

Nigeria

Map of African continent



Indicator	Data
Total population, 2019	200,963,599
Population density, people per sq. km of land area, 2018	215.1
Coastal population, % of total, 2019*	13.7
Share of people living in urban areas, % of total, 2017	49.5
Total MSW generated, tons/year	27,614,830
Waste generation rate per capita, kg/person/day	0.79
Plastic waste generation, kg/day	2,811,046

Socioeconomic Profile

Nigeria is the most populous country in Africa and West Africa, with an estimated 201 million inhabitants in 2019¹ amounting to more than 50 percent of the total population in West Africa. The Nigerian economy, classified as lower middle income, is considered a major emerging market in the context of Africa and globally. The country is a federal republic comprising 36 states and the Federal Capital Territory where its capital, Abuja, is located. Lagos is the most populous coastal city in Africa, with an estimated population of over 24 million residents.²

Nigeria has the second-highest population density in the West African region after Gabon, at 215.1 people per km² (2018).³ About half the country lives in urban areas while 13.7 percent live in coastal areas.⁴

Plastic Industry and Ecosystem

Nigeria is Africa's largest oil producer, with the oil and gas sector accounting for about 10 percent of GDP and where petroleum exports represent around 86 percent of total exports revenue.⁵ Nigeria is the only resin producer in the WACA region. It produced 486 kt of resin (325 kt PE, 96 kt PP, 65 kt PET) in 2018 and 498 kt of resin (322 kt PE, 101 kt PP, 75 kt PET) in 2019. Nevertheless, the country is a net importer of plastics, which in its raw form is typically made from oil (naphtha). In 2019, imports of plastics into Nigeria amounted to \$1.7 billion, including net imports of all key plastics resins (PE, PP, polystyrene [PS], and PVC).⁶ Almost two-thirds of demand for virgin resins in Nigeria is currently met through imports, thus

¹ World Bank, "Data: Population, Total," accessed February 3, 2021, <https://data.worldbank.org/indicator/SP.POP.TOTL>.

² Lagos Bureau of Statistics, 2016.

³ World Bank Group, "World Development Indicators," 2020.

⁴ Jambeck et al., "Plastic Waste Inputs from Land into the Ocean."

⁵ OPEC (Organization of the Petroleum Exporting Countries), "Nigeria," accessed February 5, 2021, https://www.opec.org/opec_web/en/about_us/167.htm.

⁶ UN Comtrade, "UN Comtrade Database," 2019.

being the continent's largest importer of resins.⁷ Nigeria's conversion industry processed 1,094 kt of resin (581 kt PE, 367 kt PP, 137 kt PET, 9 kt PS) in 2018 and 978 kt of resin (564 kt PE, 238 kt PP, 164 kt PET, 12 kt PS) in 2019.

Nigeria's large consumption of primary plastics (resins) supports a robust plastic manufacturing sector. According to market reports, plastic production in Nigeria has grown rapidly at a rate of 13.9 percent annually, from 120 kt in 2007 to a projected 513 kt in 2020.⁸ While being a net importer of resin, Nigeria is the largest producer of olefins and polyolefin plastics in West Africa led by Indorama Eleme Petrochemicals Limited.⁹ The country has over 3,000 plastic companies today, producing various products ranging from jerry cans, shopping bags, tables to mats.¹⁰ The literature highlights the challenge of managing waste from water sachets, where it is estimated that over 1,500 water sachet factories are present in Lagos alone.

In terms of plastics recovery, studies find that less than 12 percent of plastic waste is recycled in Nigeria.¹¹ There are reportedly 8 completed plastic waste recycling plants in Nigeria, with 18 others at various stages of completion.¹² There is no current capacity for waste-to-energy, for example, in cement kilns or incinerators with heat recovery. The remaining plastic waste (~80 percent) goes to landfills and dumpsites.¹³ Examples of businesses that are pioneering circular plastics solutions include Lagos-based Salubata, which produces shoes from recycled plastics waste (this company was also the recent winner of African Innovation Week 2020).¹⁴

Solid Waste Management

Nigeria faces significant challenges with solid waste management due to a lack of infrastructure, a trained workforce, and other related factors.¹⁵ Annually, Nigeria generates 27.6 million kt¹⁶ of municipal solid waste, of which about 13 percent is plastic.¹⁷ Daily per capita waste generation rate in Nigeria is around 0.79 kg/person/day, slightly above West Africa's average of 0.66 kg/person/day.

⁷ World Bank, *Internal document Nigerian PROBLUE team*.

⁸ Statista, "Plastic Production Nigeria 2020," accessed February 4, 2021, <https://www.statista.com/statistics/994633/plastic-production-nigeria/>.

⁹ Indorama Eleme Petrochemicals Limited: <https://www.indorama.com/affiliated-companies/indorama-eleme-petrochemicals-limited>.

¹⁰ Vanessa Obioha, "Nigeria: Promoting Local Production in Plastic Industry," allAfrica.com, June 21, 2019, <https://allafrica.com/stories/201906210661.html>.

¹¹ Joshua O. Babayemi, Mary B. Ogundiran, Roland Weber, and Oladele Osibanjo, "Initial Inventory of Plastics Imports in Nigeria as a Basis for More Sustainable Management Policies," *Journal of Health and Pollution* 8, no. 18 (June 1, 2018): 180601, <https://doi.org/10.5696/22156-9614-8.18.1>.

¹² Down to Earth, "Nigeria Well Placed to Beat Plastic Pollution: Vice President," accessed February 4, 2021, <https://www.downtoearth.org.in/news/environment/nigeria-well-placed-to-beat-plastic-pollution-vice-president-60786>.

¹³ Babayemi et al., "Initial Inventory of Plastics Imports in Nigeria."

¹⁴ Sören Bauer, "Spotlight on Circularity in Africa," 2021, 4, <https://revolve.media/wp-content/uploads/2021/02/REVOLVE-38-Spotlight-on-Circularity-in-Africa.pdf>.

¹⁵ Emeka Dumbili and Lesley Henderson, "The Challenge of Plastic Pollution in Nigeria," *Plastic Waste and Recycling* (2020): 569–83, <https://doi.org/10.1016/B978-0-12-817880-5.00022-0>.

¹⁶ Down to Earth, "Nigeria Well Placed to Beat Plastic Pollution."

¹⁷ Jambeck et al., "Plastic Waste Inputs from Land into the Ocean."

Of the waste generated more than 80 percent of waste is inadequately managed, leaked into nature through illegal dumping or in unsanitary landfills.¹⁸ MSW collection rate including at larger cities such as Lagos, is low, at between 40 and 70 percent.¹⁹ Relatedly, Nigeria is also home to 3 out of the top 20 plastic polluting rivers globally, that is, the Cross, Imo, and Kwa Ibo rivers²⁰; being a country well-endowed with natural water resources, including home to Africa's third-largest water resource, that is, the Niger River.²¹

Compounding a low municipal solid waste collection rate are poor separation and sorting at source. To date, solid waste management is one of the most pressing environmental issues facing urban and rural areas. Among other impacts, studies have found microplastics in aquatic life due to pollution, especially due to mismanagement of low-value plastics.²² For example, an estimated 60 million plastic water sachets are consumed in a day in Nigeria, which currently does not yet have a sustainable end-of-life solution.²³

Legislation, Policies and Other Initiatives

There is significant momentum in Nigeria to tackle plastics waste through CE principles. In 2020, the Nigerian Federal Executive Council approved a new law on plastic waste to encourage the development of a CE around plastic waste.²⁴

Nigeria's National Environmental Regulations²⁵ introduced EPR requirements for the following industries: food, beverages, tobacco, pharmaceuticals, soap and detergent, electricals and electronics, and plastics. Additionally, the EPR Programme was introduced in 2016 as a framework geared toward achieving a zero-waste society, including the reduction of the environmental impact of packaging waste.

In May 2019, a plastic bag prohibition bill was passed, providing "an Act to prohibit the use, manufacture and importation of all plastic bags used for commercial and household packaging in order to address harmful impacts to oceans, rivers, lakes, forests, environment as well as human beings and also to relieve pressure on landfills and waste management and for other related matters."²⁶ The bill further states that

¹⁸ Ibid.

¹⁹ Toochukwu Chibueze Ogwueleka, "Municipal Solid Waste Characteristics and Management in Nigeria," 2009, https://www.researchgate.net/publication/40542918_Municipal_solid_waste_characteristics_and_management_in_Nigeria.

²⁰ Laurent C. M. Lebreton, Joost van der Zwet, Jan-Willem Damsteeg, Boyan Slat, Anthony Andrady, and Julia Reisser, "River Plastic Emissions to the World's Oceans," *Nature Communications* 8, no. 1 (June 7, 2017): 15611, <https://doi.org/10.1038/ncomms15611>.

²¹ Akindayo A. Sowunmi, "Municipal Solid Waste Management and the Inland Water Bodies: Nigerian Perspectives," in *Municipal Solid Waste Management*, ed. Hosam El-Din Mostafa Saleh (London: IntechOpen, 2019), 69–97, <https://doi.org/10.5772/intechopen.84921>.

²² Emmanuel O. Akindele, "Why Microplastics Found in Nigeria's Freshwaters Raise a Red Flag," *The Conversation*, October 13, 2020, <http://theconversation.com/why-microplastics-found-in-nigerias-freshwaters-raise-a-red-flag-147432>.

²³ Ibid.

²⁴ Inès Magoum, "Nigeria: The FEC Approves a New Law on Plastic Waste Management," *Afrik 21*, October 23, 2020, <https://www.afrik21.africa/en/nigeria-the-fec-approves-a-new-law-on-plastic-waste-management/>.

²⁵ National Environmental Regulation 2009 and National Environmental Regulation 2011.

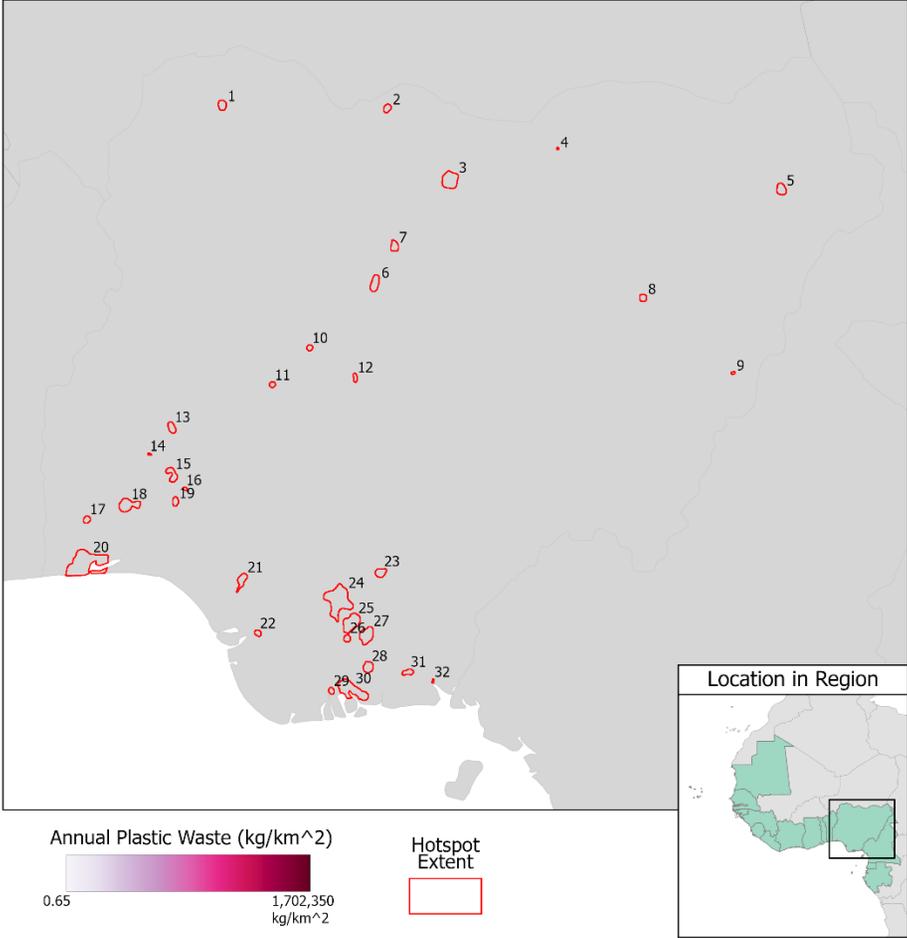
²⁶ Chinedu Asadu, "Reps Pass Bill to Ban Plastic Bags, Prescribe 3-Year Jail Term for Sale," *TheCable*, May 21, 2019, <https://www.thecable.ng/reps-pass-bill-to-ban-plastic-bags-prescribe-3-year-jail-term-for-sale>.

a retailer should offer a paper bag to customers at the point of sale.²⁷ However, this bill is reportedly not yet implemented as the president has not assented to it.²⁸

²⁷ Rachel Karasik, Zoie Diana, Janet Bering, Juan Caldas, Amy Pickle, Daniel Rittschof, and John Virdin, *20 Years of Government Responses to the Global Plastic Pollution Problem* (Durham, NC: Duke University, 2020).

²⁸ Akindele, "Why Microplastics Found in Nigeria's Freshwaters Raise a Red Flag."

Plastic Waste in Nigeria



Plastic Generation Hotspots

ID	Locale	Rank	Plastic Waste (kt)	Population	Area (km ²)
1	Sokoto	22	15.049432	655869	160.938661
2	Katsina	32	8.505752	370689	118.988641
3	Kano	3	96.40832	4201571	538.113381
4	Dutse	59	0.715303	31174	10.161147
5	Maiduguri	19	18.907341	824001	214.744619
6	Kaduna	16	25.767297	1122965	263.652022
7	Zaria	36	6.936699	302308	160.397957
8	Bauchi	30	9.484627	413350	102.938403
9	Yola	57	0.952043	41491	21.662449
10	Minna	39	5.791426	252396	67.643647
11	Bida	38	6.088853	265358	63.444367
12	Abuja	44	4.290972	187005	71.216447
13	Ilorin	26	12.025667	524091	154.752023
14	Ogbomosho	62	0.517908	22571	11.846566
15	Osogbo	25	12.707581	553809	223.611125
16	Ilesa	51	1.393294	60721	27.969626
17	Abeokuta	33	8.33714	363341	96.630275
18	Ibadan	6	55.116348	2402025	442.368864
19	Ife	35	7.34268	320001	107.669063
20	Lagos	1	284.687161	12406951	1645.068064
21	Benin City	21	15.208942	662821	227.149304
22	Warri	43	4.696534	204680	77.548689
23	Enugu	27	11.612235	506073	185.354542
24	Nnewi	4	84.774149	3694542	1320.331291
25	Orlu	12	32.004336	1394781	549.338384
26	Owerri	40	5.738553	250092	93.997746
27	Umuahia	17	21.753425	948036	430.953267
28	Aba	18	21.113187	920134	217.355869
29	Buguma	42	5.393256	235043	76.099363
30	Port Harcourt	7	50.426772	2197649	804.572157
31	Uyo	37	6.400322	278932	122.57788
32	Calabar	61	0.556174	24239	15.449223

Total Annual National Plastic Waste Generation: 4719.86 kt

Note: Hotspots are delineated based on their statistical significance, then associated with the nearest locale. Multiple hotspots may be associated with a single locale (as in the case of 14 and 15 being associated with Oshogbo).