

PLASTIC BAN IN MAHARASHTRA STATE FROM MARCH 2018 : IS IT A WIN-WIN POLICY?

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Plastic and its products have gained significant popularity in every known industry ever since its invention in 1907. The Maharashtra state alone produces 22570 metric tons of plastic each day. Plastic are non-biodegradable and block the sewers, drains and rivers, which was one of the major reasons of flooding in the low line areas of Mumbai during 26th July 2005-Mumbai floods. Animals, fishes and birds swallow plastic as they often mistake it for their food, which leads to a very slow and painful death. Marine life and coral reefs are heavily contaminated by plastic. The Maharashtra State cabinet accepted the proposal of banning plastic items by environment department on March 18, 2018 by making amendments in the Solid Waste Management Act 2016 and Plastic Carry Bags (Manufacture and Usage) Rules 2006. Is it a sustainable and long-term solution for such kind of solid waste?

Pedagogical Objectives

- To understand the issues related to plastic waste.
- To study Solid Waste Management Act 2016 and Plastic Carry Bags (Manufacture and Usage) Rules 2006
- To throw light on the steps taken by the Maharashtra government.

Case Positioning and Setting

This case can be used for teaching courses like Environmental Management, Environmental Law and Public Policy.

Keywords: *Plastic waste, Solid Waste Management Act 2016, Plastic Carry Bags (Manufacture and Usage) Rules 2006*

INTRODUCTION

The environment minister Mr. Deshmukh of the Government of Maharashtra was invited to the prime time show “Meri Awaaz” which was being hosted by the most famous and experienced journalist of the channel

Mr Rajat Verma. Mr. Verma is the managing director of the channel and is known for his live debates and straightforward questions that has shaken the legs of his guests. The show has witnessed interviews of notable personalities from diverse fields since

its inception. It has been broadcasted by the channel for 30 years and is loved by the majority of adult Indians. The show involves Mr. Verma as the prosecutor and the guests are invited to defend themselves against the strong allegations made against them. Mr. Deshmukh has had a 17 years long political career during which he has been elected by the people for the second time consecutively and is serving as the environment minister in the Government of Maharashtra for the first time. During the interview, Mr. Deshmukh was accused by Mr. Verma that he is not working efficiently and is unable to handle his department because of poor solid waste management in the state to which Mr. Deshmukh then replied that the department is new to him and it is his sheer promise that he will take strict actions to clean the entire state in future and make it pollution free with efficient solid waste management system. He further stated that this menace is caused due to the negligence of previous ruling parties who should have taken an initiative to mitigate the problem caused by plastic pollution.

Two years later, Mr. Deshmukh was addressing the local crowd on a fine Sunday morning where an old woman, Miss D Souza threw a bag full of plastic trash on him, shouting and calling him a liar and useless. After facing, such a great humiliation he asked his guards to escort the lady out. He thought that the woman might be mentally retarded and forgot the incident like his promise but the lady continued her protest because of increasing plastic pollution in the city and the fake promise which Mr. Deshmukh made during his

interview in Meri Awaaz. Luckily, she got a chance to have a meeting with Mr. Patil, who is a dedicated researcher working on solid waste management. During their meeting, Mr. Patil found some shocking ground impacts due to plastic can cause the end the world very sooner. Tears rolled down her face when Miss D Souza was describing the condition of the society in which she was living. She strongly felt that Mr. Deshmukh is responsible for all this menace, as his party is doing nothing to control the pollution due to which the public is facing the consequences. Adding to her statement, she said that the rich politicians are living a lavish life and they do not care about the poor people of their society.

Meanwhile, various groups started doing protest against plastic pollution and video of this incident went viral in every corner of the state. Soon everyone was talking about the filthy plastic waste in Maharashtra which became a burning debate topic for the news channels, newspapers, media house and top debaters. Due to this, Mr. Deshmukh and his whole department were criticized on social media platforms like Twitter, Facebook, Instagram and YouTube where people posted their views against plastic pollution and started using #plastic_pollution and #clean_this_mess showing their anger against the Maharashtra government. Media got a very good opportunity to target Mr. Deshmukh as the discussions against him were increasing the Television Rating Point of their channel. Mr. Ranjeet Kapoor, a Bollywood superstar wrote an article regarding his views on plastic pollution and informed

the media that he would soon release a movie on this topic so that everyone gets the message to discard the use plastic and further quoted that: “Maharashtra government has not realized the problem of plastic pollution. It is not a problem of the state but also a global issue. We should learn something from the government of Nigeria and Kenya that they have banned the manufacture and use of plastic packaging for domestic use as well as commercial purpose. Today plastic is everywhere. Even I have a question, what is the state government doing?”

When nothing worked out then the chief minister’s wife Mrs. Deshmukh decided that she would have to do to something in order to change her husband’s mind. This gave birth to a totally different personality inside her as her affection towards the environment was very strong and she wanted to be a part of the change that will come into the society. Her husband was in a very powerful position; she knew that the whole environment of the state can be improved if she could change his mind. She decided to surround her husband with plastic as much as possible. In the beginning, she served tea to Mr. Deshmukh in plastic cups but he was a busy man and didn’t realize the change. She then served him food in plastic plates and cups with plastic spoons and forks instead of ceramic utensils for dinner to which Mr. Deshmukh was surprised and asked her the reason. Mrs. Deshmukh replied that it was he who told her that plastic is safe and he should not hesitate to eat in plastic utensils. Mr. Deshmukh then

realized that his wife has a very serious point and understood why the people are going against him. That night he neither ate his dinner nor did he get any sleep as he was thinking whole night about his wrongdoings.

Next morning, Mr. Deshmukh went early to his office, called his personal assistant Raju, and told him his problem. He then asked him to fix a meeting with someone who can help him come up with a solution. Raju after making some enquiries got to know about a scientist Mr. Pillai from Indian Institute of Science, Bangalore who was working on a project to find alternatives for plastic. Raju then fixed a meeting between the two where Mr. Pillai advised Mr. Deshmukh that plastic pollution is a very big issue and he as an individual cannot provide a solution to the government. In addition, it would take time for him to collect data and do research. He then advised Mr. Deshmukh to organize a summit where professors, researchers and industrialists from all over the globe would be the delegates, which would give a platform to brilliant minds to highlight their opinion, and then they can come to a final judgment. Mr. Deshmukh agreed and decided to organize Maharashtra’s first Global Summit for Plastic pollution on February 5, 2018. In the summit, a key personality none other than Dr. Radhakrishnan, a researcher from the Indian Institute of Technology, Mumbai was invited. He has earlier published numerous papers on the ill effects of plastic in urban cities and was still doing research on it. He was a very popular figure among the researchers and was the recipient of

the Padma Shri award for his work in the field of science and technology. Everyone in the audience along with Mr. Deshmukh was eager to watch him on the dais. There was pin-drop silence when he entered the stage and started his presentation.

PLASTIC POLLUTION

Global Scenario

Dr. Radhakrishnan informed the audience that how invention of plastic has turned into a disaster and has affected not only Maharashtra but also the entire globe. Plastic gave birth to an entire new industry in the market and its production is increasing exponentially year after year due to its overuse (Exhibit I). It is extensively used and has become a need for the Homo sapiens in their day-to-day lives. The global annual consumption of plastic in 2017 was about 400 million tons and around 9 billion tons of plastic have been produced till date which cannot be decomposed naturally without harming the environment¹. Plastic products become a liability after usage because of their non-biodegradable properties and hence takes years to decompose (Exhibit II). Even if we do not stop plastic production, recycle, and reuse it, a point will come when the whole earth will be flooded with plastic and we will have no place to get rid of it. Mr. Deshmukh suddenly got emotional with his eyes wet and said that if we do not get rid of plastic then our oceans will have more plastic than fishes.

Plastic pollution has not only affected the land mass and population but also drastically affected the aquatic

and marine life. Today if we just go for a walk to any beach, we will find that they are littered with plastic. These plastics are then carried out by the waves due to which plastic debris is getting collected in the water bodies. This has resulted into the Great Pacific Garbage Patch (GPGP) where all the plastic and floating trash weighing 79,000 metric tons have accumulated to form an entire island of plastic whose area is estimated to be 600,000 square miles and still counting which is three times the size of France² (Exhibit III). Birds like albatross living in islands near this region are eating plastic for their food that suffocates them to a very painful death. According to the National Oceanographic and Atmospheric Administration (NOAA), plastic debris kills an estimated 100,000 marine mammals annually, as well as millions of birds and fishes³. When plastic is mixed with salt water and disintegrates, it gets surrounded by algae which releases an odour alike the smell of small marine animals like krill. The marine animals often mistake this floating plastic for their food and eat it. The plastic gets fragmented into small particles of diameter less than that of the human hair which when swallowed gets accumulated into the stomach of marine animals and blocks their digestive tract causing death due to suffocation, choking, starvation or gastric rupture. The sea turtles also mistake plastic as jellyfish and which gets stuck in their throat and they die due to suffocation. This is also a threat to human life as we may not know that the fish we are eating may have swallowed plastic (Exhibit IV). The food chain is very seriously affected due to plastic pollution due to which

many species are getting endangered and extinct. On 18th March 2019, a beached whale was found dead with 88 pounds of plastic trash inside its body. The 15 feet long whale weighing 1100 pounds was found in the town of Mabini with plastic bags and other disposable plastic products inside its stomach⁴. According to a study by German scientists, 12000 micro plastic particles were found per litre in the Arctic sea ice core samples which has tripled than the previous measurements. The samples contained 17 different types of plastics like nylon, polyethylene, cigarette filter ingredients, *etc*⁵.

The production of plastic consumes around 8% of the global oil production in terms of raw material as well as the energy consumed to produce it⁶. The plastic dumped and buried deep inside the soil interacts with water, produces harmful chemicals in the form of leachate, and generates harmful chemicals that can poison and degrade the quality of groundwater. Plastic contaminates the soil and increases soil erosion by reducing its permeability and water absorption capacity. Plastic prevents the growth of plants by restricting its growth because they are unable to extract water and other nutrients from the soil. This has affected our agricultural lands due to which farmers are unable to yield crops even after providing the required amount of manure and fertilizers to the soil. Every year its costs millions of dollars to the governments and many other organizations across the globe to clean the menace created by the plastic but they have been able to remove a negligible amount of plastic

waste till date. The cleanup drives are getting costlier than the production of plastic that is hitting us economically. Most of the people burn plastic in their backyard to get rid of it due to which harmful gases like carbon monoxide, dioxins and furans are released into the atmosphere which may cause diseases like cancer, birth defects, decrease fertility, loss in sperm count, lung diseases, neurological disorders, skin disorders, *etc*. It may also alter hormonal imbalance and sexual behavior orientation.

2.2 Indian Scenario

As India's population is increasing day by day since the last few decades, the amount of municipal solid waste including plastic waste has been generating tremendously in the country, which lead to the use of plastic products as integral part of our daily lifestyle. Strong, flexible, waterproof, durable in nature, cheap and easily available in market encouraged the plastic manufacturers and retail business sector to produce and use tremendous amount of plastic. Until now more than 9 billion tons of plastic has been produced among which only 9% of plastic waste (*i.e.* 0.81 billion tons) has been recycled⁷.

After 1970, polymers or plastic materials are growing at the rate of 2.5 times the GDP growth in India. Rapid growth of urbanization, industrialization, over population, innovations, spread of retail business have carried both the quantity and variety of plastic waste generation. India is the second largest country in terms of population after China, which is 1.35 billion (as per latest

⁴<http://www.darrinqualman.com/global-plastics-production/> (last accessed on March 20, 2018)
⁵<http://www.foxnews.com/science/2018/04/06/great-pacific-garbage-patch-of-the-pacific-fractured-and-growing-study-finds.html> (last accessed on March 20, 2018)

United Nations Estimates 2018). It is estimated that till 2025 India will be the largest country in terms of population with 1.451 billion population⁸. India contributes to 17.74% of total world's population out of which 44.99 million that is 33.2% population lives in urban area. As per a study of Top 20 countries dumping maximum amount of plastic wastes into oceans from their coastline, India ranked 12th among 192 countries⁹.

As per the CPCB 2014-15 report, India generated 51.4 million tons of solid waste annually out of which 46.77 million tons of solid waste was collected and only 12.63 million tons of municipal solid waste was treated or dumped in the soil while there is no authentic figure for plastic waste generation but it is estimated that India generates more than 25940 tons of plastic waste every day that is more than 9.468 million tons of plastic waste annually (2017)¹⁰.

It is expected that by 2020, domestic annual consumption of plastic will touch 20 million tons in India¹¹. As per a CPCB Report, the plastic waste generation in 2014-2015 and 2015-16 was 7,88,999.62 TPA (Tons Per Annum) and 15,89,418 TPA respectively where it can be seen that the plastic waste generation in year 2015-16 is more than double of year 2014-15¹². In terms of solid waste generation, Maharashtra was India's largest solid waste generator in 2017 with 26820 TPD (Tons per Day) as per Union Ministry of new and renewable energy¹³. Among all the generated plastic waste, Maharashtra alone has generated 469098 TPA that is 29.51% of total plastic waste generated by

country in year 2015-16. Due to varying properties of plastics, it has become extremely useful and necessary part for modern living. Use of plastic products has their own merits and demerits. Plastic products had brought excellent quality in human living standard and modern life style. Nowadays plastic is everywhere. Plastic is in bottles, carpets, sports products, construction industry, fabrics, packaging, medicines, electronics, cosmetics, carrying bags and many more. Plastic has versatile range of applications and hard to avoid from over daily life. During 2005, there was a Mega Urban Flood in Mumbai¹⁴. The heavy rains resulted in death of many people and affected transportation by land, rails and air. This flood was mainly caused by choking and clogging of drains by plastic wastes and improper drainage. These clogged and choked drains gave birth to mosquitoes, which carry germs of dengue, malaria, typhoid, *etc.*

For the sustainable cities and healthy solutions, we will have to move ahead without plastic use. In India, plastic is used in temples in a very large quantity which is then disposed in rivers, canals or drains. This has contaminated river Ganga and the government has spent ₹20000 crore for its rejuvenation¹⁵.

3. PLASTIC BAN IN INDIA: CASE STUDIES

3.1 Mumbai

Mumbai, the populous city of India having 12.4 million residents has been affected numerous times due to clogged drains and sewer pipes. The city lies on the coast of Arabian Sea

that experiences high tides very often. Many times the water level rises and the city gets involved in a situation of flood. Mumbai was hit by a storm on July 26th, 2005 experiencing 944 mm of rain which continued approximately for 30 hours¹⁶. The city land mass was covered with water due to the blockage of drainage system, clogging of sewer pipes. Mumbai was drowning in water with almost no solution to stop the rise of water level. People were stuck on roads, public places, and airport for more than 24 hours and around 1096 people died. The government announced to evacuate the city as soon as possible but it failed to be a good solution because all the movement facilities around the city was blocked. Mumbai has seen its darkest night during the flood. These floods affected the commercial market summing up to a direct loss of ₹5.50 billion. Stock markets were closed for 2 days that affected the economy of the country. Mobility of local trains, auto-rickshaws, buses and flights was stopped due to heavy flooding of the roads, rail tracks, and runway. Later, when several groups did a research on causes of flood, all of them came to the same conclusion that the main reason was garbage dumping in drains that blocked the drainage systems. The drainage network was built by the British which discharges water in Mithi River. Plastic bags, plastic packaging items and other wastes covered all drain openings. It was found that the drainage pipes were filled with plastic wastes that resist the flow of water. The Municipal Corporation was shocked after knowing the ill effects of plastic bags. Mumbai is facing the problem of blocked drains and

encounters flooding situation almost every year during the monsoon season till date. After the flood, government took an initiative of modifying the drainage networks, which involved widening of drainpipes, removing the obstacles from the drain openings, installing pumping stations in few locations. Government came up with strict regulations for the builders who were developing the slum areas as they were harming the construction of drainage network. The Bombay Municipal Corporation (BMC) was asked to develop a better chain of collecting solid waste and managing sustainably. Around 9400 tons of waste is generated daily, of which plastic accounts for approximately 500 tons¹⁷. The scrap vendors in the city only focus on buying the PET (Polyethylene Terephthalate) bottles and not the plastic bags as recycling of plastic bags does not give a handsome profit.

3.2 Aurangabad

Aurangabad, the 5th largest city of Maharashtra has a very wide contribution in the economy of Maharashtra, as the city is a tourism hub for its historical monuments including the Ajanta and Ellora caves. It is one of the fastest growing cities of India. Aurangabad daily produces garbage of the 430 metric tons. In this estimate over 15,342 tons of plastic waste is produced daily while more than 6000 tons remains uncollected. This problem turned out to be a very big crisis in the month of March 2018 when 5420 metric tons of garbage was accumulated in the dumping yards of the city¹⁸. The whole city was flooded

with plastic waste and stinking of foul smell. The plastic garbage allowed rodents and mosquitoes to breed and spread epidemic in the city. In this city, there was no treatment plant for the processing of solid waste produced. The municipal corporation dumped the waste directly in open ground, which lead to various health problem to the surrounding villagers and contaminated the groundwater. The plastic waste recycled in Aurangabad is estimated to be 9205 tons per day but still the city is littered with plastic waste.

4. Is it a Sustainable Solution?

Dr. Radhakrishnan stood silent watching the audience for two minutes and then concluded saying that we have been producing plastic exponentially and harming our mother earth over the past few decades without knowing the ill effects of it but now that we know the consequences and the price that we have to pay, we must stop using it for the better future of our generations to come. It would be very unfair for our successors if we don't take any step against plastic pollution and hand over them a very filthy and littered earth to live their life. Everyone in the audience were stunned after the facts and figures presented by Dr. Radhakrishnan. Mr. Deshmukh had no words to say when he realized that he was guilty of promoting plastic pollution. This made him change his mind and he proposed to make amendments in the plastic carry bag rules 2006 imposing ban on the manufacture, usage, distribution, transport, wholesale and retail sale, storage and import of plastic bags, disposable plastic containers,

flex boards, banners flags, non-woven polypropylene bags and thermocol products like plates, cups, bowls, glasses, spoons, forks *etc.* Earlier the ban was only on the plastic products having thickness less than 50 microns. The cabinet accepted his proposal on March 18, 2018. However, few items were exempted from this ban such as PET bottles under a buyback depository scheme, compostable plastic bags used in nurseries and agriculture, food grain plastic bag having thickness not less than 50 microns and plastic cover/wrap used in packaging.

In addition, plastic manufacture and plastic bags in Special Economic Zones and export-oriented units are exempted from this ban. The state government also imposed fine ranging from ₹5000 to ₹25000 and a punishment of three month jail term if found using plastic bags. Meanwhile, the implementation of this rule on the ground level has become very difficult for the Maharashtra Pollution Control Board (MPCB) as they do not have any framework for the buyback depository scheme and it has become difficult for the shopkeepers and vendors in the unorganized sector to sell their goods without plastic bags. The ban has highly affected the operations of top retailers like D-Mart chain. They are charging their customers ₹15-20 for cloth bags as an alternative to plastic, which has made them, suffer losses.

In Maharashtra, the plastic industry provided employment to almost 300000 individuals who became jobless. The ban has delayed packaging, production and supply schedule of the bakery, grains and clothing business. Almost 680000 readymade garment pieces for

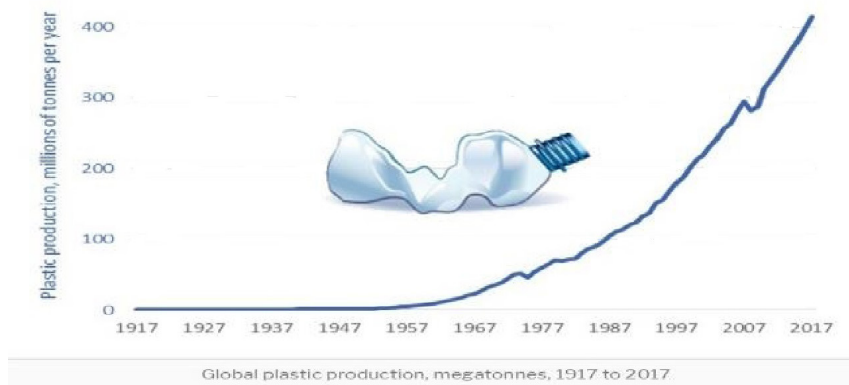
export are awaiting their dispatch due to unavailability of transparent plastic bag in Mumbai¹⁹. The people who are most affected are the consumers in the market whose life was dependent on plastic use. They do not have any close alternative to plastic, which was cheap and durable. People will have to pay higher price for daily use products like milk whose cost will increase after being sold in bottled glass instead of plastic. The cost of tetra pack milk is already high in the market as compared to the one packaged in plastic. Due to the lack of a cheap alternative, the consumers are paying extra from their pocket in their daily lives. Few months after the implementation of the amendments in Plastic Carry Bags Rules 2006, Dr. Radhakrishnan observed that plastic are produced in the state due to exemption of ban on few items which still contribute in creating plastic pollution. Even after prohibiting plastic manufacture, its use has not curtailed. He is still

doing research on the efficient ways to eradicate the use of plastic without creating a problem for the consumers which is sponsored by the Government of Maharashtra.

Assignment Questions

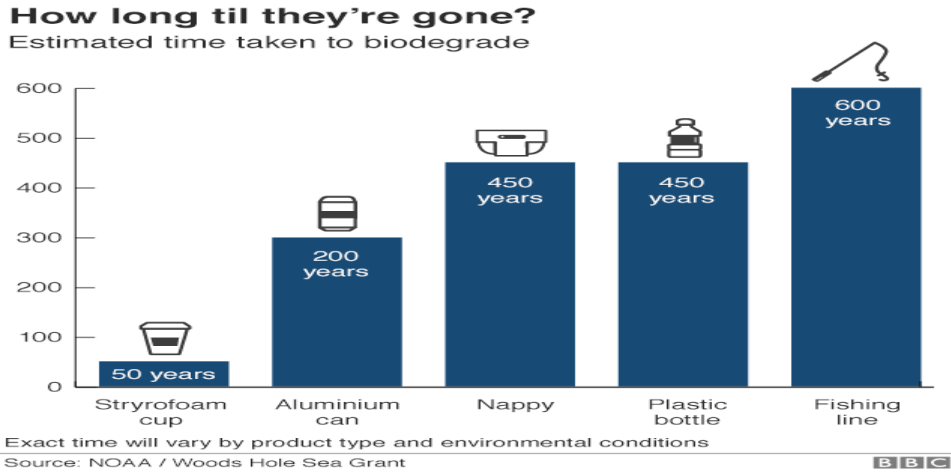
- I. What made the government to put ban on plastics?
- II. What kind of plastic items can be recycled?
- III. What are the other substitutes of plastic and their impact on the price of the products?
- IV. Will it stop the illegal production of plastic?
- V. How will this act help to reduce plastic waste and make the environment clean in future?
- VI. Who will follow this regulation when 31.7 million people of Maharashtra are illiterate and below poverty line?

Exhibit I: Global rise in plastic production over the last century



Source: <https://www.darrinqualman.com/global-plastics-production/> (last accessed on April 7, 2018)

Exhibit II: Time taken by different plastic products to degrade



Source: <http://www.bbc.com/news/science-environment-42264788> (last accessed on May 13, 2018)

Exhibit III: The Great Pacific Garbage Patch in Pacific Ocean



Source: <https://oceanservice.noaa.gov/podcast/june14/mw126-garbagepatch.html> (last accessed on May 19, 2018)

Exhibit IV: Sea turtle swallowing plastic and plastic found in stomach of dead albatross



Source: <http://www.onegreenplanet.org/animalsandnature/marine-animals-are-dying-because-of-our-plastic-trash/> (last accessed on May 13, 2018)

¹ <http://www.darrinqualman.com/global-plastics-production/> (last accessed on March 20, 2018)

² <http://www.foxnews.com/science/2018/04/06/great-pacific-garbage-patch-is-three-times-size-france-and-growing-study-finds.html> (last accessed on March 20, 2018)

³ <https://oceanservice.noaa.gov/podcast/june14/mw126-garbagepatch.html> (last accessed on March 20, 2018)

⁴ <https://www.nbcnews.com/news/world/whale-philippines-dies-88-pounds-plastic-stomach-n984421> (last accessed on March 29, 2019)

⁵ <https://www.inshorts.com/en/news/12000-plastic-pieces-found-per-litre-of-arctic-sea-ice-1524806242627> (last accessed on March 22, 2018)

⁶ <https://www.eia.gov/tools/faqs/faq.php?id=34&t=6> (last accessed on March 22, 2018)

⁷ <https://www.cnbc.com/2017/07/19/the-world-has-made-more-than-9-billion-tons-of-plastic-says-new-study.html> (last accessed on March 23, 2018)

⁸ <http://www.worldometers.info/world-population/india-population/> (last accessed on March 23, 2018)

⁹ www.dnaindia.com/india/report-india-in-top-20-countries-that-dump-maximum-plastic-in-oceans-2061269 (last accessed on March 25, 2018)

¹⁰ www.cpcb.nic.in (last accessed on March 28, 2018)

¹¹ <https://www.news18.com/news/india/india-produces-over-25000-tonnes-of-plastic-waste-a-day-environment-ministry-1618383.html> (last accessed on March 28, 2018)

¹² www.mpcb.gov.in (last accessed on March 28, 2018)

¹³ <http://www.thehindu.com/news/national/other-states/maharashtra-tops-in-solid-waste-cpcb-report/article7068527.ece> (last accessed on March 29, 2018)

¹⁴ <https://www.thequint.com/news/india/after-maximum-damage-of-2005-deluge-maximum-city-unchanged> (last accessed on March 30, 2018)

¹⁵ <https://www.scoopwhoop.com/NGT-Asks-Centre-To-Not-Spend-A-Penny-More-On-Ganga-Cleaning/> (last accessed on April 2, 2018)

¹⁶ <https://goo.gl/GJSdgc> (last accessed on April 2, 2018)

¹⁷ <https://timesofindia.indiatimes.com/city/mumbai/Mumbai-adds-700MT-of-plastic-to-its-garbage-pile-every-day/articleshow/40872644.cms> (last accessed on April 4, 2018)

¹⁸ <https://rmets.onlinelibrary.wiley.com/doi/abs/10.1002/qj.325> (last accessed on April 5, 2018)

¹⁹ http://www.business-standard.com/article/economy-policy/over-50-000-smes-on-verge-of-closure-due-to-plastic-ban-in-maharashtra-118022400646_1.html (last accessed on April 6, 2018)

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