained outliers to the general discourse which continued to view wetlands as wastelands. This changed with modern environmentalism and 1970s legislation. The 1973 US Flood Disaster Protection Act, the 1976 Toxic Substances Control Act, and the 1977 Clean Water Act all supported the protection of wetlands in the United States against development, toxic substances, and other forms of water pollution. Also in 1977, US President

32 *Ibid.*; N.S. Seasholes, *Gaining Ground. A History of Landmaking in Boston*, Cambridge MA 2003; P.G. van den Ven (ed.), *Man-Made Lowlands. History of Water Management and Land Reclamation in the Netherlands*. International Commission on Irrigation and Drainage, Utrecht 1993. Berkshire Environmental Action Team, *A History of Wetlands Protection in the United States*.

33 R. Rattan et al., *Structure, Operations, and Relevance*, in P. Singh / S. Sharma (eds.), *Wetlands Conservation. An Up-To-Date Overview of Approaches for Addressing Wetlands Degradation and its Effects on Ecosystem Services, Human Health, and Other Ecosystems*, Hoboken NJ 2021, pp. 17–39.

Jimmy Carter ended federal support for wetland conversion (i.e. draining and filling). The first report on the nation's wetlands as habitats was published in 1982. In 1986, the Emergency Wetlands Resources Act required the Secretary of the Interior to produce updated reports on wetlands on a ten-year cycle³⁴.

The asynchronicity was exacerbated by the fact that US waste traders were promoting the filling of wetlands with potentially hazardous US waste materials, a radical change from the traditional rubble and dirt. This made it hard to compare earlier land reclamation projects in the United States with those planned for the Greater Caribbean. Up until the nineteenth century, US waste had been mostly organic, in the form of ash, food waste, animal carcasses, and sewage³⁵. The emergence of mass consumption at the turn of the twentieth century, with packaging, plasticization, the pervasiveness of oil based energy, and the electrification of the home radically altered consumption practices and waste production. By the late 1960s, United States waste had largely assumed the form we know today. On average, people produce about 1 kg of garbage each day, including paper products, packaging, bottles, cans, and food scraps, alongside increasing quantities of plastic³⁶.

A key development was the introduction of the new *hazardous* waste category. Particularly after World War II, the United States underwent a massive increase in the quantity and types of waste that posed a substantial threat to both human health and the environment³⁷. Petroleum-based organic chemistry enabled the manufacture of a host of new materials, including synthetic fibers, pesticides, wood preservatives, plastics, drugs, new paints, and solvents. Synthetic chemicals were used in a variety of new applications ranging from cyclic intermediates, to dyes, plasticizers, flavors, perfumes, and surface-active agents. Each of these new products and processes left behind diverse by-products, waste materials, and intermediate chemicals used for processing, all of which had to be disposed of and resulting in a massive new source of hazardous waste materials³⁸. Hazardous waste was also produced at the end of the commodity chain, for example in the process of waste incineration. Originally intended to greatly reduce the volume of waste, the incineration process potentially created even more highly toxic trace chemicals, dioxins and furans³⁹. Although at the time, US regulators did not yet

34 Berkshire Environmental Action Team, *A History of Wetlands Protection in the United States*, 2021; T.E. Dahl et al., *Wetlands, Status and Trends in the Conterminous United States, Mid-1970s to Mid-1980s*, US Department of the Interior, 1991.

35 J. Goldstein, "Waste", p. 329; S. Strasser, *Waste and Want: A Social History of Trash*, New York 2013.

36 T. McCarthy, *Auto Mania: Cars, Consumers, and the Environment*, New Haven CT 2007, pp. 66–72; J. Goldstein, "Waste", p. 335.

37 US EPA definition cited in P.E. Rosenfeld / L.G.H Feng, *Risks of Hazardous Wastes*, p. 1.

38 S.S Epstein / L.O. Brown / C. Pope, *Hazardous Waste in America*, San Francisco 1982, pp. 9–11; N. Langston, *New Chemical Bodies: Synthetic Chemicals, Regulation, and Human Health*, in A.C. Isenberg (ed.), *The Oxford Handbook of Environmental History*, Oxford 2014, p. 260.

39 Barry Commoner cited in Committee on Environment and Public Works, *Resource Conservation and Recovery Act Oversight*, 1987, p. 12.

classify incinerator ash as hazardous waste, the US Environmental Protection Agency were aware of the environmental and health risks associated with incinerator ash, especially if this material was used for landfilling in wetland areas, where it would easily disperse in the aquatic environment and enter the human food chain. National protests against waste incineration induced EPA administrators to investigate the topic in depth, also analyzing the ash produced by US cities⁴⁰. In relation to the ash from Philadelphia, they explicitly stated that using such materials for landfill in wetland areas could pose a “significant long-term health threat”, presenting a “reasonable potential for environmental damage and an increased risk of human cancer”⁴¹.

5 Waking Sleeping Beauty

The situation was framed differently in Honduras. Despite a potential environmental and health hazard looming on the horizon, Edgardo A. Pascall and his supporters, including Puerto Castilla’s port superintendent, Fredo A. Lopez, still found the American waste import proposal an attractive deal. Importantly, the Hondurans did not try to hide the toxicological information on US incinerator ash, and they were not unaware that incinerator ash could potentially contain toxicants beyond a critical threshold. This information was included in Pascall’s letter to the Honduran National Port Authority. The Honduran supporters of the deal chose to emphasize a different narrative, that the ash was “excellent material for landfill in low lying zones and swampy areas”. Philadelphia incinerator ash would “stabilize areas [. . .], eliminating swamps and watery areas which constitute breeding grounds for mosquitos [. . .] and in this way improve the health of the port farmers. [. . .] The port facilities [. . .] would be utilized thus bringing unforeseen revenues for the national port authority, creating new jobs in the process”. Finally, as part of the landfill project “an access road to Caserio Barranco Blanco would be improved”. Coastal Carriers would build this road and “create any other infrastructure necessary for the management of the landfill”⁴².

Anthropologist Ashley Carse has pointed out how people treat infrastructures as indices for a variety of other social, economic, and political phenomena⁴³. For Pascall in Honduras and many others in countries of the Greater Caribbean who supported

40 On protest against waste incineration see J. Sze, *Noxious New York. The Racial Politics of Urban Health and Environmental Justice*, Cambridge MA 2007.

41 Environmental Protection Agency, “EPA Flash Report”, Radio Haiti Papers, 1968–2003, Duke University Library, October 5, 1987.

42 Translation of a letter from Edgardo A. Pascall to Jorge E. Cramiotis, General Manager, National Port Authority (Honduras), March 1987, Jim Vallette Private Archive.

43 A. Carse, *Dirty Landscapes: How Weediness Indexes State Disinvestment and Global Disconnection*, in K. Hetherington (ed.) *Infrastructure, Environment, and Life in the Anthropocene*, pp. 97–114.

similar waste import schemes, the use of incinerator ash as landfill material was interwoven with their understanding of progress, and exhibited a desire to integrate their respective locations with the wider world. It was also significant that Edgardo A. Pascall was not from Puerto Castilla, but from San Pedro Sula, Honduras' commercial center.

The dream of development caught on easily in Puerto Castilla. In 1987, the community of Puerto Castilla resembled the Brothers Grimm story of Sleeping Beauty, it had fallen asleep decades ago and was waiting to be kissed back to life. Like the other communities approached by the waste traders during this decade, Puerto Castilla was a remote port village of only a couple of hundred people, offering some basic shipping infrastructure. In the 1980s it was practically disconnected from the world at large and was remote even by Honduran terms. Puerto Castilla is located about 20 kilometers north of Trujillo, the capital of the Colón Department of Honduras in the North of the country, and about 400 kilometers from San Pedro Sula, Honduras' commercial center where Pascall was from. The village sits on the inland side of a peninsula that forms the Bay of Trujillo and shelters the small shrimp fishing community from the heavy Atlantic waves and winds. The peninsula also forms a deep-water port, which distinguishes this settlement from other Honduran coastal villages. At Puerto Castilla, the water drops abruptly to a depth of 20 feet, making the port suitable for relatively large ships. Strategically located on the northern Atlantic shore of Honduras, almost facing Havana, Puerto Castilla appeared to be a place that could be quickly and inexpensively re-connected into larger, global networks of commerce and travel, once again becoming an important port of entrance for foreign goods and investments coming into Honduras⁴⁴.

Imagining Puerto Castilla as a major Honduran port connected with international trade networks was not unrealistic considering the history of the settlement. Originally famous as the place where Christopher Columbus allegedly first set foot on the Central American mainland, it was fortified by the Spanish during the colonial period⁴⁵. Later, the village enjoyed a short economic boom as an outpost of the trade empire of the United Fruit Company in the early part of the twentieth century. United Fruit, a US based producer and trader of tropical fruits for export to the United States, opened its facilities in Puerto Castilla in 1919⁴⁶. The company was originally founded in Boston in 1899 and had become the largest employer in Central America by the

44 M. Holleman, US Peace Corps, *The Americas. Puerto Castilla*, in "Peace Corps Times. Focus Honduras", July August 1988, 9.

45 L. Lemus, *Castilla, historico pueblo hondureno sumido en el abandono*, in "Laprensa", May 24, 2014, <https://www.laprensa.hn/honduras/regionales/712393-98/castilla-hist%C3%B3rico-pueblo-hondure%C3%B1o-sumido-en-el-abandono>, last accessed November 27, 2021; *Encyclopedia Britannica*: "Puerto Castilla", <https://www.britannica.com/place/Puerto-Castilla>, last Accessed November 27, 2021.

46 J. Colby, *The Business of Empire*, Ithaca NY 2019.

early 1930s. It owned or leased properties in Honduras, Costa Rica, Guatemala, Panama, Colombia, Cuba, Jamaica, and other countries in Central and South America, and the West Indies. In many of these countries United Fruit was more than simply an employer, often taking on the traditional responsibilities of states, such as building infrastructures. The company cleared and planted undeveloped tracts of land, created extensive railroad and port facilities, and operated a large steamship service known as “The Great White Fleet”⁴⁷. When United Fruit expanded in Honduras in the early twentieth century, incorporating lands around the ports of Tela and Puerto Castilla, it brought one of its engineers over from Guatemala to build a railroad, improve the ports, and clear the land for plantations⁴⁸. The United Fruit Company set up the Truxillo Railroad Company as a subsidiary to exploit the contracts and concessions it had recently received from the Honduran government. The American company began the construction of the railroad in 1913, reaching Puerto Castilla, the final destination of the 96-kilometer line starting in Olanchito in August 1921. Olanchito is the capital of the Honduran department of Yoro and its wealthy citizens viewed the railroad connection to Puerto Castilla and its port as symbolizing a quick and easy route to the United States of America. Puerto Castilla was transformed once again into a nodal point of global networks, as it had once been under Spanish rule⁴⁹.

Little remained of these prospects for Puerto Castilla after United Fruit left the area in the late 1930s. The company closed down its facilities as a result of Panama disease, a blight on the roots of banana trees. Along with its port facilities in Puerto Castilla, United Fruit also abandoned the railroad it had built two decades earlier, leaving Hondurans to deal with an increasingly deteriorating infrastructure, which they eventually dismantled. By 1952, the once busy port stood almost entirely abandoned⁵⁰. In the 1940s, the Honduran government moved the village east along the peninsula to allow American forces to establish a small naval base beside the port of Puerto Castilla to support the Allies in their fight against Nazi Germany. At the time, the Allies believed Nazi Germany was planning an attack on the Panama Canal and so Puerto Castilla was incorporated into a defensive ring around the Caribbean and Central America⁵¹. However, for the local community, the obligatory move only produced a significant deterioration in their lives. The Honduran National Port Authority, which took over the port from the villagers, had promised that it would build 250

47 Harvard Business School Archives, United Fruit Company, <https://www.library.hbs.edu/hc/pc/large/united-fruit.html>, last accessed November 27, 2021.

48 J. Colby, *The Business of Empire*, p. 124.

49 Mario Posas Industrias, *Monografía de Olanchito*, 1993, cited in “Olanchito: La Era del Ferrocarril”, <http://ferrocarrilhonduras.synthasite.com/truxillo-railroad-company.php>, last accessed July 1, 2022.

50 La Era de la Ferrocarril, <http://ferrocarrilhonduras.synthasite.com/truxillo-railroad-company.php>, last accessed November 26, 2021; US Hydrographic Office, *Sailing Directions for the East Coasts of Central America and Mexico*, US Government Printing Office, 1957.

51 https://en.wikipedia.org/wiki/Puerto_Castilla,_Honduras.

decent houses and give villagers work. Four decades later, none of this had happened and the people were still waiting for a modern sewage system⁵². Edgardo Pascall travelled from San Pedro Sula to visit Puerto Castilla in February 1987, the same year that the US Peace Corps started community based projects there. He described a poor and underdeveloped region suffering from massive unemployment, poverty, ill-health, and a general lack of infrastructure⁵³. When the American company Coastal Carriers Inc. approached Pascall and the Honduran National Port Authority with a project that included the infrastructural development of Puerto Castilla, it seemed like a perfect opportunity.

However, it was an opportunity that perpetuated the relationships between Honduras and various western countries established during three-hundred years of colonialism. In this relationship, the foreign powers, starting with Spain and culminating with the United States, assumed the role of developing land by constructing infrastructures like fortifications, roads, ports, and railroads, in the place of the Hondurans and their local government. The relationship also required that these infrastructures be paid for through the exploitation of Honduran nature and resources. During the colonial period, the Spanish had extracted vast riches from the country and traditionally the Caribbean coastal lowlands around Puerto Castilla had been Honduras' most exploited region because of its wealth of tropical fruits, forests, and seafood⁵⁴. Under the regional control of the United Fruit Company, Puerto Castilla was the largest port for tropical fruit exports from Honduras to the United States. After World War II there was a relatively quiet period for Puerto Castilla, during which US exploitative relations with the Greater Caribbean were redefined. Loans from Washington were used to plan and finance a shift towards extensive monocultures of rubber, rice, bananas, coffee, cacao, and abaca, as the United States recolonized almost the entire Greater Caribbean. Under titles like "Development Aid", "Green Revolution", or "Technical Cooperation", countries in the region witnessed the modernization of their agriculture and infrastructure according to a US model, which aimed at an important, mandatory step towards modernity, but not always to the real benefit of the host countries⁵⁵. The potential importation of Philadelphia incinerator ash in 1987 marked the return of the Americans to Puerto Castilla, exploiting Honduras' environment for the disposal of their hazardous waste.

52 M. Holleman, US Peace Corps, *The Americas*; Lemus, *Castilla*.

53 Translation of a letter from Edgardo A. Pascall to Jorge E. Cramiotis, General Manager, National Port Authority (Honduras), March 1987, Jim Vallette Private Archive.

54 E. Echeverri-Gent, *Geography*, in T. Merrill (ed.), *Honduras: A Country Study*, Washington DC 1995, pp. 66–74.

55 N. Cuvi, *Big Science and the Enchantment of Growth in Latin America*, in "Global Environment", 10, 2012, pp. 16–41, here pp. 17–18.

6 Wetlands as wastelands and hostile nature

The neocolonial interpretation falls short of capturing all the dimensions of the waste import story. The land around the port of Puerto Castilla, which the Hondurans were considering allowing the US waste traders to use for waste disposal, was land they themselves regarded as useless. Throughout the country wetlands and mangrove forests came under threat in the 1980s. People used them for waste disposal or filled them to create agricultural or commercial land. One of the key stressors on Honduras' mangroves and wetlands was the mass expansion of aquaculture and large-scale shrimp farms, producing for export. This development was strongly supported by the Honduran government in an effort to boost exports and improve the economy. By 1987, income from the export of shrimps cultivated in aquaculture ranked third, after coffee and bananas, in total export earnings for Honduras. As a consequence of this policy, the Gulf of Fonseca in southern Honduras became the second largest producer of farmed shrimps in the Western Hemisphere, with enormous large-scale shrimp cultivation sites that attracted many Hondurans into the area. The expansion of shrimp farms into Honduras' wetlands had serious consequences for the environment, although this was mostly disregarded at the time. The shrimp farms resulted in destruction of habitats, blocking of estuaries, and rechanneling of rivers. This generated ecological imbalances and the consequent destruction of flora and fauna. Shrimp farmers were reported to be using the pesticide Rotenone to eliminate unwanted species in ponds, leading to a massive loss of fish stocks. Other factors contributing to the widespread loss of mangrove forests and wetland areas in Honduras over the course of the 1980s included increased sedimentation caused by erosion at higher elevations, a decade of drought, El Nino conditions, and pollutants from uncontrolled use of pesticides⁵⁶. Since 1980, Honduras has lost about 85,000 ha of mangrove forests⁵⁷.

At Puerto Castilla, the situation differed since there was no large-scale shrimp aquaculture, but it was similar in the sense that people shared the general disregard for wetlands and mangrove forests. Writing about communities on Paraguay's rural frontier, Anthropologist Gregg Hetherington observed that infrastructural investments can materialize the promise of development by "slotting the landscape along a narrative of progress". In such narratives, according to Hetherington, infrastructures often symbolize "that which holds nature and culture apart, marking a temporal break be-

⁵⁶ S. Stonich, *Development, Rural Impoverishment and Environmental Destruction in Honduras*, in M. Painter / W.H. Durham (eds.), *The Social Causes of Environmental Destruction in Latin America*, Ann Arbor 2001, pp. 63–92, here pp. 80–85.

⁵⁷ Food and Agriculture Organization of the United Nations, *The World's Mangroves, 1980–2005*, FAO 2007, 32.

tween chaos and order”⁵⁸. As if demonstrating Hetherington’s point, Edgardo A. Pascall perceived Puerto Castilla in terms of just two things: the port and the swamp⁵⁹.

Puerto Castillo stands on the northern side of the Bay of Trujillo, with Trujillo itself on the southern side. A shallow channel in the eastern side of the bay leads to a large sheltered lagoon. The coastline is low, wooded, and swampy and the environment around Puerto Castilla includes mangroves and lagoons, periodically flooded grasslands, and lowland savannas. The coastal climate is tropical with a rainy season from June to December⁶⁰. Most Hondurans refer to the region simply as “the coast”, in contrast to the more mountainous area just south of Trujillo. Thanks to its mangroves, Puerto Castilla is ideal for fishing, and shrimps provide the primary livelihood for the villagers. Coastal mangrove swamps are critical nursery grounds and refugia from predation for penaeid shrimps, spiny lobsters, and more than 200 species of fish⁶¹. However, good fishing was only one aspect of Puerto Castilla’s mangroves.

With the region’s wet climate and months-long rainy season, the mangroves around Puerto Castilla were also ideal breeding grounds for mosquitos and sand flies, both vectors for a number of serious diseases, including pappataci fever and malaria. Already in the 1920s, the United Fruit’s Medical Department identified the region as disease-ridden. In their annual reports to headquarters, medics pointed out how the area around the United Fruit facilities at Puerto Castilla, which they had established on a low sandy point originally covered with a tidal mangrove swamp, provided ideal breeding grounds for sandflies and mosquitos. During the wet season, the rain formed numerous shallow puddles of stagnant water throughout the town, where sandflies in particular could live and breed. Moving through the mangrove swamps or in the dense and humid patches of forest surrounding the town, one would be “frequently attacked by so-called ‘wild mosquitos’”⁶². The United Fruit medics reported that the sand flies caused “intolerable itching” and a feverish condition that could “seriously interfere with health”, but they were particularly worried about the mosquitos and malaria. Despite taking various measures that included working in screened quarters, chemical repellants, and a mosquito-free bar, 43.2 percent of United Fruit’s workers contracted malaria⁶³. Five years later, Edgardo

58 K. Hetherington, *Waiting for the Surveyor. Development Promises and Temporality of Infrastructure*, in “Journal of Latin American and Caribbean Anthropology”, 19, 2014, 2, pp. 195–211, here pp. 197–198.

59 Translation of a letter from Edgardo A. Pascall to Jorge E. Cramiotis, General Manager, National Port Authority (Honduras), March 1987, Jim Vallette Private Archive.

60 Ecoregional Workshop: A Conservation Assessment of Mangrove Ecoregions of Latin America and the Caribbean. 1994. Washington DC, World Wildlife Fund. <https://www.worldwildlife.org/ecoregions/nt1426>, last accessed November 26, 2021; US Hydrographic Office, *Sailing Directions for the East Coasts of Central America and Mexico*, US Government Printing Office, 1957.

61 A.M. Ellison / E.J. Farnsworth, *Anthropogenic Disturbances of Caribbean Mangrove Ecosystems: Past Impacts, Present Trends, and Future Predictions*, in “Biotropica”, 28, 1996, 4/A, pp. 549–565, here p. 551.

62 United Fruit Company, Medical Department. *Annual Report*, 1924, pp. 200–202.

63 *Ibid.*, p. 50.

A. Pascall agreed with the American waste traders about trying to “improve health conditions”, and emphasized health concerns when talking about the wetlands of Puerto Castilla and the Greater Caribbean in general. The area around Puerto Castilla supposedly had one of the highest malaria levels in the world at the time. This severely impacted the health of local fishermen and the economic progress and well-being of the region as a whole⁶⁴.

The focus on mangroves as a refuge for mosquito-borne disease, rather than as the habitat providing the primary livelihood for the fishermen, transformed Puerto Castilla’s ecosystem into a “hostile environment” that was severely harming the local community. Following this logic, the area’s coastal wetlands and breeding ground for sand-flies and mosquitos needed to be eliminated. Already in 1924, United Fruit’s medics had concluded that, “to eliminate such possible breeding grounds [like that of stagnant water], there appears to be no other method than to cover the loose sand as much as possible”⁶⁵. Edgardo A. Pascall echoed these words when he argued that Puerto Castilla’s swamps needed to be “filled” with incinerator ash, “in order to improve humid health conditions”⁶⁶.

7 Conclusion

In the spring of 1987, the US American waste trader Coastal Carriers approached the remote and impoverished community of Puerto Castilla, in Honduras, with a proposal packaging waste disposal with land reclamation and ultimately infrastructural development, economic growth, and improved health. Up to 200,000 tons of Philadelphia incinerator ash would be used to drain and fill the ‘hostile’ disease-prone wetlands surrounding Puerto Castilla, creating human-made land for the expansion of the derelict village port and the construction of roads going inland from the coast, while helping to eradicate malaria in the region by drying out the ideal mosquito breeding grounds. The waste import-land reclamation project would ultimately reconnect Puerto Castilla with the world at large, after being largely abandoned and forgotten during much of the twentieth century.

This waste import proposal is a representative example for the many other similar waste deals offered to places like Puerto Castilla in the Greater Caribbean or West Africa, exemplifying both the dynamics of the global waste economy as a system founded on inequalities and asynchronicities, and the allure of an American model of progress that

⁶⁴ Translation of a letter from Edgardo A. Pascall to Jorge E. Cramiotis, General Manager, National Port Authority (Honduras), March 1987, Jim Vallette Private Archive.

⁶⁵ United Fruit Company, Medical Department, *Annual Report*, 1924, p. 200.

⁶⁶ Translation of a letter from Edgardo A. Pascall to Jorge E. Cramiotis, General Manager, National Port Authority (Honduras), March 1987, Jim Vallette Private Archive.

portrayed development as incompatible with nature and environmental protection. With their ash deal, the US American waste traders not only attempted to export incinerator ash from Philadelphia to Honduras, but also an associated western practice of land reclamation based on an understanding of wetlands as wastelands in need of improvement. For centuries, urban and agricultural growth in much of the Western world and its colonies had depended on conversion of wetlands into cultivated and commercial land by draining and landfilling. It is nevertheless noteworthy that the Americans attempted to sell this particular product for achieving American style modernity, after the same process had already begun to be criticized at home. In the 1980s waste materials and wetlands were viewed differently in the United States than in Honduras. In the United States, waste was strictly regulated and controlled, while wetlands were increasingly protected from environmental pollution, land degradation, and commercial exploitation. As exporters, the Americans were continuing the colonial relationship of exploitation of Honduras' natural resources, in this case seeking land for waste disposal.

From the Honduran perspective the story was more complicated. The main actors there remained attracted to the waste import deal because it embodied the American model of progress, and notwithstanding more recent contemporary concerns expressed in the United States about the nature of waste incinerator ash and the importance of wetlands. As this chapter reveals, they did so not through lack of knowledge of potential detrimental environmental effects of using incinerator ash to landfill a wetland area, but because they gave precedence to a different narrative. In this narrative, development was at odds with the environment, seeing nature as something that needed to be overcome for the sake of economic growth, and wetlands solely as dangerous landscapes harboring mosquitoes and sandflies, the vectors of serious diseases that needed to be eliminated. A national policy that generally targeted the nation's wetlands and mangrove forests in order to promote large-scale aquaculture, provided an overall framework for this narrative.

Ultimately, Philadelphia's incinerator ash did not end up in Honduras, but in Go-naives, Haiti, a place that shared many of the structural features of Puerto Castilla. Why exactly the deal with Puerto Castilla was not concluded remains unclear. The community's aspiration to develop their port was nevertheless achieved, and today Puerto Castilla is the largest container port in Honduras in terms of total tonnage transferred⁶⁷.

⁶⁷ Avalon Travel, *Moon Central America*, Emeryville CA 2016.