COMMUNITIES IN THE ASIA PACIFIC REGION

Whitney Kingsolver

FOOTNOTES

- 1. "Anthropogenic Definition & Meaning," *Merriam-Webster*, accessed November 16, 2022, https://www.merriam-webster.com/dictionary/anthropogenic.
- Mustafa Özgür et al., "Cytotoxic Effects of Bisphenol A as an Endocrine Disruptor on Human Lymphocytes," *Iranian Journal of Toxicology* 15, no. 2 (2021): 115–120, http://dx.doi.org/10.32598/IJT.15.2.753.1.
- 3. "Endocrine Disruptors," *National Institute of Environmental Health Sciences*, accessed November 16, 2022, https://www.niehs.nih.gov/health/topics/agents/endocrine/index.cfm.
- Anna (Anya) Phelan et al., "Ocean Plastic Crisis—Mental Models of Plastic Pollution from Remote Indonesian Coastal Communities," *PloS One* 15, no. 7 (2020): e0236149, https://doi.org/10.1371/journal.pone.0236149.
- 5. Riki Gunn, Britta Denise Hardesty, and James Butler, "Tackling 'Ghost Nets': Local Solutions to a Global Issue in Northern Australia," *Ecological Management & Restoration* 11, no. 2 (2010): 88, https://doi.org/10.1111/j.1442-8903.2010.00525.x.
- 6. "Overview of Greenhouse Gases," *United States Environmental Protection Agency*, accessed December 16, 2022, https://www.epa.gov/ghgemissions/overview-greenhouse-gases.
- "What are Microplastics?" National Ocean Service, National Oceanic and Atmospheric Administration, accessed December 9, 2021, https://oceanservice.noaa.gov/facts/microplastics.html.
- 8. Ibid.
- 9. Ibid.
- **10.** "What Is PET Plastic?" *Budget Branders*, December 15, 2019, https://budgetbranders.com/blog/what-is-pet-plastic/.
- 11. Sabine Rech, Yaisel J. Borell Pichs, and Eva García-Vazquez, "Anthropogenic Marine Litter Composition in Coastal Areas May be a Predictor of Potentially Invasive Rafting Fauna," *PLoS One* 13, no. 1 (2018): e0191859, https://doi.org/10.1371/journal.pone.0191859.
- Indonesia: The Single Sachet Problem," DW, April 20, 2022, https://www.dw.com/en/indonesia-the-single-sachet-problem/video-59933724.
- **13.** "Single-Use Plastics," *European Commission,* accessed November 16, 2022, https://environment.ec.europa.eu/topics/plastics/single-use-plastics_en.
- Ben Purvis, Yong Mao, and Darren Robinson, "Three Pillars of Sustainability: In Search of Conceptual Origins," Sustainability Science 14, no. 3 (May 2019): 681–695, https://doi.org/10.1007/s11625-018-0627-5.
- 15. Suad Bećirović, Skenderovic Ibro, and Bećir Kalač, "Environmental Pollution and Waste Management," *Balkan Journal of Health Science* 3, no. 1 (January 2015), https://www.researchgate.net/publication/282278985_Environmental_pollution_and_waste_management.
- 16. Chettiyappan Visvanathan and J. Trankler, "Municipal Solid Waste Management in Asia: A Comparative Analysis," *Workshop on Sustainable Landfill Management* (December 2003): 6, https://www.researchgate.net/profile/Chettiyappan-Visvanathan/publication/242220878 Municip

- al_Solid_Waste_Management_in_Asia_A_Comparative_Analysis/links/546df5120cf2bc99c2150 4dd/Municipal-Solid-Waste-Management-in-Asia-A-Comparative-Analysis.pdf.
- 17. Bećirović, Ibro, and Kalač, "Environmental Pollution and Waste Management."
- **18.** Visvanathan and Trankler, "Municipal Solid Waste Management in Asia: A Comparative Analysis," 5.
- **19.** Hannah Ritchie and Max Roser, "Plastic Pollution," *Our World in Data*, September 1, 2018, https://ourworldindata.org/plastic-pollution.
- **20.** Ibid.
- 21. Elizabeth R. Selig et al., "Measuring Indicators of Ocean Health for an Island Nation: The Ocean Health Index for Fiji," *Ecosystem Services* 16 (December 2015): 403–412, https://doi.org/10.1016/j.ecoser.2014.11.007.
- 22. Matthew S. Savoca, Alexandra G. McInturf, and Elliott L. Hazen, "Plastic Ingestion by Marine Fish Is Widespread and Increasing," *Global Change Biology* 27, no. 10 (2021): 2188, https://doi.org/10.1111/gcb.15533.
- 23. Yeremia Hotmartua Sihombing, "Indonesia and the Sea," *Strategic Review*, accessed October 11, 2022, http://sr.sgpp.ac.id/post/indonesia-and-the-sea.
- 24. "OECD Glossary of Statistical Terms Nutrient Cycle Definition," *Glossary of Environment Statistics*, accessed November 18, 2022, https://stats.oecd.org/glossary/detail.asp?ID=1867.
- 25. Jenny Tolep, "Why Are Oceans Important? And What Can We Do To Protect Them?" *Coral Reef Alliance*, June 1, 2022, https://coral.org/en/blog/why-are-oceans-important-and-what-can-we-do-to-protect-them/.
- 26. National Plastic Waste Reduction Strategic Actions for Indonesia (Republic of Indonesia: Ministry of Environmental and Forestry, 2020), 4, https://wedocs.unep.org/bitstream/handle/20.500.11822/32898/NPWRSI.pdf?sequence=1&isAllowed=v.
- 27. Matt Landos, Mariann Lloyd Smith, and Joanna Immig, "Aquatic Pollutants in Oceans and Fisheries," *International Pollutants Elimination Network*, (April 2021), 12.
- 28. Yeremia Hotmartua Sihombing, "Indonesia and the Sea."
- 29. "Total Contribution of Travel and Tourism to GDP in the Asia-Pacific Region in 2021, by Country or Territory," *Statista*, accessed November 5, 2022, https://www.statista.com/statistics/313589/travel-and-tourisms-direct-contribution-to-gdp-in-asia-pacific-countries/.
- 30. "Countries in Asia-Pacific," Federal Aviation Administration, United States Department of Transportation, accessed November 5, 2022, https://www.faa.gov/about/office_org/headquarters_offices/apl/international_affairs/asia_pacific/c ountries.
- 31. "Indonesia," *Britannica*, accessed November 30, 2022, https://www.britannica.com/place/Indonesia.
- 32. "About the Philippines," *Embassy of the Philippines*, accessed October 12, 2022, https://budapestpe.dfa.gov.ph/about-the-philippines.
- 33. Jonathan Schachter and Rachel Karasik, *Plastic Pollution Policy Country Profile: Philippines* (Durham, NC: Duke University, February 2022), 1, https://nicholasinstitute.duke.edu/sites/default/files/projects/Plastic-Pollution-Policy-Country-Profile-Philippines.pdf.
- 34. Janet Bering and Rachel Karasik, Plastic Pollution Policy Country Profile: Australia (Durham, NC: Duke University, February 2022), 13, https://nicholasinstitute.duke.edu/sites/default/files/projects/Plastic-Pollution-Policy-Country-Profile-Australia.pdf.
- 35. Ritchie and Roser, "Plastic Pollution."

- Neeti Rustagi, S. K. Pradhan, and Ritesh Singh, "Public Health Impact of Plastics: An Overview," *Indian Journal of Occupational and Environmental Medicine* 15, no. 3 (2011): 100–103, https://doi.org/10.4103/0019-5278.93198.
- 37. Anthony Andrady, Ramani Narayan, and Kara Lavender Law, "Plastic Waste Inputs from Land into the Ocean," *Science* 347, no. 6223 (February 13, 2015): 768–771, https://doi.org/10.1126/science.1260352.
- 38. "Front Matter," in *Reckoning with the U.S. Role in Global Ocean Plastic Waste*, (Washington, DC: The National Academies Press, 2022), https://doi.org/10.17226/26132.
- 39. Rick Gould, "Rethinking the Future of Plastics," *ISO*, March 31, 2022, https://www.iso.org/news/ref2792-1.html.
- 40. Jonathan Schachter and Rachel Karasik, "Plastic Pollution Policy Country Profile: Philippines."
- **41.** Ibid.
- **42.** *Marine Plastics Pollution in Thailand* (OECD), 2, https://www.oecd.org/ocean/topics/ocean-pollution/marine-plastics-pollution-Thailand.pdf.
- 43. L. Lebreton et al., "Evidence That the Great Pacific Garbage Patch Is Rapidly Accumulating Plastic," *Scientific Reports* 8, no. 1 (March 2018): 4666, https://doi.org/10.1038/s41598-018-22939-w.
- **44.** Ibid.
- **45.** $(1.23 \pm 0.06 \text{ SE}, n = 288] \text{ kg km} 2 \text{ in } 2015) (0.4 \pm 0.2 \text{ SE}, n = 20] \text{ kg km} 2 \text{ in } 1970) = 0.83 \text{ change}$. $(0.83 \text{ change} / 0.4 \text{ in } 1970) \times 100 = 207.5\%$ increase between 1970 and 2015.
- 46. Gall and Thompson, "The Impact of Debris on Marine Life."
- **47.** "Mismanaged Plastic Waste," *Our World in Data*, accessed November 5, 2022, https://ourworldindata.org/grapher/plastic-waste-mismanaged.
- **48.** Ibid.
- **49.** Ibid.
- **50.** Ibid.
- 51. "Solid Waste Management," *World Bank*, February 11, 2022, https://www.worldbank.org/en/topic/urbandevelopment/brief/solid-waste-management.
- 52. Hannah Ritchie, "Ocean Plastics: How Much Do Rich Countries Contribute by Shipping Their Waste Overseas?" *Our World in Data*, October 11, 2022, https://ourworldindata.org/plastic-waste-trade.
- 53. "Solid Waste Segregation Remains Major Challenge in PH: DENR Chief," *Republic of the Philippines: Philippine News Agency,* May 30, 2022, https://www.pna.gov.ph/articles/1175460.
- 54. Visvanathan and Trankler, "Municipal Solid Waste Management in Asia: A Comparative Analysis."
- 55. "Mismanaged Plastic Waste," Our World in Data.
- 56. Chelsea M. Rochman, "The Story of Plastic Pollution: From the Distant Ocean Gyres to the Global Policy Stage," *Oceanography* 33, no. 3 (2020): 60–70, https://doi.org/10.5670/oceanog.2020.308.
- 57. Adi Renaldi, "Indonesia's Poor Waste Management System May Worsen the Pandemic," *Pulitzer Center*, August 7, 2020, https://pulitzercenter.org/stories/indonesias-poor-waste-management-system-may-worsen-pand emic.
- 58. Nina Clasuager, "Bantar Gebang Jakarta Landfill, Indonesia," *Environmental Justice Atlas*, accessed October 3, 2021, https://ejatlas.org/conflict/bantar-gebang-jakarta-landfill-indonesia.
- 59. Renaldi, "Indonesia's Poor Waste Management System May Worsen the Pandemic."
- 60. Jakarta Solid Waste Management System Improvement Project (Japan International Cooperation Agency, January 2003), https://www.jica.go.jp/english/our_work/evaluation/oda_loan/post/2003/pdf/2-14_full.pdf.

- **61.** 19,720 m3 of garbage generated in 1985 = 6,964.1 metric tonnes.
- 62. Rochman, "The Story of Plastic Pollution: From the Distant Ocean Gyres to the Global Policy Stage."
- 63. Renaldi, "Indonesia's Poor Waste Management System May Worsen the Pandemic."
- **64.** Visvanathan and Trankler, "Municipal Solid Waste Management in Asia: A Comparative Analysis."
- **65.** Ibid.
- **66.** Ibid.
- 67. Axel Barrett, "Why Ineffective Recycling in Indonesia?" *Bioplastics News*, May 11, 2020, https://bioplasticsnews.com/2020/05/11/recycling-problems-indonesia/.
- 68. Christopher Joyce, "Plastic Pollution is Killing Coral Reefs, 4-year Study Finds," *NPR*, January 25, 2018, https://www.npr.org/sections/thetwo-way/2018/01/25/580227045/plastic-pollution-is-killing-coral-r
 - eefs-4-year-study-finds.
- 69. "\$45 Million Recycling Plant Opens in Albury," *NSW Environment Protection Authority*, March 11, 2022, https://www.epa.nsw.gov.au/news/media-releases/2022/epamedia220311.
- 70. "Minister of Industry Inaugurates the Largest Plastic Recycling Factory in Indonesia," IDN Financials, June 30, 2021, https://www.idnfinancials.com/news/39585/minister-industry-inaugurates-largest-plastic-recycling-factory-indonesia.
- 71. Joyce, "Plastic Pollution is Killing Coral Reefs, 4-year Study Finds."
- 72. Laura Valderrama Ballesteros, Jennifer L. Matthews, and Bert W. Hoeksema, "Pollution and Coral Damage Caused by Derelict Fishing Gear on Coral Reefs around Koh Tao, Gulf of Thailand," *Marine Pollution Bulletin* 135 (October 2018): 1107–1116, http://doi.org/10.1016/j.marpolbul.2018.08.033.
- 73. Gunn, Hardesty, and Butler, "Tackling 'Ghost Nets': Local Solutions to a Global Issue in Northern Australia."
- **74.** Brandon Kuczenski et al., "Plastic Gear Loss Estimates from Remote Observation of Industrial Fishing Activity," *Fish and Fisheries 23*, no. 1 (2022): 22, https://doi.org/10.1111/faf.12596.
- 75. 48 kilo metric tonnes = 48,000 metric tonnes
- **76.** Ballesteros, Matthews, and Hoeksema, "Pollution and Coral Damage Caused by Derelict Fishing Gear on Coral Reefs around Koh Tao, Gulf of Thailand."
- **77.** Ibid.
- 78. Graeme Macfadyen, Tim Huntington, and Rod Cappell, *Abandoned, Lost or Otherwise Discarded Fishing Gear* (Rome: UNEP and FAO, 2009), https://www.fao.org/3/i0620e/i0620e00.htm.
- **79.** Ibid.
- **80.** Ibid.
- Anne D. Nash, "Impacts of Marine Debris on Subsistence Fishermen An Exploratory Study," *Marine Pollution Bulletin* 24, no. 3 (March 1992): 150–152, https://doi.org/10.1016/0025-326X(92)90243-Y.
- **82.** Ibid.
- 83. Margareth Sembiring, Global Waste Trade Chaos: Rising Environmentalism or Cost-Benefit Analysis? (Singapore: S. Rajaratnam School of International Studies, July 2019), https://www.jstor.org/stable/resrep26804.
- **84.** Ibid.
- 85. Aarushi Jain, "Trash Trade Wars: Southeast Asia's Problem With the World's Waste," *Council on Foreign Relations*, May 8, 2020, https://www.cfr.org/in-brief/trash-trade-wars-southeast-asias-problem-worlds-waste.

- **86.** Ibid.
- 87. Mariam George, "Global Waste Trade and Its Effects on Landfills in Developing Countries," *Global Waste Cleaning Network*, November 14, 2021, https://gwcnweb.org/2021/11/14/global-waste-trade-and-its-effects-on-landfills-in-developing-countries/.
- 88. Sembiring, Global Waste Trade Chaos: Rising Environmentalism or Cost-Benefit Analysis?
- 89. Ibid.
- 90. Jain, "Trash Trade Wars: Southeast Asia's Problem With the World's Waste."
- 91. Sembiring, Global Waste Trade Chaos: Rising Environmentalism or Cost-Benefit Analysis?
- **92.** Ibid.
- 93. Ritchie, "Ocean Plastics: How Much Do Rich Countries Contribute by Shipping Their Waste Overseas?"
- 94. George, "Global Waste Trade and Its Effects on Landfills in Developing Countries."
- 95. "Global Export Data," *Basel Action Network,* accessed November 26, 2022, https://www.ban.org/plastic-waste-project-hub/trade-data/global-export-data-2021-annual-summary.
- **96.** "Indonesia Import Data," *Basel Action Network*, accessed November 26, 2022, https://www.ban.org/plastic-waste-project-hub/trade-data/indonesia-import-data.
- 97. Ritchie, "Ocean Plastics: How Much Do Rich Countries Contribute by Shipping Their Waste Overseas?"
- 98. "Indonesia Import Data," Basel Action Network.
- 99. "India Import Data," *Basel Action Network*, accessed November 26, 2022, https://www.ban.org/plastic-waste-project-hub/trade-data/india-import-data.
- 100. Ritchie, "Ocean Plastics: How Much Do Rich Countries Contribute by Shipping Their Waste Overseas?"
- **101.** Ibid.
- **102.** "Thailand Import Data," *Basel Action Network*, accessed November 26, 2022, https://www.ban.org/plastic-waste-project-hub/trade-data/thailand-import-data.
- 103. "National Plastic Waste Reduction Strategic Actions for Indonesia," Ministry of Environmental and Forestry.
- 104. Lillianna Byington, "How Sustainable Is the Food Packaging Industry?" Food Dive, accessed October 15, 2018, https://www.fooddive.com/news/how-sustainable-is-the-food-packaging-industry/539089/.
- 105. "Why Today's Pricing Is Sabotaging Sustainability," Kearney, September 11, 2020, https://www.nl.kearney.com/consumer-retail/article/-/insights/why-todays-pricing-is-sabotaging-sustainability.
- **106.** Yatish Joshi and Zillur Rahman, "Factors Affecting Green Purchase Behaviour and Future Research Directions," *International Strategic Management Review* 3, no. 1–2 (June–December 2015): 128–143, https://doi.org/10.1016/j.ism.2015.04.001.
- **107.** Phelan et al., "Ocean Plastic Crisis—Mental Models of Plastic Pollution from Remote Indonesian Coastal Communities."
- 108. Yatish Joshi and Zillur Rahman, "Factors Affecting Green Purchase Behaviour and Future Research Directions," *International Strategic Management Review* 3, no. 1 (June 1, 2015): 128–143, https://doi.org/10.1016/j.ism.2015.04.001.
- **109.** "Philippines: Plastics Circularity Opportunities Report," *World Bank*, accessed December 2, 2022.
 - https://www.worldbank.org/en/country/philippines/publication/market-study-for-philippines-plastic s-circularity-opportunities-and-barriers-report-landing-page.

- **110.** Phelan et al., "Ocean Plastic Crisis—Mental Models of Plastic Pollution from Remote Indonesian Coastal Communities."
- 111. Ibid.
- 112. Sally Ho, "Want Ketchup With That? 'Sachet Economy' Produces 855 Billion Pieces Of Plastic Waste Each Year," *Green Queen*, February 28, 2020, https://www.greenqueen.com.hk/want-ketchup-with-that-sachet-economy-produces-855-billion-pieces-of-plastic-waste-each-year/.
- **113.** "Southeast Asia FMCG Market Size by Country 2016," *Statista*, accessed October 12, 2022, https://www.statista.com/statistics/606033/size-of-the-south-east-asia-fmcg-market/.
- 114. Valeria Hidalgo-Ruz et al., "Microplastics in the Marine Environment: A Review of the Methods Used for Identification and Quantification," *Environmental Science & Technology* 46, no. 6 (2012): 3060, https://doi.org/10.1021/es2031505.
- 115. Winnie Lau and Margaret Murphy, "Microplastics are a Big—and Growing—Part of Global Pollution," PEW, March 30, 2021, https://www.pewtrusts.org/en/research-and-analysis/articles/2021/03/30/microplastics-are-a-big-and-growing-part-of-global-pollution.
- 116. Rech, Pichs, and García-Vazquez, "Anthropogenic Marine Litter Composition in Coastal Areas May be a Predictor of Potentially Invasive Rafting Fauna."
- 117. Stefanie Whitmire, "Microplastics on National Park Beaches," NOAA, accessed November 26, 2022, https://response.restoration.noaa.gov/about/media/microplastics-national-park-beaches.html.
- 118. Raphael Bissen and Sakonvan Chawchai, "Microplastics on Beaches along the Eastern Gulf of Thailand – A Preliminary Study," *Marine Pollution Bulletin* 157, no. 111345 (August 2020), https://doi.org/10.1016/j.marpolbul.2020.111345.
- 119. Aurélie V. Duhec et al., "Composition and Potential Origin of Marine Debris Stranded in the Western Indian Ocean on Remote Alphonse Island, Seychelles," *Marine Pollution Bulletin* 96, no. 1–2 (July 2015): 76, https://doi.org/10.1016/j.marpolbul.2015.05.042.
- 120. Barbara Moran, "Study: Most of the Plastic Found in Seabirds' Stomachs was Recyclable," WBUR News, October 21, 2020, https://www.wbur.org/news/2020/10/21/great-shearwaters-study-microplastics-recycling.
- **121.** Alonzo Alfaro-Núñez et al., "Microplastic Pollution in Seawater and Marine Organisms Across the Tropical Eastern Pacific and Galápagos," *Scientific Reports* 11, no. 6424 (2021), https://www.nature.com/articles/s41598-021-85939-3.
- **122.** Wendee Nicole, "Microplastics in Seafood: How Much Are People Eating?" *Environmental Health Perspectives* 129, no. 3 (March 17, 2021): 034001, https://doi.org/10.1289/EHP8936.
- **123**. Ibid
- 124. Hannah Ritchie, "Where Does the Plastic in our Oceans Come From?" *Our World in Data,* May 1, 2021, https://ourworldindata.org/ocean-plastics.
- **125.** Graeme C. Hays, Anthony J. Richardson, and Carol Robinson, "Climate Change and Marine Plankton," *Trends in Ecology and Evolution* 20, no. 6 (2005): 337–344, https://doi.org/10.1016/j.tree.2005.03.004.
- 126. Kerri Major, "Plastic Waste and Climate Change What's the Connection?" *WWF*, June 30, 2021, https://www.wwf.org.au/news/blogs/plastic-waste-and-climate-change-whats-the-connection.
- 127. Hans-O. Pörtner, "Ecosystem Effects of Ocean Acidification in Times of Ocean Warming: A Physiologist's View," *Marine Ecology Progress Series* 373 (2008): 203–217, https://doi.org/10.3354/meps07768.
- 128. Dakota M. Lewis, "Understanding Shifts in Estuarine Fish Communities Following Disturbances Using an Ensemble Modeling Framework," *Ecological Indicators* 126 (July 2021): 107623, https://doi.org/10.1016/j.ecolind.2021.107623.

- 129. "Plastic Leakage and Greenhouse Gas Emissions are Increasing," *OECD*, accessed November 2, 2022,
 - https://www.oecd.org/environment/plastics/increased-plastic-leakage-and-greenhouse-gas-emis sions.htm#:~:text=Throughout%20their%20lifecycle%2C%20plastics%20have,to%20global%20 greenhouse%20gas%20emissions.
- **130.** Qiqing Chen et al., "Leaching of Endocrine Disrupting Chemicals from Marine Microplastics and Mesoplastics under Common Life Stress Conditions," *Environment International* 130 (September 2019): 104938, https://doi.org/10.1016/j.envint.2019.104938.
- **131.** Lisa Anne Hamilton and Steven Feit, *Plastic and Climate: The Hidden Costs of a Plastic Planet* (CIEL, May 2019), 3, 70, https://www.ciel.org/plasticandclimate/.
- **132.** Climate Change Information Sheets (France: UNEP and UNFCCC, October 2001), 7, https://unfccc.int/resource/iuckit/cckit2001en.pdf.
- **133.** "What Is a Carbon Sink?" *ClientEarth Communications,* December 22, 2020, https://www.clientearth.org/latest/latest-updates/stories/what-is-a-carbon-sink/.
- 134. Juan José Alava, "Ocean Pollution and Warming Oceans: Toward Ocean Solutions and Natural Marine Bioremediation," in *Predicting Future Oceans*, ed. Andrés M. Cisneros-Montemayor, William W. L. Cheung, and Yoshitaka Ota, (Amsterdam, Netherlands: Elsevier, 2019), 498, https://doi.org/10.1016/B978-0-12-817945-1.00046-0.
- 135. Gall and Thompson, "The Impact of Debris on Marine Life."
- 136. Ibid, 172.
- 137. Özgür et al., "Cytotoxic Effects of Bisphenol A as an Endocrine Disruptor on Human Lymphocytes."
- 138. Chen et al., "Leaching of Endocrine Disrupting Chemicals from Marine Microplastics and Mesoplastics under Common Life Stress Conditions."
- 139. Nicholas C. Wu, Alexander M. Rubin, and Frank Seebacher, "Endocrine Disruption from Plastic Pollution and Warming Interact to Increase the Energetic Cost of Growth in a Fish," *Proceedings of the Royal Society B: Biological Sciences* 289, no. 1967 (January 26, 2022), https://doi.org/10.1098/rspb.2021.2077.
- 140. "Plastic Planet: How Tiny Plastic Particles are Polluting our Soil," UN Environment Programme, accessed October 26, 2021, https://www.unep.org/news-and-stories/story/plastic-planet-how-tiny-plastic-particles-are-polluting-our-soil.
- 141. S. K. Murthy, "Nanoparticles in Modern Medicine: State of the Art and Future Challenges," International Journal of Nanomedicine 2, no. 2 (2007): 129–141, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2673971/.
- 142. Gall and Thompson, "The Impact of Debris on Marine Life."
- 143. Rech, Borell Pichs, and García-Vazquez, "Anthropogenic Marine Litter Composition in Coastal Areas May be a Predictor of Potentially Invasive Rafting Fauna."
- **144**. Ibid.
- 145. Ibid.
- 146. Hays, Richardson, and Robinson, "Climate Change and Marine Plankton."
- 147. George, "Global Waste Trade and Its Effects on Landfills in Developing Countries."
- 148. Alessando Careghini et al., "Bisphenol A, Nonylphenols, Benzophenones, and Benzotriazoles in Soils, Groundwater, Surface Water, Sediments, and Food: A Review," *Environmental Science and Pollution Research* 22, no. 8 (2015): 5711–5741, https://doi.org/10.1007/s11356-014-3974-5.
- 149. "Turning the Plastic Tide: The Chemicals in Plastic That Put Our Health at Risk," *Health and Environment Alliance*, January 18, 2021,

- https://www.env-health.org/turning-the-plastic-tide-the-chemicals-in-plastic-that-put-our-health-at-risk/.
- 150. Shunsuke Sasaki et al., "Household Income, Living and Working Conditions of Dumpsite Waste Pickers in Bantar Gebang: Toward Integrated Waste Management in Indonesia," *Resources, Conservation and Recycling* 89 (August 2014): 11–21, http://dx.doi.org/10.1016/j.resconrec.2014.05.006.
- 151. George, "Global Waste Trade and Its Effects on Landfills in Developing Countries."
- **152.** Sasaki et al., "Household Income, Living and Working Conditions of Dumpsite Waste Pickers in Bantar Gebang: Toward Integrated Waste Management in Indonesia."
- 153. Ibid.
- **154.** Jacopo Pasotti and Elisabetta Zavoli, "People Are Living Inside Landfills As The World Drowns In Its Own Trash," *Huffpost*, October 23, 2018, https://www.huffpost.com/entry/plastic-trash-pollution-landfill_n_5b9fcc13e4b013b0977d47ce.
- 155. Ibid.
- **156.** Martine Vrijheid, "Health Effects of Residence near Hazardous Waste Landfill Sites: A Review of Epidemiologic Literature," *Environmental Health Perspectives* 108, no. 1 (March 2000), https://doi.org/10.1289/ehp.00108s1101.
- 157. Renaldi, "Indonesia's Poor Waste Management System May Worsen the Pandemic."
- 158. Ibid.
- 159. Ibid.
- 160. Clasuager, "Bantar Gebang Jakarta Landfill, Indonesia."
- **161.** Ibid.
- **162**. Ibid.
- **163.** "Requirements for Materials Recovery Facilities (MRFs)," *Wisconsin DNR*, accessed November 18, 2022, https://dnr.wisconsin.gov/topic/Recycling/MRF.html.
- **164.** *Materials Recovery Facility Tool Kit* (Philippines: Asian Development Bank, 2013), 2, https://www.adb.org/sites/default/files/publication/30220/materials-recovery-facility-tool-kit.pdf.
- 165. Ibid.
- 166. Ibid.
- 167. Ibid.
- 168. "Material Recovery Facility," Northern Adelaide Waste Management Authority, accessed November 16, 2022, 1, https://www.nawma.sa.gov.au/resource-recovery/material-recovery-facility/.
- **169.** 60,000 / 365 = 164.38
- 170. "Materials Recovery Facility Tool Kit," Asian Development Bank, 4.
- 171. Karine Ip et al., "Performance Evaluation of Material Separation in a Material Recovery Facility Using a Network Flow Model," *Resources, Conservation and Recycling* 131 (April 1, 2018): 192, https://doi.org/10.1016/j.resconrec.2017.11.021.
- **172.** "Solid Waste Management," *World Bank*, February 11, 2022, https://www.worldbank.org/en/topic/urbandevelopment/brief/solid-waste-management.
- 173. Catherine Teves, "DENR Eyes More Recycling Facilities in Metro Manila," *Republic of the Philippines News Agency*, September 23, 2018, https://www.pna.gov.ph/articles/1048865.
- **174.** *Marine Plastic Pollution* (Gland, Switzerland: International Union for Conservation of Nature, November 2021),
 - https://www.iucn.org/sites/default/files/2022-04/marine plastic pollution issues brief nov21.pdf.
- **175.** Winnie W. Y. Lau et al., "Evaluating Scenarios Toward Zero Plastic Pollution," *Science* 369, no. 6510 (2020): 1455–1461, https://doi.org/10.1126/science.aba9475.
- 176. Jim Palardy, "Science Study Shows that Nearly 80% of the Annual Plastic Flow into the Environment can be Stopped using Existing Technology," *The Pew Charitable Trusts*, July 23,

2020,

- https://www.pewtrusts.org/en/research-and-analysis/articles/2020/07/23/science-study-shows-th at-nearly-80-percent-of-the-annual-plastic-flow-into-the-environment.
- 177. Zara Ingilizian, Mayuri Ghosh, and Bovis Beth, "Reusing 10% Will Stop Almost Half of Plastic Waste from Entering the Ocean. Here's How," *World Economic Forum*, July 23, 2021, https://www.weforum.org/agenda/2021/07/reusing-plastic-waste-pollution-economy-value/.
- 178. Phelan et al., "Ocean Plastic Crisis—Mental Models of Plastic Pollution from Remote Indonesian Coastal Communities."
- 179. "Why Today's Pricing Is Sabotaging Sustainability," *Kearney,* accessed October 12, 2022, https://www.nl.kearney.com/consumer-retail/article/-/insights/why-todays-pricing-is-sabotaging-s ustainability.