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Published By : Snigdha OreyaTrending DeskLast Updated:May 23, 2025, 10:33 ISTReduce kitchen plastic waste by using glass/stainless steel containers.You must have observed plastic everywhere in your kitchen. It can be found in your utensils, snack packs, food wraps, and even clinging to leftovers. Those little pieces of plastic are known as microplastics and can enter your body through the food you eat. And its not the type of component you want in your meal, isnt it?Dont worry, though; a few minor adjustments can have a significant impact. You dont have to completely overhaul your life or turn into an environmental activist overnight.Instead of using plastic containers, try using glass or stainless steel ones, and use wooden utensils instead of plastic ones. Making these small changes is simple and far better for the environment and your health. Not sure where to begin? Here are some ideas you may start using right away in your kitchen without losing your culinary magic.Avoid Plastic ContainersDo you still keep groceries and spices in plastic containers? It can be harmful to your body. Use glass or stainless steel containers instead. They are safer for your health, long-lasting and environmentally friendly. Additionally, they improve the general appearance of your kitchen right away.Use Eco-Friendly Wraps and Silicone LidsThink again about your shopping list. Use silicone stretch lids or beeswax wraps in place of single-use plastic wraps. Without running the risk of microplastic contamination, these ingenious substitutes mould readily around food and containers. In the long term, they are surprisingly affordable, reusable, and environmentally benign.Bring Your Own Shopping BagMost often, plastic enters your house while youre shopping. To the market, bring your own cloth bags or containers. You may completely avoid using plastic packaging by developing this easy habit. This keeps the earth and your kitchen a little cleaner.Stop Using Plastic ScrubsGive up using dish scrubbers made of plastic. They might not seem like much, but each time you use them, microplastics are released. Use reusable dishcloths, bamboo scrubbers, or compostable sponges instead. They are friendly to the environment, harsh on dirt, and dont leave plastic residue on your dishes or in your sink.Swipe Left For Next VideoView allChoose Your Snacks WiselyYou should also make your munching environmentally friendly. Select snacks that come in compostable or reusable bags. Better still, bring your tiffin box with your favourites. This easy change reduces the use of plastic wrappers while maintaining the freshness and cleanliness of your snacks.News lifestyle Go Green In Kitchen: Simple Ways To Reduce Plastic WasteAccumulation of plastic in natural ecosystemsPlastic pollutionPlastic pollution affects seas, beaches, rivers and land (clockwise from top left): Olive ridley sea turtle entangled in a ghost net in the MaldivesPlastic pollution of Sharm el-Naga beach, near Safaga, EgyptPiles of plastic waste on the government-authorized "garbage island" of Thilafushi, MaldivesA tributary of the Wouri River in Douala, Cameroon, completely clogged with plastic.Part of a series onPollutionAir pollution from a factoryAirAcid rainAir quality indexAtmospheric dispersion modelingChlorofluorocarbonCombustionExhaust gasHazeHousehold air pollutionGlobal dimmingGlobal distillationIndoor air qualityNon-exhaust emissionsOzone depletionParticulatesPersistent organic pollutantSmogSootVolatile organic compoundBiologicalBiological hazardGeneticIllegal loggingIntroduced speciesInvasive speciesDigitalInformationElectromagneticLightEcologicalOverilluminationRadio spectrumNaturalOzoneRadium and radon in the environmentVolcanic ashWildfireNoiseTransportationHealth effects from noiseMarine mammals and sonarNoise barrierNoise controlSoundproofingRadiationActinidesBioremediationDepleted uraniumNuclear fissionNuclear falloutPlutoniumPoisoningRadioactivityUraniumRadioactive wasteSoilAgriculturalLand degradationBioremediationDefecationElectrical resistance heatingIllegal miningSoil guideline valuesPhytoremediationSolid wasteAdvertising mailBiodegradable wasteBrown wasteElectronic wasteFood wasteGreen wasteHazardous wasteIndustrial wasteLitterMiningMunicipal solid wasteNanomaterialsPlasticPackaging wastePost-consumer wasteWaste managementSpaceSpace debrisVisualAir travelAdvertising clutterOverhead power linesTraffic signsUrban blightVandalismWarChemical warfareHerbicidal warfareAgent OrangeNuclear holocaustNuclear falloutNuclear famineNuclear winterScorched earthUnexploded ordnanceWar and environmental lawWaterAgricultural wastewaterBiosolidsDiseasesEutrophicationFirewaterFreshwaterGroundwaterHypoxiaIndustrial wastewaterMarineMonitoringNonpoint sourceNutrientOcean acidificationOil spillPharmaceuticalsFreshwater salinizationSeptic tanksSewageShippingSludgeStagnationSulfur waterSurface runoffTurbidityUrban runoffWater qualityWastewaterTopicsHistoryPollutantsHeavy metalsPaintMiscArea sourceBrain health and pollutionDebrisDustGarbologyLegacyThermal pollutionMiddenPoint sourceWasteToxicListsDiseasesLaw by countryMost polluted citiesLeast polluted cities by PM2.5TreatiesMost polluted riversCategoriesBy country Environment portal Ecology portalvtePlastic pollution is the accumulation of plastic objects and particles (e.g. plastic bottles, bags and microbeads) in the Earth's environment that adversely affects humans, wildlife and their habitat.[1][2] Plastics that act as pollutants are categorized by size into micro-, meso-, or macro debris.[3] Plastics are inexpensive and durable, making them very adaptable for different uses; as a result, manufacturers choose to use plastic over other materials.[4] However, the chemical structure of most plastics renders them resistant to many natural processes of degradation and as a result they are slow to degrade.[5] Together, these two factors allow large volumes of plastic to enter the environment as mismanaged waste which persists in the ecosystem and travels throughout food webs.[6][7]Plastic pollution can afflict land, waterways and oceans. It is estimated that 1.1 to 8.8million tonnes of plastic waste enters the ocean from coastal communities each year.[8] It is estimated that there is a stock of 86million tons of plastic marine debris in the worldwide ocean as of the end of 2013, with an assumption that 1.4% of global plastics produced from 1950 to 2013 has entered the ocean and has accumulated there.[9] Global plastic production has surged from 1.5million tons in the 1950s to 335million tons in 2016, resulting in environmental concerns. A significant issue arises from the inefficient treatment of 79% of plastic products, leading to their release into landfills or natural environments.[10]Some researchers suggest that by 2050 there could be more plastic than fish in the oceans by weight.[11] Living organisms, particularly marine animals, can be harmed either by mechanical effects such as entanglement in plastic objects, problems related to ingestion of plastic waste, or through exposure to chemicals within plastics that interfere with their physiology. Degraded plastic waste can directly affect humans through direct consumption (i.e. in tap water), indirect consumption (by eating plants and animals), and disruption of various hormonal mechanisms.[12]As of 2019, 368million tonnes of plastic is produced each year; 51% in Asia, where China is the world's largest producer.[13] From the 1950s up to 2018, an estimated 6.3billion tonnes of plastic has been produced worldwide, of which an estimated 9% has been recycled and another 12% has been incinerated.[14] This large amount of plastic waste enters the environment and causes problems throughout the ecosystem; for example, studies suggest that the bodies of 90% of seabirds contain plastic debris.[15][16] In some areas there have been significant efforts to reduce the prominence of free range plastic pollution, through reducing plastic consumption, litter cleanup, and promoting plastic recycling.[17][18]As of 2020, the global mass of produced plastic exceeds the biomass of all land and marine animals combined.[19] A May 2019 amendment to the Basel Convention regulates the exportation/importation of plastic waste, largely intended to prevent the shipping of plastic waste from developed countries to developing countries. Nearly all countries have joined this agreement.[20][21][22][23] On 2 March 2022, in Nairobi, 175 countries pledged to create a legally binding agreement by the end of the year 2024 with a goal to end plastic pollution.[24]The amount of plastic waste produced increased during the COVID-19 pandemic due to increased demand for protective equipment and packaging materials.[25] Higher amounts of plastic ended up in the ocean, especially plastic from medical waste and masks.[26][27] Several news reports point to a plastic industry trying to take advantage of the health concerns and desire for disposable masks and packaging to increase production of single use plastic.[28][29][30][31]See also: Timeline of plastic developmentThe pathway by which plastics enters the world's oceansThere are differing estimates of how much plastic waste has been produced in the last century. By one estimate, one billion tons of plastic waste have been discarded since the 1950s.[32] Others estimate a cumulative human production of 8.3billion tons of plastic, of which 6.3billion tons is waste, with only 9% getting recycled.[33][34][35]It is estimated that this waste is made up of 81% polymer resin, 13% polymer fibres and 32% polymer additives. In 2018 more than 343million tonnes of plastic waste were generated, 90% of which was composed of post-consumer plastic waste (industrial, agricultural, commercial and municipal plastic waste). The rest was pre-consumer waste from resin production and manufacturing of plastic products (e.g. materials rejected due to unsuitable colour, hardness, or processing characteristics).[35]A large proportion of post-consumer plastic waste consists of plastic packaging. In the United States plastic packaging has been estimated to make up 5% of MSW. This packaging includes plastic bottles, pots, tubs and trays, plastic films shopping bags, rubbish bags, bubble wrap, and plastic or stretch wrap and plastic foams e.g. expanded polystyrene (EPS). Plastic waste is generated in sectors including agriculture (e.g. irrigation pipes, greenhouse covers, fencing, pellets, mulch; construction (e.g. pipes, paints, flooring and roofing, insulants and sealants); transport (e.g. abraded tyres, road surfaces and road markings); electronic and electric equipment (e-waste); and pharmaceuticals and healthcare. The total amounts of plastic waste generated by these sectors is uncertain.[35]Several studies have attempted to quantify plastic leakage into the environment at both national and global levels which have highlight the difficulty of determining the sources and amounts of all plastic leakage. One global study has estimated that between 60 and 99million tonnes of mismanaged plastic waste were produced in 2015. Borrelle et al. 2020 has estimated that 1923million tonnes of plastic waste entered aquatic ecosystems in 2016. while the Pew Charitable Trusts and SYSTEMIQ (2020) have estimated that 914million tonnes of plastic waste ended up in the oceans the same year.Despite global efforts to reduce the generation of plastic waste, losses to the environment are predicted to increase. Modelling indicates that, without major interventions, between 23 and 37million tonnes per year of plastic waste could enter the oceans by 2040 and between 155 and 265million tonnes per year could be discharged into the environment by 2060. Under a business as usual scenario, such increases would likely be attributable to a continuing rise in production of plastic products, driven by consumer demand, accompanied by insufficient improvements in waste management. As the plastic waste released into the environment already has a significant impact on ecosystems, an increase of this magnitude could have dramatic consequences.[35]The trade in plastic waste has been identified as "a main culprit" of marine litter.[a] Countries importing the waste plastics often lack the capacity to process all the material. As a result, the United Nations has imposed a ban on waste plastic trade unless it meets certain criteria.[b]Beach cleanup in GhanaThere are three major forms of plastic that contribute to plastic pollution: micro-, macro-, and mega-plastics. Mega- and micro plastics have accumulated in highest densities in the Northern Hemisphere, concentrated around urban centers and water fronts. Plastic can be found off the coast of some islands because of currents carrying the debris. Both mega- and macro-plastics are found in packaging, footwear, and other domestic items that have been washed off of ships or discarded in landfills. Fishing-related items are more likely to be found around remote islands.[37][38] These may also be referred to as micro-, meso-, and macro debris.Plastic bottle stuck on edge of riverPlastic debris is categorized as either primary or secondary. Primary plastics are in their original form when collected. Examples of these would be bottle caps, cigarette butts, and microbeads.[39] Secondary plastics, on the other hand, account for smaller plastics that have resulted from the degradation of primary plastics.[40]Microplastics in the surface ocean 19502000 and projections beyond, in million metric tonnesMain article: MicroplasticsMicrodebris are plastic pieces between 2mm and 5mm in size.[38] Plastic debris that starts off as meso- or macrodebris can become microdebris through degradation and collisions that break it down into smaller pieces.[3] Microdebris is more commonly referred to as nurdles.[3] Nurdles are recycled to make new plastic items, but they easily end up released into the environment during production because of their small size. They often end up in ocean waters through rivers and streams.[3] Microdebris that come from cleaning and cosmetic products are also referred to as scrubbers. Because microdebris and scrubbers are so small in size, filter-feeding organisms often consume them.[3]Nurdles enter the ocean by means of spills during transportation or from land based sources. The Ocean Conservancy reported that China, Indonesia, Philippines, Thailand, and Vietnam dump more plastic in the sea than all other countries combined.[41] It is estimated that 10% of the plastics in the ocean are nurdles, making them one of the most common types of plastic pollution, along with plastic bags and food containers.[42][43] These micro-plastics can accumulate in the oceans and allow for the accumulation of Persistent Bio-accumulating Toxins such as bisphenolA, polystyrene, DDT, and PCB's which are hydrophobic in nature and can cause adverse health affects.[44][45]A 2004 study by Richard Thompson from the University of Plymouth, UK, found a great amount of microdebris on beaches and in waters in Europe, the Americas, Australia, Africa, and Antarctica.[5] Thompson and his associates found that plastic pellets from both domestic and industrial sources were being broken down into much smaller plastic pieces, some having a diameter smaller than human hair.[5] If not ingested, this microdebris floats instead of being absorbed into the marine environment. Thompson predicts there may be 300,000 plastic items per square kilometre of sea surface and 100,000 plastic particles per square kilometre of seabed.[5] International Pellet Watch collected samples of polythene pellets from 30 beaches in 17 countries which were analysed for organic micro-pollutants. It was found that pellets found on beaches in the US, Vietnam and southern Africa contained compounds from pesticides suggesting a high use of pesticides in the areas.[46] In 2020 scientists created what may be the first scientific estimate of how much microplastic currently resides in Earth's seafloor, after investigating six areas of around 3km (1.9mi) depth about 300km (190mi) off the Australian coast. They found the highly variable microplastic counts to be proportionate to plastic on the surface and the angle of the seafloor slope. By averaging the microplastic mass per cm3, they estimated that Earth's seafloor contains about 14million tons of microplastic about double the amount they estimated based on data from earlier studies despite calling both estimates "conservative" as coastal areas are known to contain much more microplastic. These estimates are about one to two times the amount of plastic thought per Jambeck et al., 2015 to currently enter the oceans annually.[47][48][49]Plastic bags are an example of macrodebris.Macroplastics at the surface ocean 19502000 and projections beyond, in million metric tonnesPlastic debris is categorized as macrodebris when it is larger than 20mm. These include items such as plastic grocery bags.[3] Macrodebris are often found in ocean waters, and can have a serious impact on the native organisms. Fishing nets have been prime pollutants. Even after they have been abandoned, they continue to trap marine organisms and other plastic debris. Eventually, these abandoned nets become too difficult to remove from the water because they become too heavy, having grown in weight up to 6 tonnes.[3]9.2 billion tonnes of plastic are estimated to have been made between 1950 and 2017. More than half this plastic has been produced since 2004. Of all the plastic discarded so far, 14% has been incinerated and less than 10% has been recycled.[35]Average estimated decomposition times of typical marine debris items. Plastic items are shown in blue.Main article: Polymer degradationPlastics themselves contribute to approximately 10% of discarded waste. Many kinds of plastics exist depending on their precursors and the method for their polymerization. Depending on their chemical composition, plastics and resins have varying properties related to contaminant absorption and adsorption. Polymer degradation takes much longer as a result of saline environments and the cooling effect of the sea. These factors contribute to the persistence of plastic debris in certain environments.[38] Recent studies have shown that plastics in the ocean decompose faster than was once thought, due to exposure to sun, rain, and other environmental conditions, resulting in the release of toxic chemicals such as bisphenol A. However, due to the increased volume of plastics in the ocean, decomposition has slowed down.[50] The Ocean Conservancy has predicted the decomposition rates of several plastic products. It is estimated that a foam plastic cup will take 50 years, a plastic beverage holder will take 400 years, a disposable nappy will take 450 years, and fishing line will take 600 years to degrade.[5]It was estimated that global production of plastics is approximately 250 Mt per year. Their abundance has been found to transport persistent organic pollutants, also known as POPs. These pollutants have been linked to an increased distribution of algae associated with red tides.[38]See also: Category:Plastics companies by countrySingle-serve sachets are a major contributor to plastic pollution, especially in developing countriesIn 2019, the group Break Free From Plastic organized over 70,000 volunteers in 51 countries to collect and identify plastic waste. These volunteers collected over "59,000 plastic bags, 53,000 sachets and 29,000 plastic bottles," as reported by The Guardian. Nearly half of the items were identifiable by consumer brands. The most common brands were Coca-Cola, Nestl, and Pepsico.[51][52] According to the global campaign coordinator for the project Emma Priestland in 2020, the only way to solve the problem is stopping production of single use plastic and using reusable products instead.[53][54]Coca-Cola answered that "more than 20% of our portfolio comes in refillable or fountain packaging", they are decreasing the amount of plastic in secondary packaging.[55]Nestl responded that 87% of their packaging and 66% of their plastic packaging can be reused or recycled and by 2025 they want to make it 100%. By that year they want to reduce the consumption of virgin plastic by one third.[56]Pepsico responded that they want to decrease "virgin plastic in our beverage business by 35% by 2025" and also expanding reuse and refill practices what should prevent 67billion single use bottles by 2025.[56]A study from 2024, using the Break Free From Plastic dataset, found that of the aforementioned 50% of the waste that was identifiable by brand, 11% was attributable to Coca-Cola, 5% to Pepsico, 3% to Nestle, 3% to Danone, and 2% to Altria, totaling 24% of the total branded count. 56 companies accounted for over 50% of the branded items.[57]According to The Plastic Waste Makers index, 55% of plastic waste worldwide is created by 20 companies.[58]Share of plastic waste that is inadequately managedPer capita mismanaged plastic waste (in kilograms per person per day)The United States is the world leader in generating plastic waste, producing an annual 42million metric tons of plastic waste.[59][60] Per capita generation of plastic waste in the United States is higher than in any other country, with the average American producing 130.09 kilograms of plastic waste per year. Other high-income countries, such as those of the EU-28 (annual per capita generation 58.56kg), also have a high per capita plastic waste generation rate. Some high-income countries, such as Japan (annual per capital generation 38.44kg), produce far less plastic waste per capita.[61][62]The United States National Academy of Sciences estimated in 2022 that the worldwide entry of plastic into the ocean was 8million metric tons of plastic per year.[63] A 2021 study by The Ocean Cleanup estimated that rivers convey between 0.8 and 2.7million metric tons of plastic into the ocean, and ranked these river's countries. The top ten were, from the most to the least: Philippines, India, Malaysia, China, Indonesia, Myanmar, Brazil, Vietnam, Bangladesh, and Thailand.[64]Top 12 mismanaged plastic waste pollutersChina (27.7%)Indonesia (10.1%)Philippines (5.9%)Vietnam (5.8%)Sri Lanka (5%)Thailand (3.2%)Egypt (3%)Malaysia (2.9%)Nigeria (2.7%)Bangladesh (2.5%)South Africa (2%)India (1.9%)Rest of the world (27.3%)In 2018 approximately 513million tonnes of plastics wind up in the oceans every year out of which the 83,1% is from the following 20 countries: China is the most mismanaged plastic waste polluter leaving in the sea the 27.7% of the world total, second Indonesia with the 10.1%, third Philippines with 5.9%, fourth Vietnam with 5.8%, fifth Sri Lanka 5.0%, sixth Thailand with 3.2%, seventh Egypt with 3.0%, eighth Malaysia with 2.9%, ninth Nigeria with 2.7%, tenth Bangladesh with 2.5%, eleventh South Africa with 2.0%, twelfth India with 1.9%, thirteenth Algeria with 1.6%, fourteenth Turkey with 1.5%, fifteenth Pakistan with 1.5%, sixteenth Brazil with 1.5%, seventeenth Myanmar with 1.4%, eighteenth Morocco with 1.0%, nineteenth North Korea with 1.0%, twentieth United States with 0.9%. The rest of world's countries combined wind up the 16.9% of the mismanaged plastic waste in the oceans, according to a study published by Science in 2015.[8][65][66]All the European Union countries combined would rank eighteenth on the list.[8][65]In 2020, a study revised the potential 2016 U.S. contribution to mismanaged plastic;[20] It estimated that U.S.-generated plastic might place the U.S. behind Indonesia and India in oceanic pollution, or it might place the U.S. behind Indonesia, India, Thailand, China, Brazil, Philippines, Egypt, Japan, Russia, and Vietnam. In 2022, it was estimated all OECD countries (North America, Chile, Colombia, Europe, Israel, Japan, S. Korea) may contribute 5% of oceanic plastic pollution, with the rest of the world polluting 95%.[67] Since 2016 China ceased importing plastics for recycling and since 2019 international treaties signed by 187 countries restricted the export of plastics for recycling.[68][69]A 2019 study calculated the mismanaged plastic waste, in millions of metric tonnes (Mt) per year:52 Mt Asia17 Mt Africa7.9 Mt Latin America & Caribbean3.3 Mt Europe0.3 Mt US & Canada0.1 Mt Oceania (Australia, New Zealand, etc.)[70]Around 275million tonnes of plastic waste is generated each year around the world; between 4.8 million and 12.7million tonnes is dumped into the sea.[6] About 60% of the plastic waste in the ocean comes from the top five countries: China, Indonesia, the Philippines, Thailand and Vietnam.[71] The table below list the top 20 plastic waste polluting countries in 2010 according to a study published by Science, Jambeck et al (2015).[8][65]Top plastic polluters as of 2010[update]PositionCountryPlastic pollution (in 1000 tonnes per year)1China88202Indonesia32203Philippines18804Vietnam18305Sri Lanka15906Thailand10307Egypt9708Malaysia9409Nigeria85010Bangladesh79011South Africa63012India60013Algeria52014Turkey49015Pakistan48016Brazil47017Myanmar46018Morocco31019North Korea30020United States280All the European Union countries combined would rank eighteenth on the list.[8][65]In a study published by Environmental Science & Technology, Schmidt et al (2017) calculated that ten rivers: two in Africa (the Nile and the Niger) and eight in Asia (the Ganges, Indus, Yellow, Yangtze, Hai He, Pearl, Mekong and Amur) "transport 8895% of the global plastics load into the sea."[72][73][74][75]The Caribbean Islands are the biggest plastic polluters per capita in the world. Trinidad and Tobago produces 1.5 kilograms of waste per capita per day, is the biggest plastic polluter per capita in the world. At least 0.19kg per person per day of Trinidad and Tobago's plastic debris end up in the ocean, or for example Saint Lucia which generates more than four times the amount of plastic waste per capita as China and is responsible for 1.2 times more improperly disposed plastic waste per capita than China. Of the top thirty global polluters per capita, ten are from the Caribbean region. These are Trinidad and Tobago, Antigua and Barbuda, Saint Kitts and Nevis, Guyana, Barbados, Saint Lucia, Bahamas, Grenada, Anguilla and Aruba, according to a set of studies summarized by Forbes (2019).[76]The distribution of plastic debris is highly variable as a result of certain factors such as wind and ocean currents, coastline geography, urban areas, and trade routes. Human population in certain areas also plays a large role in this. Plastics are more likely to be found in enclosed regions such as the Caribbean. It serves as a means of distribution of organisms to remote coasts that are not their native environments. This could potentially increase the variability and dispersal of organisms in specific areas that are less biologically diverse. Plastics can also be used as vectors for chemical contaminants such as persistent organic pollutants and heavy metals.[38]Atlantic Ocean marine plastic on a beach in TenerifeA man and woman dragging a bag of plastic waste collected from the beach in GhanaPlastic pollution has also greatly negatively affected our environment. "The pollution is significant and widespread, with plastic debris found on even the most remote coastal areas and in every marine habitat".[77] This information tells us about how much of a consequential change plastic pollution has made on the ocean and even the coasts.In January 2022 a group of scientists defined a planetary boundary for "novel entities" (pollution, including plastic pollution) and found it has already been exceeded. According to co-author Patricia Villarubia-Gmez from the Stockholm Resilience Centre, "There has been a 50-fold increase in the production of chemicals since 1950. This is projected to triple again by 2050". There are at least 350,000 artificial chemicals in the world. They have mostly "negative effects on planetary health". Plastic alone contain more than 10,000 chemicals and create large problems. The researchers are calling for limit on chemical production and shift to circular economy, meaning to products that can be reused and recycled.[78]The problem of ocean plastic debris is ubiquitous. It is estimated that 1.54% of global plastics production ends up in the oceans every year, mainly as a result of poor waste management infrastructure and practices combined with irresponsible attitudes to the use and disposal of plastics. The weathering of plastic debris causes its fragmentation into particles that even small marine invertebrates may ingest hence contaminating the food chain. Their small size renders them untraceable to their source and extremely difficult to remove from open ocean environments.[79] In the marine environment, plastic pollution causes "Entanglement, toxicological effects via ingestion of plastics, suffocation, starvation, dispersal, and rafting of organisms, provision of new habitats, and introduction of invasive species are significant ecological effects with growing threats to biodiversity and trophic relationships. Degradation (changes in the ecosystem state) and modifications of marine systems are associated with loss of ecosystem services and values. Consequently, this emerging contaminant affects the socio-economic aspects through negative impacts on tourism, fishery, shipping, and human health".[80]See also: Ethylene Greenhouse_gas_emissions, and Plastic Greenhouse_gas_emissionsAccording to the "Plastic and Climate" report, in 2019 production and incineration of plastic contributed greenhouse gases in the equivalent of 850million tonnes of carbon dioxide (CO2) to the atmosphere. In trend, annual emissions from these sources would grow to 1.34billion tonnes by 2030. By 2050 plastic could emit 56billion tonnes of greenhouse gas emissions, as much as 14 percent of the earth's remaining carbon budget.[81][obsoletesource] Those are emission from production, transportation, incineration, but there are also releases of methane and effects on phytoplankton.[82]The emissions of methane from plastic decomposition and impact on phytoplankton, were still not known well when the report was released. According to one estimate, plastic floating in the ocean can emit annually 76 Mt methane equal to 2,129 Mt CO2e, based on the 100 years global warming potential of methane. But these numbers are very preliminary. From one side, it can be an overestimate as it is based on the emissions of LDPE in powder form, the most emission intensive type of plastic in this case and in tropical water where intense radiation increases decomposition. But from the other side it can be an underestimate, as it is not including the decomposition of plastic on land which is probably more emission intensive, the effects on phytoplankton which can be significant, the emissions from submerged plastic. Therefore, the authors prefer to not include them in the official estimate, but to write them in the full report, as a base for further discussion noting the high importance of the problem.[83][needs update]The United Nations Environment Programme used 2 different studies to estimate the impact of plastic on climate: according to the first, by the year 2040 the annual emissions from plastic will reach 2.1 GtCO2 and will consume 19% of the 1.5 degrees carbon budget, while the second estimated the emissions in the year 2015 as 1.7 GtCO2 and predicted that by the year 2050 they will reach 6.5 GtCO2, consuming 15% of the carbon budget.[84] The OECD estimated the emissions from plastic as 1.8 GtCO2 (3.7% of total emissions) in 2019 which will rise to 4.3 GtCO2 (4.5% of total emissions) in 2060, without measures to reduce them.[85]In a 2024 Bloomberg article, the ever-increasing consumption of plastics was highlighted as a critical environmental issue. Global use is projected to reach 1.1 billion metric tons by 2050, up from just 2 million in the 1950s. The plastic industry's greenhouse gas emissions are substantial, having emitted 1.8 billion metric tons in 2019, with the potential to exceed 2.5 billion metric tons by 2050 if no changes are made.[citation needed]With global recycling rates for plastic packaging at a mere 20%, most discarded plastics end up incinerated or in landfills, where they emit methane as they decompose.[citation needed]The international community[clarification needed] is divided on how to address the plastic issue. Proposals range from national pledges to mandatory production controls, with the latter being supported by entities like the European Union.[need quotation to verify] However, the recycling solution is under scrutiny due to low success rates. As a result, there's a growing movement towards reducing plastic production and implementing bans on single-use plastics. States like Maine and Oregon are taking legislative action with extended producer responsibility laws to ensure that manufacturers are accountable for the lifecycle environmental impact of their products.[86]Plastic pollution on land poses a threat to the plants and animals including humans who are based on the land.[87] Estimates of the amount of plastic concentration on land are between four and twenty three times that of the ocean. The amount of plastic poised on the land is greater and more concentrated than that in the water.[88] Mismanaged plastic waste ranges from 60 percent in East Asia and Pacific to one percent in North America.[89] It is estimated that between 1 million and 1.7 million tonnes of mismanaged plastic is transported to the ocean each year.[90]In 2021 a report conducted by the Food and Agriculture Organization stated that plastic is often used in agriculture. There is more plastic in the soil than in the oceans. The presence of plastic in the environment hurt ecosystems and human health and pose a threat to food safety.[91]Chlorinated plastic can release harmful chemicals into the surrounding soil, which can then seep into groundwater or other surrounding water sources and also the ecosystem of the world.[92] This can cause serious harm to the species that drink the water.Volunteers clearing gutters in Ilorin, Nigeria during a volunteer sanitation day. Even when there is adequate infrastructure for sanitation, plastic pollution can prevent drainage and impede sewage flow.Plastic waste can clog storm drains, and such clogging can increase flood damage, particularly in urban areas.[93] A buildup of plastic garbage at trash cans raises the water level upstream and may enhance the risk of urban flooding.[94] For example, in Bangkok flood risk increases substantially because of plastic waste clogging the already overburdened sewer system.[95]A 2017 study found that 83% of tap water samples taken around the world contained plastic pollutants.[96][97] This was the first study to focus on global drinking water pollution with plastics,[98] and showed that with a contamination rate of 94%, tap water in the United States was the most polluted, followed by Lebanon and India. European countries such as the United Kingdom, Germany and France had the lowest contamination rate, though still as high as 72%.[96] This means that people may be ingesting between 3,000 and 4,000 microparticles of plastic from tap water per year.[98] The analysis found particles of more than 2.5 microns in size, which is 2500 times bigger than a nanometer. It is currently unclear if this contamination is affecting human health, but if the water is also found to contain nano-particle pollutants, there could be adverse impacts on human well-being, according to scientists associated with the study.[99]However, plastic tap water pollution remains under-studied, as are the links of how pollution transfers between humans, air, water, and soil.[100]Mismanaged plastic waste leads to plastic directly or indirectly entering terrestrial ecosystems.[101] There has been a significant increase of microplastic pollution due to the poor handling and disposal of plastic materials.[102] In particular, plastic pollution in the form of microplastics now can be found extensively in soil. It enters the soil by settling on the surface and eventually making its way into subsoils.[103] These microplastics find their way into plants and animals.[104]Effluent and sludge of wastewater contain large amounts of plastics. Wastewater treatment plants do not have a treatment process to remove microplastics which results in plastics being transferred into water and soil when effluent and sludge are applied to land for agricultural purposes.[104] Several researchers have found plastic microfibers that are released when fleece and other polyester textiles are cleaned in washing machines.[105] These fibers can be transferred through effluent to land which pollutes soil environments.[103]The increase in plastic and microplastic pollution in soils can cause adverse impacts on plants and microorganisms in the soil, which can in turn affect soil fertility. Microplastics affect soil ecosystems that are important for plant growth. Plants are important for the environment and ecosystems so the plastics are damaging to plants and organisms living in these ecosystems.[102]Microplastics alter soil biophysical properties which affect the quality of the soil. This affects soil biological activity, biodiversity and plant health. Microplastics in the soil alter a plant's growth. It decreases seedling germination, affects the number of leaves, stem diameter and chlorophyll content in these plants.[102]Microplastics in the soil are a risk not only to soil biodiversity but also food safety and human health. Soil biodiversity is important for plant growth in agricultural industries. Agricultural activities such as plastic mulching and application of municipal wastes contribute to the microplastic pollution in the soil. Human-modified soils are commonly used to improve crop productivity but the effects are more damaging than helpful.[102]Plastics also release toxic chemicals into the environment and cause physical, chemical harm and biological damage to organisms. Ingestion of plastic does not only lead to death in animals through intestinal blockage but it can also travel up the food chain which affects humans.[101]The unaltered stomach contents of a dead albatross chick photographed on Midway Atoll National Wildlife Refuge in the Pacific in September 2009 include plastic marine debris fed to the chick by its parentsMain article: Plastic soupMarine life is one of the most important when one is affected by plastic pollution. Plastic pollution puts animals' lives in danger and is in constant fear of extinction. Marine wildlife such as seabirds, whales, fish and turtles mistake plastic waste for prey; most then die of starvation as their stomachs become filled with plastic. They also suffer from lacerations, infections, reduced ability to swim, and internal injuries.[106] This evidence tells us how damaged marine wildlife is being affected by plastic pollution, they bring up how many animals mistake plastic for prey and eat it without knowing. "Globally, 100,000 marine mammals die every year as a result of plastic pollution. This includes whales, dolphins, porpoises, seals and sea lions".[107] This evidence tells us the statistics of how many marine mammals really are negatively affected enough to die from plastic pollution.Research into freshwater plastic pollution has been largely ignored over marine ecosystems, comprising only 13% of published papers on the topic.[108]Plastics make their way into bodies of freshwater, underground aquifers, and moving freshwaters through runoff and erosion of mismanaged plastic waste (MMPW). In some areas, the direct waste disposal into rivers is a remaining factor of historical practices, and has only been somewhat limited by modern legislation.[109] Rivers are the primary transport of plastics into marine ecosystems, sourcing potentially 80% of the plastic pollution in the oceans.[110][111] Research on the top ten river catchments ranked by annual amount of MMPW showed that some rivers contribute as high as 8895% of ocean-bound plastics, the highest being the Yangtze River into the East China Sea.[112] Asian rivers contribute nearly 67% of plastic waste found in the ocean annually, largely influenced by the high density coastal populations all throughout the continent as well as relatively intense bouts of seasonal rainfall.[113]A study analyzing ingestion of plastics across a variety of previously published experiments showed that out of the 206 species covered, the majority of papers documented ingestion in fish.[109] This does not quite mean that fish ingest plastic more than other organisms, but instead highlights the underrepresentation of plastic effects in equally important organisms, like aquatic plants, amphibians and invertebrates. Despite this disparity, controlled experiments analyzing microplastic impact on aquatic plants like the algae Chlorella spp and common duckweed Lemna minor have yielded significant results. Between microplastics of polypropylene (PP) and polyvinyl chloride (PVC), PVC demonstrated greater toxicity to Chlorella pyrenoidosa, overall negatively impacting their photosynthetic ability. This effect on photosynthesis is likely due to the 60% reduction of algal chlorophyll a associated with high PVC concentrations found in the same study.[114] When analyzing the effect of polyethylene microbeads (origin: cosmetic exfoliants) on the aquatic macrophyte L.minor, no effect on photosynthetic pigments and productivity was found, but root growth and root cell viability decreased.[115] These results are concerning as plants and algae are integral to nutrient and gas cycling within an aquatic system, and have the capacity to create significant changes in water composition due to their sheer density. Crustaceans have also been analyzed for their response to plastic presence. There is proof that freshwater crustaceans, specifically European crabs and crayfish, suffer entanglement in polyamide ghost nets used in lake fishing.[116] When exposed to plastic nanoparticles of polystyrene, Daphnia galeata (common water flea) experienced reduced survival within 48 hours as well as reproductive issues. Over a span of 5 days, the amount of pregnant Daphnia decreased by nearly 50%, and less than 20% of exposed embryos survived without any immediate repercussions.[117] Other arthropods, like juvenile stages of insects are susceptible to similar plastic exposure as some spend part of their adolescence fully submerged in a freshwater resource. This similarity in lifestyle to other aquatic invertebrates indicates that insects may experience similar side effects of plastic exposure.An American robin dead after becoming tangled in discarded fishing linePlastic exposure in amphibians has mostly been studied in adolescent life stages, when the test subjects are still dependent on an aquatic environment where it can be easier to manipulate variables experimentally. Studies on a common South American freshwater frog, Physalaemus cuvieri indicated that plastics may have the potential to induce mutagenic and cytotoxic morphological changes.[118] Much more research needs to be done on amphibian response to plastic pollution, especially since amphibians can serve as initial indicator species of environmental decline.[119] Freshwater mammals and birds have long been known to have negative interactions with plastic pollution, often resulting in entanglement or suffocation/choking after ingesting. While inflammation within the gastrointestinal tract in both groups has been noted, unfortunately there is little to no data on the toxicological effects of plastic pollutants in these organisms.[109] Fish have been studied the most regarding plastic pollution in freshwater organisms, with the majority of studies indicating evidence of plastic ingestion in wild-caught samples and lab specimens.[109] There have been some attempts to look at lethality of plastics in a common freshwater model species, Danio rerio, aka zebrafish. Increased mucus production and inflammation response in the D.rerio GI tract was noted, but additionally, researchers noted a distinct shift in the microbial communities within the zebrafish intestinal microbiome.[120] This finding is significant, as research within the last few decades has increasingly revealed how much power intestinal microbiomes have regarding their host's nutrient absorption and endocrine systems.[121] Because of this, plastics may have a far more drastic effect on individual organism health than is currently known so far, thus warranting the need for further research as soon as possible. Many of these findings also have been found in a laboratory setting, so more effort needs to be channeled into measuring plastic abundance and toxicology in wild populations.The site where the refuse is being recycled in GhanaCompounds that are used in manufacturing pollute the environment by releasing chemicals into the air and water. Some compounds that are used in plastics, such as phthalates, bisphenol A (BPA), polybrominated diphenyl ether (PBDE), are under close statute and might be very harmful. Even though these compounds are unsafe, they have been used in the manufacturing of food packaging, medical devices, flooring materials, bottles, perfumes, cosmetics and much more. Inhalation of microplastics (MPs) have been shown to be one of the major contributors to MP uptake in humans. MPs in the form of dust particles are circulated constantly through ventilation and air conditioning systems indoors.[122] The large dosage of these compounds are hazardous to humans, destroying the endocrine system. BPA imitates the female's hormone called estrogen. PBD destroys and causes damage to thyroid hormones, which are vital hormone glands that play a major role in the metabolism, growth and development of the human body. MPs can also have a detrimental effect on male reproductive success. MPs such as BPA can interfere with steroid biosynthesis in the male endocrine system and with early stages of spermatogenesis.[123] MPs in men can also create oxidative stress and DNA damage in spermatozoa, causing reduced sperm viability.[123] Although the level of exposure to these chemicals varies depending on age and geography, most humans experience simultaneous exposure to many of these chemicals. Average levels of daily exposure are below the levels deemed to be unsafe, but more research needs to be done on the effects of low dose exposure on humans. A lot is unknown on how severely humans are physically affected by these chemicals. Some of the chemicals used in plastic production can cause dermatitis upon contact with human skin. In many plastics, these toxic chemicals are only used in trace amounts, but significant

the year 2021.[229][230]On 3 July 2021, the EU Single-Use Plastics Directive (SUPD, EU 2019/904) went into effect within EU member states. The directive aims to reduce plastic pollution from single-use disposable plastics. It focuses on the 10 most commonly found disposable plastics at beaches, which make up 43% of marine litter (fishing gear another 27%). According to the directive, there is a ban on plastic cotton buds and balloon sticks, plastic plates, cutlery, stirrers and straws, Styrofoam drinks and food packaging (e.g. disposable cups and one-person meals), products made of oxo-degradable plastic, which degrade into microplastics, while cigarette filters, drinking cups, wet wipes, sanitary towels and tampons receive a label indicating the product contains plastic, that it belongs in the trash, and that litter has negative effects on the environment.[231][232] Article 8 of the directive also supports the use of extended producer responsibility schemes relating to plastic waste.[233]In December 2022 the EU took the first steps for banning the export of plastic waste to other countries.[234] Agreement between the European Parliament and the European Council on a revision to the Waste Shipment Regulation, which will cover this matter, was reached on 17 November 2023.[235]In 2021 France banned "free plastic bottles, plastic confetti, and single-use plastic bags", in 2022 restrictions were made on plastic packaging and toys and in the first of January 2023 many types of single use plastic were banned from restaurants that have more than 20 places. Some were concerned the measures will not be implemented well due to the current energy crisis.[236]Say no to polythene. Sign. Nako, Himachal Pradesh, India.The government of India decided to ban single use plastics and take a number of measures to recycle and reuse plastic from 2 October 2019.[237]The Ministry of Drinking Water and Sanitation, Government of India, has requested various governmental departments to avoid the use of plastic bottles to provide drinking water during governmental meetings, etc., and to instead make arrangements for providing drinking water that do not generate plastic waste.[238] The state of Sikkim has restricted the usage of plastic water bottles (in government functions and meetings) and styrofoam products.[239] The state of Bihar has banned the usage of plastic water bottles in governmental meetings.[240]The 2015 National Games of India, organised in Thiruvananthapuram, was associated with green protocols.[241] This was initiated by Suchitwa Mission that aimed for "zero-waste" venues. To make the event "disposable-free", there was ban on the usage of disposable water bottles.[242] The event witnessed the usage of reusable tableware and stainless steel tumblers.[243] Athletes were provided with refillable steel flasks.[244] It is estimated that these green practices stopped the generation of 120 tonnes of disposable waste.[245]The City of Bangalore in 2016 banned the plastic for all purpose other than for few special cases like milk delivery etc.[246]The state of Maharashtra, India effected the Maharashtra Plastic and Thermocol Products ban 23 June 2018, subjecting plastic users to fines and potential imprisonment for repeat offenders.[247][248]In the year 2022 India has begun to implement a country wide ban on different sorts of plastic. This is necessary also for achieving the climate targets of the country as in plastic production are used more than 8,000 additives, part of them are thousands times more powerful greenhouse gases than CO2.[249]In Bali, one of the many islands of Indonesia, two sisters, Melati and Isabel Wijsen, made efforts to ban plastic bags in 2019.[250][251] As of January 2022[update] their organization Bye Bye Plastic Bags had spread to over 50 locations around the world.[252]In Israel, two cities: Eilat and Herzliya, decided to ban the usage of single use plastic bags and cutlery on the beaches.[253] In 2020 Tel Aviv joined them, banning also the sale of single use plastic on the beaches.[254]In August 2017, Kenya has one of the world's harshest plastic bag bans. Fines of $38,000 or up to four years in jail to anyone that was caught producing, selling, or using a plastic bag.[255]New Zealand announced a ban on many types of hard-to-recycle single use plastic by 2025.[256]In 2019, The House of Representatives of Nigeria banned the production, import and usage of plastic bags in the country.[257]Spain banned several types of single use plastic at the beginning of the year 2023.[258]In February 2018, Taiwan restricted the use of single-use plastic cups, straws, utensils and bags; the ban will also include an extra charge for plastic bags and updates their recycling regulations and aiming by 2030 it would be completely enforced.[255]In January 2019, the Iceland supermarket chain, which specializes in frozen foods, pledged to "eliminate or drastically reduce all plastic packaging for its store-brand products by 2023."[259]As of 2020, 104 communities achieved the title of "Plastic free community" in United Kingdom; 500 want to achieve it.[260]After two schoolgirls Ella and Caitlin launched a petition about it, Burger King and McDonald's in the United Kingdom and Ireland pledged to stop sending plastic toys with their meals. McDonald's pledged to do it from the year 2021. McDonald's also pledged to use a paper wrap for it meals and books that will be sent with the meals. The transmission will begin already in March 2020.[261]From October 2023 many types of single use plastic will be banned in England including cutlery and plates. Scotland and Wales have already implemented such bans.[262] The new rules entered into force on the first of October, but many are unaware and not prepared for it.[263]In the beginning of 2024, 12 states and at least 500 municipalities had some kind of plastic bag ban. Three state bans and two city bans alone reduced the amount of plastic bags used in one year approximately by 6billion.[264]In 2009, Washington University in St. Louis became the first university in the United States to ban the sale of plastic, single-use water bottles.[265]In 2009, the District of Columbia required all businesses that sell food or alcohol to charge an additional 5 cents for each carryout plastic or paper bag.[266]In 2011 and 2013, Kauai, Maui and Hawaii prohibit non-biodegradable plastic bags at checkout as well as paper bags containing less than 40 percent recycled material. In 2015, Honolulu was the last major county approving the ban.[266]In 2015, California prohibited large stores from providing plastic bags, and if so a charge of $0.10 per bag and has to meet certain criteria.[266]In 2016, Illinois adopted the legislation and established "Recycle Thin Film Friday" in effort toe reclaim used thin-film plastic bags and encourage reusable bags.[266]In 2019, the state New York banned single use plastic bags and introduced a 5-cent fee for using single use paper bags. The ban will enter into force in 2020. This will not only reduce plastic bag usage in New York state (23 billion every year until now), but also eliminate 12million barrels of oil used to make plastic bags used by the state each year.[267][268]The state of Maine ban Styrofoam (polystyrene) containers in May 2019.[269]In 2019 the Giant Eagle retailer became the first big US retailer that committed to completely phase out plastic by 2025. The first step stop using single use plastic bags will begun to be implemented already on January 15, 2020.[270]In 2019, Delaware, Maine, Oregon and Vermont enacted on legislation. Vermont also restricted single-use straws and polystyrene containers.[266]In 2019, Connecticut imposed a $0.10 charge on single-use plastic bags at point of sale, and is going to ban them on 1 July 2021.[266]On 30 July 2017, Vanuatu's Independence Day, made an announcement of stepping towards the beginning of not using plastic bags and bottles. This made it one of the first Pacific nations to do so and will start banning the importation of single-use plastic bottles and bags.[255]Surgical mask among dry grass in Brastad during the COVID-19 pandemicThe ten corporations that produce the most plastic on the planet, The Coca-Cola Company, Colgate-Palmolive, Danone, Mars, Incorporated, Mondelz International, Nestl, PepsiCo, Perfetti Van Melle, Procter & Gamble, and Unilever, formed a well-financed network that has sabotaged for decades government and community efforts to address the plastic pollution crisis, according to a detailed investigative report by the Changing Markets Foundation. The investigation documents how these companies delay and derail legislation so that they can continue to inundate consumers with disposable plastic packaging. These large plastic producers have exploited public fears of the COVID-19 pandemic to work toward delaying and reversing existing regulation of plastic disposal. Big ten plastic producers have advanced voluntary commitments for plastic waste disposal as a stratagem to deter governments from imposing additional regulations.[271]PepsiCo faced legal action on 15 November 2023, as the New York attorney general filed a lawsuit. The allegations asserted that the food and beverage giant jeopardized the environment and disseminated deceptive information about its dedication to reducing single-use plastic in packaging. Moreover, a substantial portion of the plastic pollution along the Buffalo River was linked to products manufactured by the company.[272]As early as the early 1970s, petrochemical industry leaders understood that the vast majority of plastic they produced would never be recycled. For example, an April 1973 report written by industry scientists for industry executive states that sorting the hundreds of different kinds plastic is "infeasible" and cost-prohibitive. By the late 1980s, industry leaders also knew that the public must be kept feeling good about purchasing plastic products if their industry was to continue to prosper, and needed to quell proposed legislation to regulate the plastic being sold. So the industry launched a $50million/year corporate propaganda campaign targeting the American public with the message that plastic can be, and is being, recycled, and lobbied American municipalities to launch expensive plastic waste collection programs, and lobbied U.S. states to require the labeling of plastic products and containers with recycling symbols. They were confident, however, that the recycling initiatives would not end up recovering and reusing plastic in amounts anywhere near sufficient to hurt their profits in selling new "virgin" plastic products because they understood that the recycling efforts that they were promoting were likely to fail. Industry leaders more recently have planned 100% recycling of the plastic they produce by 2040, calling for more efficient collection, sorting and processing.[273][274]In 2019, the Earth Day Network partnered with Keep America Beautiful and National Cleanup Day for the inaugural nationwide Earth Day CleanUp. Cleanups were held in all 50 states, five US territories, 5,300 sites and had more than 500,000 volunteers.[275][276]Earth Day 2020 is the 50th Anniversary of Earth Day. Celebrations will include activities such as the Great Global CleanUp, Citizen Science, Advocacy, Education, and art. This Earth Day aims to educate and mobilize more than one billion people to grow and support the next generation of environmental activists, with a major focus on plastic waste.[277][278]Every year, 5 June is observed as World Environment Day to raise awareness and increase government action on the pressing issue. In 2018, India was host to the 43rd World Environment Day and the theme was "Beat Plastic Pollution", with a focus on single-use or disposable plastic. The Ministry of Environment, Forest, and Climate Change of India invited people to take care of their social responsibility and urged them to take up green good deeds in everyday life. Several states presented plans to ban plastic or drastically reduce their use.[279]On 11 April 2013 in order to create awareness, artist Maria Cristina Finucci founded The Garbage Patch State at UNESCO[280] headquarters in Paris, France, in front of Director General Irina Bokova. This was the first of a series of events under the patronage of UNESCO and of the Italian Ministry of the Environment.[281]Mexico City implemented a ban on single-use plastics, starting with plastic bags in 2020 and expanding to items like utensils, straws, and to-go trays in 2021.[282]In 2020, China disclosed a three-part proposal to reduce plastic pollution. The plan includes a nationwide prohibition on single-use plastics, introduced as the country's plastic waste had risen to an anticipated 45million tons in 2025, partly as a result of a surge in e-commerce packaging.[282]BurningEddy pumping The role of mesoscale eddies in trapping and transporting plastic in the oceanGreat Pacific Garbage Patch an area with concentrations of pelagic plastics, chemical sludge, and other debrisPlastic-eating organismsMarine plastic pollutionMicroplastic remediationPlasticultureRefill (scheme)Reverse vending machineRubber pollutionNuclear wasteTechnofossil^ "Campaigners have identified the global trade in plastic waste as a main culprit in marine litter, because the industrialised world has for years been shipping much of its plastic "recyclables" to developing countries, which often lack the capacity to process all the material."[36]^ "The new UN rules will effectively prevent the US and EU from exporting any mixed plastic waste, as well plastics that are contaminated or unrecyclable a move that will slash the global plastic waste trade when it comes into effect in January 2021."[36]^ "Plastic pollution". 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