Toxic Plastic Waste:
Situation of Disposal, Management and Trade of Bangladesh

A Country Situation Report By

Environment and Social Development Organization (ESDO)

in collaboration with

International Pollutants Elimination Network (IPEN)

ESDO

IPEN

for a toxics-free future

Report Back: The Toxic Plastic Waste Trade

ANNEX-D: Narrative Report

This study is an exclusive assessment done by the Environment and Social Development Organization (ESDO) in light of IPEN- ESDO partnership under the IPEN Toxics- free SDGs Phase 3, which have the primary objective to raise public awareness of the relationship between plastic waste, toxic substances and pollutant impacts with the ultimate aim of minimizing such trade and its associated impacts on the environment and human health.

Report Back: The Toxic Plastic Waste Trade

The goal of this report is to recognize the current disposal system of vastly used plastic products (and their wastes) in Bangladesh and its contributing impact on human health and the environment. The demand for plastic items over the world is expanding day by day for its adaptability and low cost, Bangladesh is no exception here. Recycling plastic waste has the potential to transfer toxic substance into newly made products and thus has the potential to harm the circular economy.

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The Toxic Plastic Waste Trade

Plastics, as of now play an enormous part in our day to day lives. Plastic is utilized in all kind of productions where tonnes of plastic items are molded daily, indeed as the waste proceeds to pile up. From water bottles to credit cards, to the dashboard of a car, plastic is frequently an essential component. Due to the reality that most plastics are not biodegradable, a gigantic sum of plastic waste proceeds to construct up around the world, with industrialized countries contributing the biggest sum of plastic wastages. More particularly, the larger part of plastic waste comes from packaging and holders (e.g., shipping materials, cleanser bottles, refreshment bottles, etc.).

There is a dearth of scientific study in terms of investigating the premise of Bangladesh's plastic usage and waste generation. The gross production in the plastic industry, in the manner waste is being disposing of, the management of plastic waste and its impact on human health and environment- all of it are speculated and reviewed exclusively based on the existing literatures. Despite incorporating a colossal sum of plastic squanders, unfortunately, there is neither any viable data of the exact amount of waste it produces nor there is any specific plastic-waste disposal management guideline in Bangladesh. Worldwide several developed countries have adapted quite a few innovative ways to reduce their staggering stacks of plastic waste products as they have realized how much threatful the plastic is on their life and environment, as a whole on the country. As a solution, they have begun to export plastic waste to developing countries because it's cheap, it will help meet recycling targets and reduces domestic landfills. However, contaminated plastic and rubbish that cannot be recycled often get mixed in and ends up in illegal processing centers. Previously, China was receiving the greatest amount of plastic waste but in 2018, the Chinese government banned the import of 32 kinds of solid wastes including plastic waste. As a result of China’s ban, from developed countries, a huge amount of mixed up, disorganized wastes blended with plastic waste were entering the countries of southeast Asia including Malaysia, Indonesia, Thailand, Vietnam, Taiwan and Bangladesh.

Hence, the reason for this desk-study is to look at the outside and inside components influencing the plastic waste industry of Bangladesh and to help building the pavement to raise awareness by depicting the true scenario. Moreover, this report has also looked into adverse effects of waste imports on other sectors such as the destruction of the food chain and health impacts.

Bangladesh was one of the very first speakers against plastic and polythene. ESDO takes pride in its role as it was the first organization in 1990 to conduct comprehensive research into the adverse effects of the production and use of polythene in Bangladesh. Environmental consequences stemming from commercial production to the effects on soil, water (chemical contamination and drainage), atmosphere, plant and animals, agriculture, health, and the economy- have been successfully researched and documented and was employed as the basis for ESDO’s nation-wide anti-polythene campaign.

In 2017, ESDO introduced “Ban Single Use Plastic” Campaign under which rallies, workshops, seminars, human chains are arranged across the country to raise mass awareness and public voice in support of single use plastic ban. In 2018, ESDO has been organizing Brand Audit of Single Use plastics in Bangladesh and it is a continuous process which is observed every year. In 2019, ESDO has completed its second annual survey of plastics use in Bangladesh, which focused

exclusively on single-use plastics (SUP). From this survey data, ESDO estimates from single use plastic waste, about 96% of which is from food and personal care products. About 35% of the total of these wastes are sachets, which are completely non-recyclable. In 2020- High court rule to take initiative in banning single use plastic by 2021 and phase out of single use plastic from Bangladesh by 2022.

ESDO, as a relentless voice against Plastic, has fulfilled its duty even in the global pandemic. A study has been conducted by ESDO about how COVID-19 Pandemic influencing Single-Use Plastic Waste Outbreak (ESDO, 2020) from the beginning of lockdown, and the report has been published in July 2020[1]. Prior to that, ESDO's other groundbreaking features on plastic waste was on the use of Plastic Lamination in Posters and Leaflets. This desk assessment is another angle of light on this battle against plastic and plastic waste.

This report exclusively studied the current scenario from various surveys and study reports done by ESDO; also acknowledges input from secondary sources cited in the reference. The chapters focus on three major areas which are plastic waste disposal, plastic waste management, and health and environmental impact of plastic waste. It also considers the aspects of plastic waste trade, legal guidelines, and the implication of the Basel Amendment.

[1] https://esdo.org/wp-content/uploads/Summery_Report_on_COVID-19-Pandemic-Pushes-Single-Use-Plastic-Waste-Outbreak_by_ESDO_2020-1.pdf

As a country at beginning phase of development, Bangladesh, being one of the most populated nations of Asia and the Pacific, throughout quick financial development that is changing its well established provincial rural agricultural economy into an urban-industrial economy, is assailed with overwhelming nature of the environmental problems of all kinds. Of these issues most noticeable one is waste, especially in its metropolitan environment.

In Bangladesh, admittance to appropriate waste disposal services is limited, especially in metropolitan slum and low-income areas. Just about 42% of created waste is gathered in unsegregated way and unloaded at landfill destinations in totally mixed-up state, and the rest is left uncollected or undisposed. As much as 400 tonnes of wastes are unloaded on the side of the roads and in open spaces (Amin, 2017). Quite possibly the most unfriendly effects of poor waste administration, particularly municipal waste, is visible through the high rate and prevalence of sicknesses, for example, malaria and respiratory issues, likewise different diseases through the pollution of ground water.

The segregation of waste at initial level of generation is still not practiced in Bangladesh. The wastes are dumped in unsorted manner and all the waste including compostable waste, non-biodegradable plastics, infectious medical waste as well as electronic waste make their way to the landfills in blended state. Some informal pickers pick up the valuables like plastic bottles from the dumpsites but due to the mixed-up state, it is not manually possible to recover and sort the waste categorically. There is a practice of burning waste exercised locally as a waste management procedure. Burning waste are causing issues, as plastics is delivering harmful substances, for example, dioxins, when they are being incinerated. Gases from burning is causing air pollution, while the debris from incinerators may contain heavy metals and different toxins. As a consequent, Bangladesh has been named the world's most polluted country for PM2.5 exposure while Dhaka has emerged as the second most polluted city in the 2019 World Air Quality Report.

Discarding waste in present manner has tremendous environment effects and causing major issues. Some waste will ultimately compost, yet not all, and in the process, it smells, and producing methane gas, which is explosive and contributing to Greenhouse effect. Leachate created as waste deteriorates is causing contamination. Poorly managed landfill areas are drawing in vermin and causing litter.

Figure 1: Bangladesh Plastic Scenario at a glance

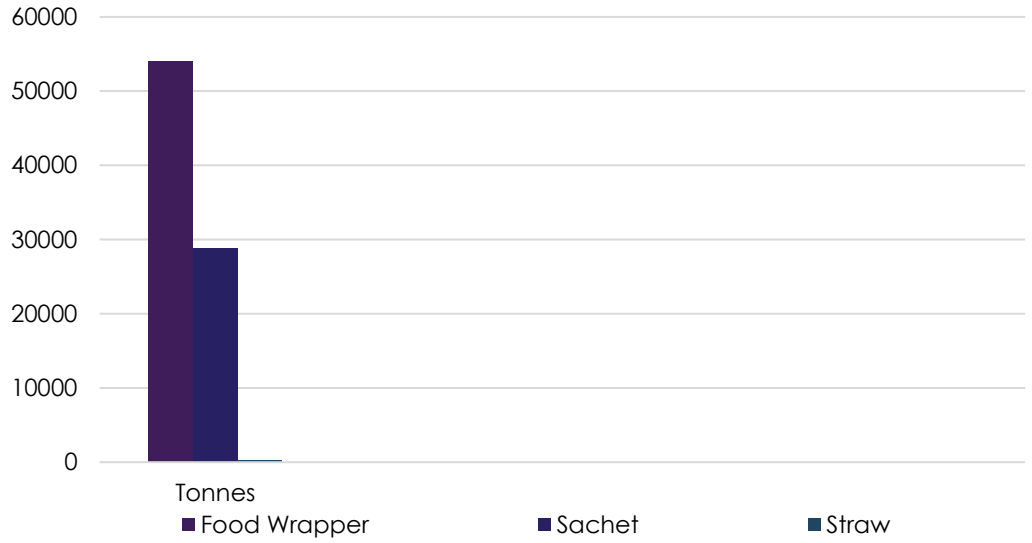
[*Source: (KG, 2016); (Markus Klar, 2014); (ESDO, 2020); (Islam, 2019)]

In Bangladesh, food and personal care packaging are the largest contributor to single-use plastic waste. Sachets are also an emerging source of single-use plastic waste, which are used mostly for packaging food items and personal care products in small quantities such as – ketchup, coffee sachet, mini packs, and tetra packs of shampoo, conditioner, toothpaste, etc. The sachet is growing in popularity in both urban and rural areas. For consumer goods giants, sachets were a brilliant marketing tactic to capture the low-income market and good for brand visibility, but the consequences are severe in terms of environmental health perspective. The complex construction of sachet — multiple layers of polymers, aluminum and films designed to keep products fresh in soggy tropical heat — sachets are almost impossible to recycle. Additionally, there is no economic incentive to collect used sachets that have been improperly dumped, that is why waste pickers do not bother to pick these up, in contrast with a one-litter plastic bottle that might be worth something once collected. When scattered indiscriminately, these sachets clog drains and contribute to flooding. Hence the sachets are considered as one of the major sources of single-use plastic pollution around the globe.

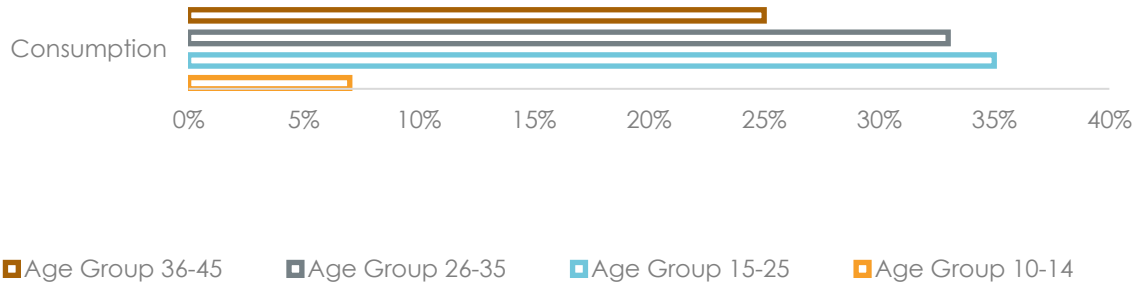
It can also be deduced that plastic wastes are mostly generated in urban areas of the country with a certain portion from rural usage. Our previous study reveals that, of the total generated annual plastic waste, around 78% (68136 tonnes) is generated from urban areas whereas the rest of the 22% (18,571 tonnes) emerges from usage in rural areas.

The predominant consumer group in the capital city that has been identified as users fall within the age group of 15- 35 years contributing to 68% of the total usage- depicting the shocking statement of a vast amount of plastic usage among the young group and the degrading consciousness.

Annual Generation of Major Single Use Plastic Product in Bangladesh (in tonnes)



Single Use Plastic Food Packaging Consumption by Age Group In Dhaka



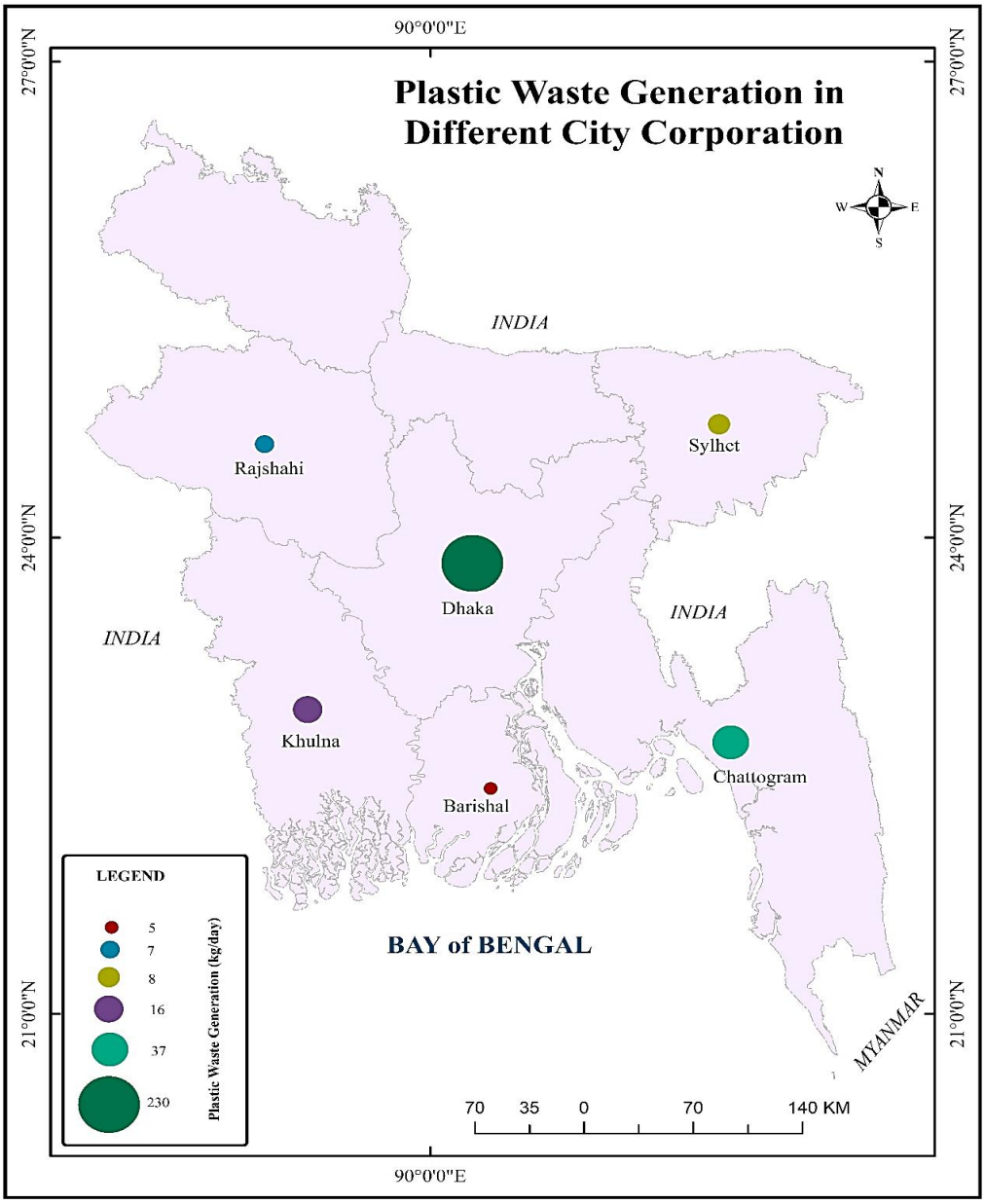


Figure 2: Plastic Waste Generation in Different City Corporations (kg/day) [Source: ((M. Alamgir, 2007))]

Plastic products that cannot serve any more are used for landfilling, incineration even throwing to the water body such as pond, river and even sea in Bangladesh. Plastic packaging, being one of the highest contributors to plastic-waste in Bangladesh, is easily found in ponds, canals, and water bodies clogging the drainage system.

In 2017, a study was reported by Environment and Social Development Organization-ESDO, showing that most of the used plastic and polythene end up in landfills and water bodies across the country. There is no process to collect or recycle them. Among the high amount of plastic waste, about 50% of the plastic are dumped in the open places, canals, drains. The situation is worse in urban areas but not that different in rural area. In Dhaka city, 45 to 55% of the total waste (2,200 ton/day) are unmanaged waste (less than 4 m depth) and dumped in open space.

Figure 3: Plastic Waste Disposal Scenario Dhaka, Bangladesh (Source: ESDO)

The major problem with plastic waste disposal in Bangladesh is that people dispose their waste in unsorted way. Organic waste, solid waste including plastic, medical waste, e-waste all are dumped in one bin at the households and collected in the similar unsorted manner for disposal. It is not possible to recover all the recyclable materials from this blended waste even if advance technologies for recycling are introduced. So, waste segregation at primary stage is of major priority if we wish to address the issues associated with plastic waste management.

Additionally, as the recycling practices in Bangladesh are still in developing state. For many Southeast Asian countries like Bangladesh, waste has historically been organic and compostable. With the introduction of plastic in the last 50 years - a material pushed by industry from Organization for Economic Co-operation and Development countries into Southeast Asian countries that have no waste management systems to deal with it. This colonialist approach to trade ignored the inevitable impacts that this waste would have adverse effect on the environment and people of these Southeast Asian countries where waste has historically been able to be left in the environment and waterways to naturally degrade. People find it simpler to dump the waste recklessly near roadside or in the river or sea shore rather than reuse through recycling. Recyclable waste segregation at initial stage, cost of recycling, lack of available technologies are the driving forces of landfilling or dumping of waste plastics in the water body such as channels, lakes, rivers and even to sea which consequently affects the infertility of soil

and contamination of water to a greater extent. Moreover, open dumping of the unsorted solid waste combined with plastic waste is a common practice among mass people which causes adverse effect on the environment through the emission of greenhouse gas.

Despite desperate efforts, the authorities have failed to clean the sewers, and more importantly, to make people responsible about using and disposing plastic bags. From time to time, there have been government efforts to popularize organic packaging materials such as jute and cotton, but in vain. In spite of being aware of the detrimental effects of plastic, 61% of the people in the country use polythene bag.

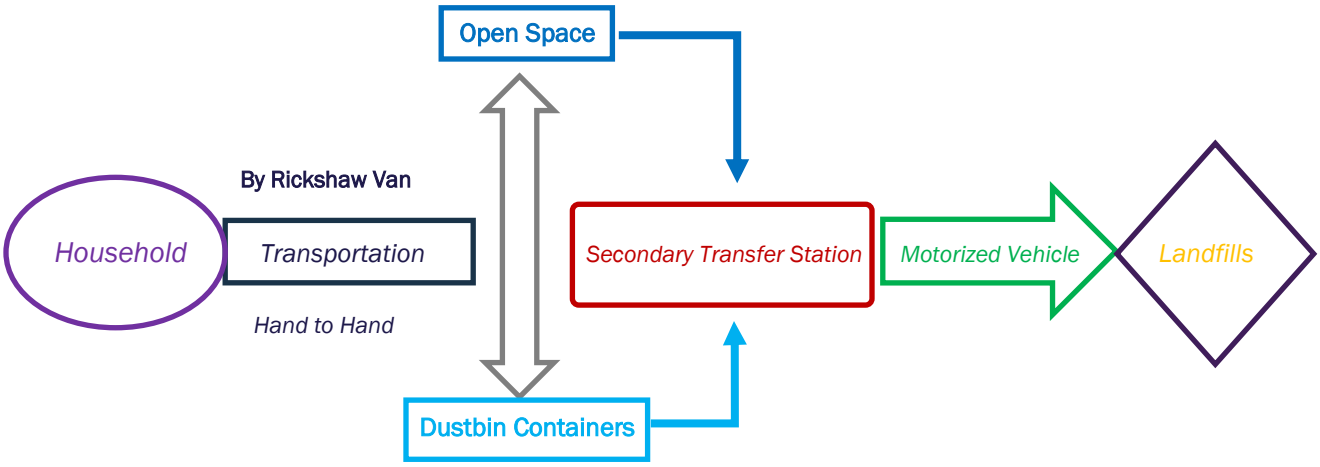


Figure 4: Conventional trend of plastic waste disposal in the household of Bangladesh

[*Source: (Castaldi, 2014); (Jenna R. Jambeck, 2015); (Tania, 2014)]

There are formal and informal systems associated with waste management in Bangladesh:

1. **Formal System:** In the 'Formal System', the municipalities/city corporations are responsible for Solid Waste Management (SWM) which is based on the conventional system of collection-transportation-disposal of waste carried out by the local authorities. Unfortunately, in this system the concept of waste segregation and recycling is absent.
2. **Informal System:** The 'Informal System' is represented by the large informal labor force involved in the solid waste recycling trade chain.

In urban areas, large contingent of sweepers sweep the cities every day in Bangladesh in three different groups. The first group cleans the roads and streets and collects the rubbish onto manually drawn carts or bamboo baskets. This collected rubbish is then dumped in some intermediate collection points. The second group cleans the roadside drains and collects the silt and unsegregated solid wastes (which have fallen into the drains) and either carry them to the nearest intermediate dump site, garbage bin, or make another pile on the side of the roads. The third group of people collect the wastes from these sites and haul them to landfills. This system is not sustainable as all the placed waste are unsorted. Additionally, before they are collected by the trucks, the wastes swept from the roads are piled on the side of the roads. Moreover, animals and scavengers dig into the piles made-up of swept up wastes and scatter it. Besides, moving vehicles scatter overflowing garbage from the piles. This already collected waste then flows to the roadside drains. These wastes then have to be recollected by the second group of collectors. So, this repetition results in the waste of labor and money as well as loss of recyclable waste.

To guarantee better administrations to the resident, the Dhaka City Corporation (DCC) has been separated into two sections in particular Dhaka North City Corporation (DNCC) and Dhaka South City Corporation (DSCC) by the Local Government Act 2009. To smoothing the waste assortment measure, every one of the wards has been assembled into five zones with significant measure of strong waste administration workplaces and authorities.

To recapitulate, the most common plastic waste management follows the steps, which are the manual collection of plastic waste from the unsegregated solid waste, treatment of plastic waste like composting, incineration and disposal (landfills) of plastic waste. In Bangladesh, open dumps and open burning are the main procedures to dispose of plastic waste although the collection of plastic waste takes 80–90% of total plastic waste management budgets (Modak P).

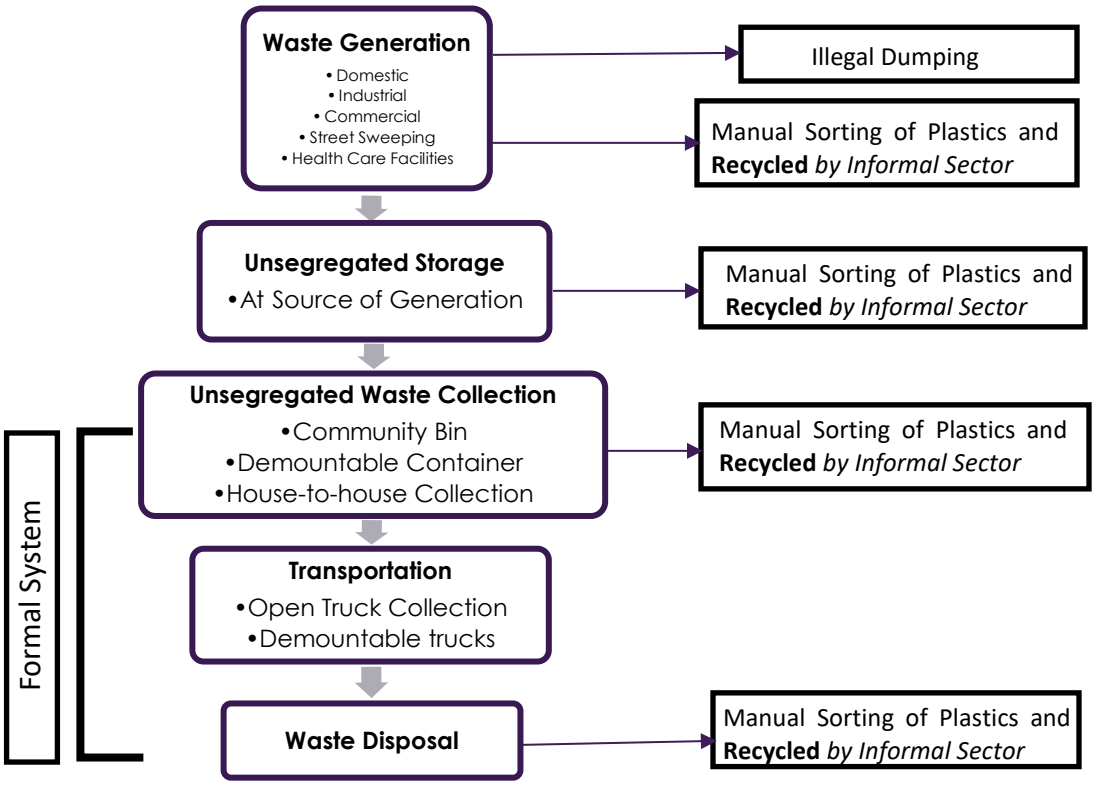


Figure 5: Solid Waste (Plastic) Management System of Bangladesh

LEVELS OF PLASTIC POLLUTION AND PLASTIC WASTE

Due to the increasing production; use of plastic (especially packaging) and the targeting of vulnerable developing countries like Bangladesh with single use items like sachets, that have no effective waste management options available, unfortunately Bangladesh remains one of the top plastic polluted countries. Images of clogged rivers as a result of haphazard disposal of plastic bottles partly depict the gravity of the problem.

In the year of 2015, almost one-third of the total population of Bangladesh lived in the urban areas, which was only 4.33% in the year 1951. This large migration of the people to the urban locality can be marked as the ambition to lead a better standard life, boost up economic condition and eventually threatening the ecological balance through waste generation and among total generated waste plastic comprises 8% every year which is numerically 800,000 tonnes[2]. A remarkable amount of plastic waste is generated from the food manufacturer and an estimation revealed that the amount is close to 70,400 tonnes from 500 food processing industries of Bangladesh (Monjur Mourshed, 2017). In the FY 2010–2011 with a per capita consumption of 5 kg whereas the world's average per capita consumption was 30 kg. However, for being a developing country, the cost-effective nature of plastic is highly focused here rather than its impact on human health.

One of the most detrimental effects by plastic litter to surrounding air can be attributed to intentional or incidental open-fire burning which is hugely practiced in Bangladesh. The air pollution is caused by the noxious fumes released into the atmosphere during plastic combustion. Plastic burning generates highly toxic gases such as hydrogen chloride, hydrocyanic acid, carbon monoxide, carbon dioxide, and sulfur dioxide, volatile organic compounds such as toluene, xylene, benzole, and benzaldehyde, heavy metals, polycyclic aromatic hydrocarbons (PAHs), sulfur and nitrogen containing PAHs, polychlorinated dibenzodioxins, polychlorinated biphenyls (PCBs), polychlorinated dibenzofurans, naphthalene, phenanthrene, and dioxin and among them polyhalogenated dioxins and furans are considered one of the most hazardous anthropogenic pollutants. It was found from some studies that toxic heavy metals, such as Pb, Cd, Cr, Ni, Zn, Cu, and lithophilic metals, such as Ca, Si, Na, Mg, Al, P, Fe were present to various extents in particulate soot and bottom ash in cases of controlled burning of plastic waste which are toxic to environment.

A bulk of the plastic waste gets trapped in the sewers of the major cities in Bangladesh. Trapped in the pipes and drains, especially of densely populated capital Dhaka and the second largest city Chittagong, this plastic waste has caused the sewerage systems to break down repeatedly. Also, to mention that Bangladesh has an annual rainfall of up to 5 meters and holds the world record for the highest rainfall in a single day (Wor) which wash away improperly managed plastic waste into streams and drain ways inducing transboundary movement of plastic wastes. Also, The Ganges, Brahmaputtra and Meghna-GBM is a transboundary river system consisting of five

[2] https://tbsnews.net/environment/bangladesh-drowns-8-lakh-tones-plastic-waste-year

countries: Bangladesh, Bhutan, China, India, and Nepal and thus contribute to transboundary plastic pollution in Bangladesh through the Bay of Bengal. Around 72,845 tonnes of plastic are released into oceanic environment each year by Ganges, Meghna, Brahmaputra (GBM), which account for roughly 3.5% of the plastic present in top ten plastic polluting rivers (Shafiul Hossain, 2020).

Our soil compartment is also at high risk of contamination by being a sink of microplastics. Additional to plastic mulching, sewage sludge, and atmospheric deposition, microplastics can be introduced to soil through land-filling, wastewater irrigation system, actions of soil organisms; such as grinding in gizzard and subsequent release through excretion process, scraping or chewing off, and incorporation by digging process.

As a raw material, plastic flakes are important to produce different kinds of plastic products. The global plastic industry uses imported raw materials of polymer granules, and there is not enough production of polymers in Bangladesh. In 2013, the president of PET flakes exporter association stated that around 500,000 metric tonnes of flakes per year of flakes had been exported, and they earn around 1500-2000 million dollars (USD) in a year. The consumption of plastic per capita is 5 K.G in Bangladesh, where the average consumption of the world is 30 kg per capita. That underlines a huge demand for plastic inside and outside of the country along with people's dependency on plastic products.

Polyethylene Terephthalate (PET) is utilized as a crude fabric for making packaging materials such as bottles and containers for packaging a wide run of food items and other products. As of now, the plastic recycling companies in Bangladesh do not make any product with recycled plastic flakes. They only export it. A study found that some companies are directly involved with plastic recycling, but they recycle only PET bottles, and they used to export the chips (flakes and scrap) to China. According to the Department of Environment (DoE) of Bangladesh, Bangladesh imports plastic raw materials worth 2000 core which can be produced by recycling the plastic wastes in-country. Bangladesh generates 1700 tonnes of plastics wastes every day and only half of which is being recycled. Around 3 lakh tonnes of plastic wastes are dumped in the open space. As mentioned, primary reason why recycling proved to be inefficient in Bangladesh is that the wastes are not dumped in an organized, segregated way. Different types of plastic products are often dumped together at the same place, thus making it difficult and time-consuming to sort the different types of plastic products and starting the recycling process. This also raises the cost of operation too, that creates few interests among the people to start this business. There are proven benefits of Zero Waste City models which have showed effectiveness in the Philippines, Malaysia, Singapore etc. Source separation and separate collection are the backbone of a Zero Waste and circular economy policy which is so important for Southeast Asian countries - giving dignity and rights to waste workers, creating more jobs, cleaner waste streams to support the waste hierarchy and new sustainable micro-economies in reuse, recycling, repair, composting, and education.

IMPORTS AND EXPORTS OF PLASTIC WASTE

Administering plastic waste is challenging specifically for countries like us. The need of facilities, framework development, and insufficient budget for waste management are some of the prime causes of improper plastic waste management in Bangladesh. Bangladesh should follow neighboring countries and others to promote trade for recycled plastic waste.

Our country has more than 5,500 small, medium and large plastic goods manufacturing units and presently, the volume of direct and deemed exports of plastic items is approximately $1.0 billion in a fiscal year (Karim, 2021). The import of any type of plastic waste or scrap is totally prohibited in Bangladesh according to the import policy (2015-2018).

Previously, Bangladesh mainly focused on exporting PVC bags (H.S. code 3923) and Plastic Waste (H.S. code 3915). Recently the export of these products declined owing to, inter alia, the ban on import of plastic wastes by Chinese government in 2018, since China is the main export destination of Bangladeshi plastics. Meanwhile, as there is a declination in the export of plastic waste, it may result in increased plastic pollution in the country. The leading brands in plastic sector in Bangladesh are KDS, DAF, RFL, Bengal, Partex, Talukdar, Unique and Anwar (Rahman, 2020).

The top importers of plastic waste are Hong Kong, the USA, Netherlands, and Belgium. China used to take it from Bangladesh. China's 2018 import ban on mixed 'recyclable' plastics snatched the veil off the global recycling system to uncover the wasteful and harmful nature of the recycling trade. Repercussions have been global. At present, plastic has no proper place to go. Two core trends emerged from China's ban:

1. The majority of the plastics redirected to less-regulated countries/regions -- especially Southeast Asia, but also other areas that lack adequate restrictions to stop outsized imports, or any real capacity to manage the waste.
2. Globally, total plastics exports dropped by about half from 2016 to 2018 (2019).

Many countries around the world are currently facing huge problems with plastic waste. The developing countries in particular are thought to be in a lot of trouble with this waste. In addition to the huge amount of plastic waste they throw away, they also have to take the pressure of plastic waste from the developed world. Additionally, there has been continuous re-routing of illegal waste shipments to emerging import countries, primarily located in South and South-East Asia. With several requests from South and South East Asian countries, repatriation of illegal containers of plastic waste have increased since 2018, but remain a long and challenging process. As a consequence, containers have been piling up in South-East Asian ports and sometimes re-exported illegally to neighbors in the region, transferring the burden of dealing with the illegal waste. (INTERPOL, 2020)

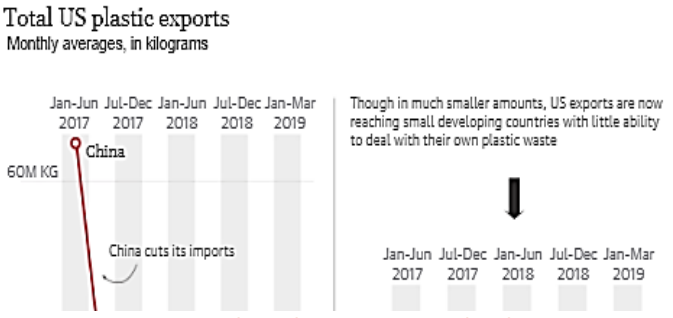
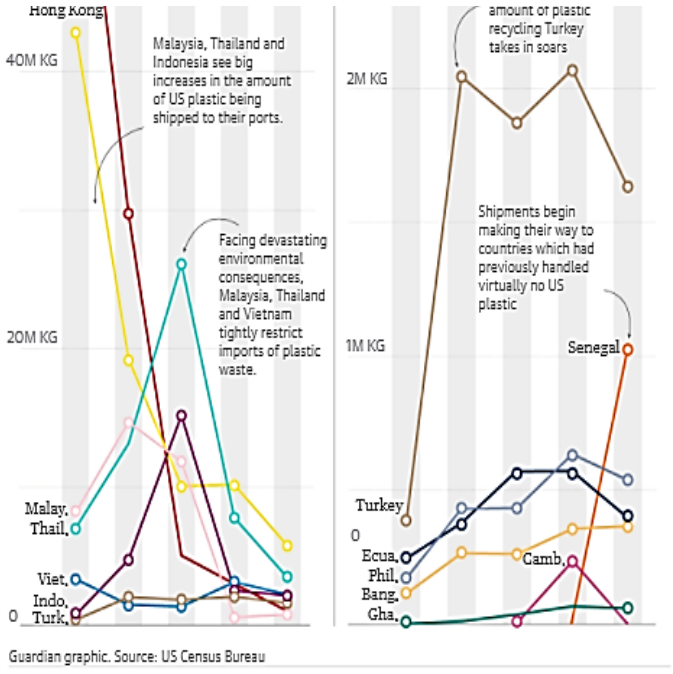


Figure 6: America Sending Plastic Waste to developing Countries (Source: The Guardian)



United States can be taken as an example which is known as the most developed country in the world. Plastic waste dumped by the Americans is shipped to various poor countries of the world including Bangladesh. A recent investigative report in Britain's influential Guardian newspaper revealed this information. Investigations by The Guardian journalists in 11 countries around the world have uncovered various secret news of this dirty trade in the United States[3].

According to The Guardian's investigation, thousands of tonnes of plastic waste are shipped from the United States to various poor and developing countries around the world each year. In these countries, American plastic is the destination for recycling because the cost of labor is incredibly cheap. Since the China ban, America's plastic waste has become a global hot potato, ping-ponging from country to country. The Guardian's analysis of shipping records and US Census Bureau export data has found that America is still shipping more than 1m tonnes a year of its plastic waste overseas, much of it to places that are already virtually drowning in it.

In 2018, an equivalent amount of 68,000 shipping containers of American plastic recycling were exported from the US to some developing countries that mismanage more than 70% of their own plastic waste. The newest hotspots for handling US plastic recycling are some of the poorest countries of this planet, including Bangladesh, Laos, Ethiopia and Senegal, offering cheap labor and limited environmental regulation (McCormick, et al., 2019).

[3] https://www.theguardian.com/us-news/2019/jun/17/recycled-plastic-america-global-crisis#:~:text=A%20Guardian%20investigation%20has%20found,and%20the%20environment%20are%20grim.

Britain is exporting plastic waste to Bangladesh for recycling. These wastes are being collected in Kamrangirchar, Matuail and other parts of the capital. Children and adolescents are being engaged in all kinds of activities ranging from sorting and processing of collected plastic waste. In the first four months of 2018 (January-April), Britain sent 110,000 tonnes of plastic waste to Bangladesh[4]. Earlier, China accounted for two-thirds of Britain's plastic waste exports. But since China imposed import bans, Britain has increased exports to Bangladesh, Vietnam, Thailand and Malaysia. However, Poland and Vietnam are also going to impose restrictions on imports. A recent study found that Bangladesh, Vietnam, Thailand and Malaysia are among the worst sources of plastic pollution in the sea (Desk, 2018).

The Malaysian authorities sent back a total of 150 containers imported from 13 countries including Bangladesh as the consignment had non-recyclable plastic. Authorities discovered that compact discs (CDs) were hidden inside a container with clean recyclable scraps at the front[5]. Their press release stated that they were sending back those containers as they had been sent to Malaysia in violation of the Basel Convention on Trans-boundary Movements of Hazardous Wastes and their Disposal (Desk, 2020). The plastic waste smuggled in was falsely declared as recyclable and the 450 tonnes of the illegal plastic waste was placed in 60 containers behind legal waste (2019).

Bangladesh, being a signatory, needs to implement Basel Amendments to manage the movements of hazardous plastic waste. The Basel Convention is the broadest and most noteworthy universal settlement on hazardous and other wastes. It regulates the universal exchange of dangerous waste and aims to minimize their generation and Trans-boundary movement. Bangladesh has joined the Basel convention on April 01, 1993. Under the system they concurred that any importing nation accepting waste reserves the right to refuse whenever discovered mis-announcement and resistance and exporting nation would be bound to reclaim the waste back (Ahmed, 2020).

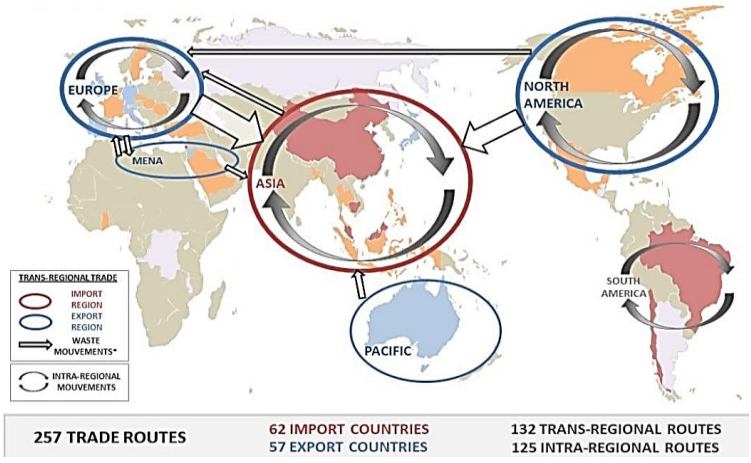


Figure 7: The global plastic waste market emerging from INTERPOL data collection on legal and illegal trade routes
[Source: (INTERPOL, 2020)]

4 https://www.news24bd.tv/details/9257/%E0%A6%AC%E0%A7%8D%E0%A6%B0%E0%A6%BF%E0%A6%9F%E0%A7%87%E0%A6%A8%E0%A7%87%E0%A6%B0-%E0%A6%AA%E0%A7%8D%E0%A6%B2%E0%A6%BE%E0%A6%B8%E0%A7%8D%E0%A6%9F%E0%A6%BF%E0%A6%95-%E0%A6%AC%E0%A6%B0%E0%A7%8D%E0%A6%9C%E0%A7%8D%E0%A6%AF-%E0%A6%86%E0%A6%B8%E0%A6%9B%E0%A7%87-%E0%A6%AC%E0%A6%BE%E0%A6%82%E0%A6%B2%E0%A6%BE%E0%A6%A6%E0%A7%87%E0%A6%B6%E0%A7%87

5 https://www.thedailystar.net/environment/news/malaysia-sending-back-plastic-waste-bangladesh-1857142#:~:text=Malaysia%20is%20sending%20back%20a,consignment%20had%20non%2Drecyclable%20plastic.

Health impacts of plastic waste include exposures through inhalation, ingestion and dermal exposure. Plastic recycling facilities and the products they make have the potential to emit and release toxic substances.[6] Among them are heavy metals, dioxins, and furans, PAHs, toxic recycled chemicals are significant. Also, toxins from emissions, fly ash, and slag in a burn pile can deposit in soil and water and can eventually get deposited in the tissues of plants and animals. In the long run, it creates impacts like skin disease, cancer, neurological damages, and also affects the immune system, reproductive system, and endocrine system. Indeed, Plastic harms our health at every stage of its life cycle.

Environmentalists state that plastic can exist in soil and water for quite a while as it isn't biodegradable and it might transform into leachate and, through heat, get blended in with the food chain and enter human body causing illnesses and, in the long run, death. Plastic also breaks down into smaller and smaller pieces that can be ingested by animals and contaminate the marine food chain. A total of 443 microplastic items were recently identified in the intestines of marine fish species in the Bay of Bengal, supporting the idea that Microplastic in marine fish should be treated as a threat to public health. The quantification of Micro Plastic in shrimp from the Bay of Bengal was also documented, where diverse Micro Plastic were found in the range of a mean abundance of 3.40–3.87 items/g GI tract of shrimp. The most commonly identified Micro Plastic particles were black fibers and filaments. Some studies showed that the

HEALTH HAZARDS RELATED TO CURRENT PLASTIC WASTE MANAGEMENT PRACTICE

Risks to Waste Pickers

Informal waste pickers, who most often operate without any protective measures, are exposed to a wide range of health risks such as:

- HIV (due to handling of hospital waste)
- Tetanus (due to handling of jagged metals of recycling industries)
- Respiratory problems (due to exposure to smoke when incinerate)
- Injuries
- Stress

Risks to Communities

- There is a significant increase in the incidence of sickness among children who live in households where plastic garbage is dumped or burned in the yard
- Uncollected plastic waste clogs drain and causes flooding and subsequent water-borne diseases.
- People living downwind of a burning dumpsite will likely suffer from respiratory diseases.
- Contaminated liquids or leachate, leaking from dumpsite could pollute city's drinking water supplies.
- Plastic waste dumps potentially serve as breeding ground for Malaria, thus having implications in achieving Sustainable Development Goals (SDGs).
- Skin and gastric problems.

Source: (S, 2009); (UN-Habitat, 2009)

[6] https://www.ciel.org/plasticandhealth/

Micro Plastic could be transferred to humans if the shrimp were eaten without removing the intestines (Aniruddha Sarker, 2020)

In Bangladesh, most exposure occurs during the use, disposal, and recycling of plastic products. At the point when burned, plastic deliveries perilous synthetic compounds, for example, hydrochloric acid, sulfur dioxide, dioxins, furans and heavy metals just as particulates. Outflow of such components is known to cause respiratory afflictions and stress the human resistant framework.

The use of recycled plastic in food packaging is highly dangerous as producers use some additive chemicals for easy manufacturing of plastic containers or packets in suitable shapes and it may even cause cancer. Micro plastic can also enter human and animal body through breathing.

Epidemiologists censured plastic for spreading dengue as a result of plastic waste not managed appropriately. The first official outbreak of dengue fever in Bangladesh was in 2000, and since then the number of hospitalized patients has exceeded 3000 patients six times—6,232 in 2002, 3,934 in 2004, 3,162 in 2015, 6,060 in 2016, 10, 148 in 2018, and 1,00,107 as of Nov 30, 2019. Fire fighters have warned that the increasing use of plastic in furniture and homes, including building materials and coatings, has increased the flammability and associated toxicity of structure fires.

According to a World Bank report, published in September 2018, around 234,000 people died in Bangladesh, including 80,000 in urban areas, due to environmental pollution and pollution-related health risks in 2015.The economic cost of the deaths and disabilities in terms of labor output has been estimated at $1.4 billion in all urban areas of Bangladesh and at 310 million in Dhaka city alone, which were equivalent to 0.6% and 0.1% respectively of the country’s GDP in 2015.

Table 1: Effect of Different Types of Plastic on Human Health

TYPE OF PLASTIC	SPECIFICATION	EFFECT ON HUMAN HEALTH
POLYETHYLENE TEREPHTHALATE (PET)	Generally, PET is manufactured for single use only. It is a type of plastic which is smooth, transparent and relatively thin.	Plastics made from PET must be prevented from high temperatures so as to prevent the leaching of some toxic additives such as acetaldehyde, antimony and phthalates. Antimony is a possible human carcinogen.
HIGH-DENSITY POLYETHYLENE	Worldwide, the most used plastic is polyethylene. High-density polyethylene is a heat-resistant plastic produced from petroleum	It has no reported health risk even though some studies showed that a long-time exposure of the plastics to sunlight can make it harmful.
POLYVINYL CHLORIDE (PVC)	Polyvinyl Chloride (PVC), a type of heat-resistant polymer, is used for packaging fruit juice, cooking oil, etc.	PVC is considered highly toxic due to the presence of chemical constituents like heavy metals, dioxins, BPA and phthalates. PVC have been reported to cause chronic bronchitis, birth defects, genetic changes, cancer, skin diseases, deafness, vision failure, ulcers, liver dysfunction and indigestion
LOW-DENSITY POLYETHYLENE	Low-density polyethylene is heat resistant, fragile, flexible and rigid.	the plastic does not have any component that is harmful to human body, its usage is termed safe for beverages and food. However, while LDPE does not contain BPA, it can leach estrogenic chemicals, much like HDPE.
POLYPROPYLENE	Polypropylene, a type of plastics, is strong and semi-transparent. It is heavier and stronger than polyethylene	Plastics made of polypropylene have comparatively low harmful substances and polypropylene containers are considered safe for humans as packages for food and beverages. While polypropylene is considered a low-toxin plastic that is tolerant of heat, at least one study found that polypropylene plasticware used for laboratory studies did leach at least two chemicals.
POLYSTYRENE	Polystyrene is a type of petroleum-based plastic. Polystyrene is commonly used in the production of insulators and packaging materials.	It contains benzene which is carcinogenic to human. Report showed that a long-term exposure to small quantity of styrene can be neurotoxic and causing cytogenetic, carcinogenic and hematological effects. The International Agency for Research on Cancer (IARC) has categorized styrene as a human carcinogen
POLYCARBONATE	Polycarbonates are used for packaging consumer goods such as reusable bottles. It contains BPA.	Studies reported that BPA has health risk.

***SOURCE: (GIFFORD), (OKUNOLA A ALABI, 2019)**

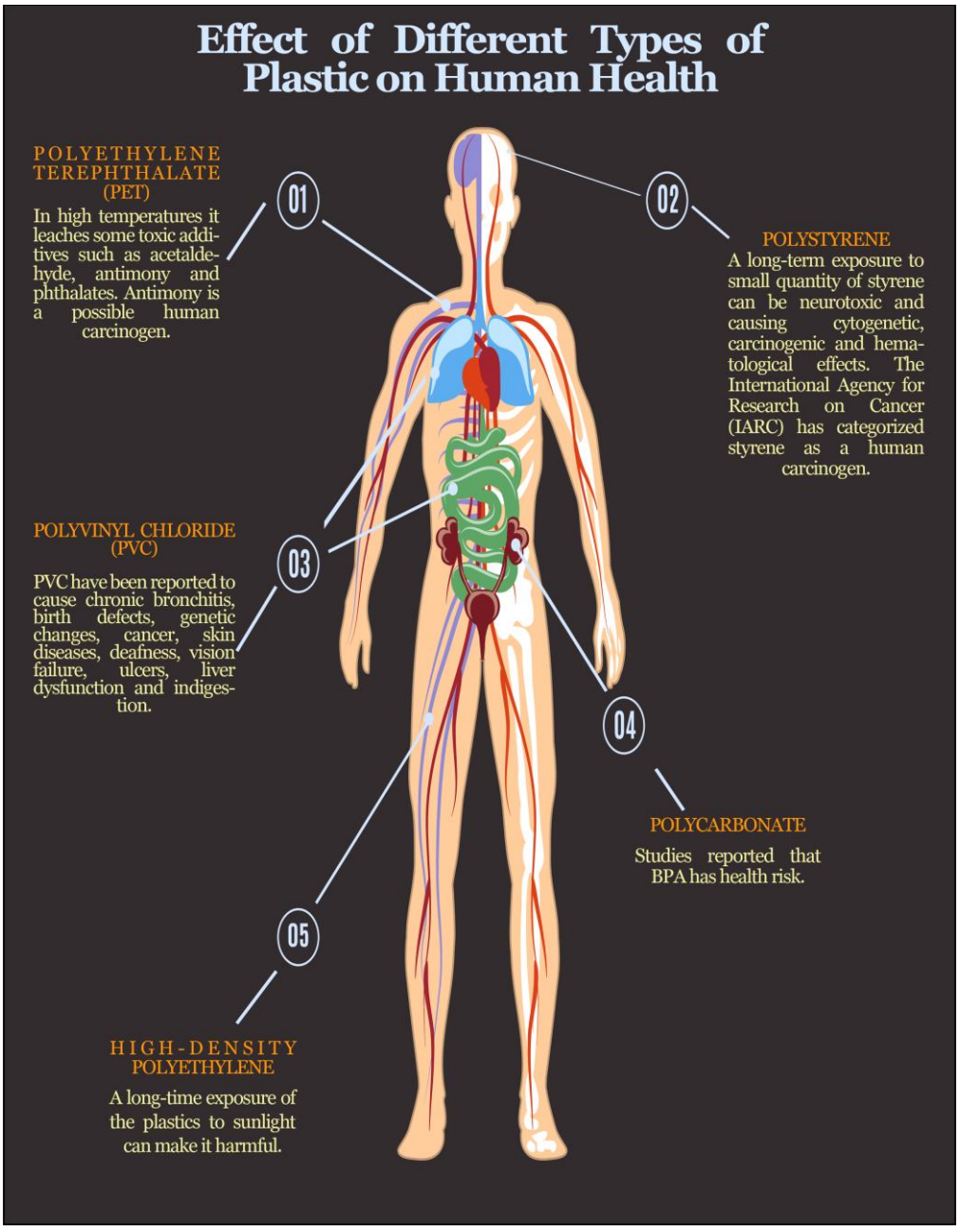


Figure 8: Impacts of Different types of plastic on human health

ENVIRONMENTAL IMPACTS OF PLASTIC WASTE

Plastic has globally been recognized as one of the major environmental threats of recent times. Communities around the world are taking preventive measures to address the issue. However, in Bangladesh, the issue is yet to be addressed with greater priority owing to a lack of public awareness. ESDO's current study reveals that nearly half of the total SUP consumers (around 50%) from urban areas lack knowledge on the adverse impacts of plastic pollution. The condition is worse in the case of village dwellers. Lack of appropriate awareness has led to undermining the importance of the issue in ensuring environmental health and safety. However, the majority of the study population (60%) has expressed their interest in adopting alternatives to single-use plastic (SUP). The major challenge, in this case, is the existing culture of production and consumption that is based upon the preference for plastic, particularly in the case of packaging. People have opined that the producers need to come forward and adopt sustainable solutions in this regard that will ultimately revolutionize the existing system.

An alternative to landfilling of plastic waste is incineration, but evidence exists that waste incineration is harmful to human health, our environment and climate. For instance, plastic waste fumes release halogenated additives and polyvinyl chloride, while furans, dioxins, and polychlorinated biphenyls (PCBs) are released from the incineration of plastics into the environment. Incineration of plastics is usually accompanied by the formation of chark, and the coking extent is dependent on the conditions of incineration. In the process of incineration of plastics, soot, ashes and different powders are produced, which eventually settles on plants and soil, with the potential to migrate to the aquatic environment. Rainfall can make some of these toxic compounds to sink into the soil, contaminate the groundwater or be absorbed by plants growing on this soil, thus, becoming incorporated into the food chain. Some of these plastic incineration products can chemically react with water and the resulting compounds can alter the pH thereby change the functioning of aquatic ecosystems (Okunola A Alabi, 2019). Incinerating plastic waste creates Persistent Organic Pollutants, otherwise known as forever chemicals, that pose significant risks to human health and the environment[7].

The four rivers that surround the capital city Dhaka, 30,000 tonnes of plastic waste were discovered and half of this was in the river Buriganga. Earlier, in 2018, the Asia Development Bank and UNEP (United Nations Environment Programme) listed Buriganga as one of the world's most polluted rivers. According to the World Bank; the Ganges, the Padma and the Jamuna together constitute the world's second-most polluted river basin in 2020. Plastic pollution is the second worst in the world in the rivers Ganges, Padma and Jamuna that flow through India and Bangladesh (2020).

As per the World Banks Assessments, there are total 1083 Illegal places of plastic debris in Dhaka City with no collection producing 33612 Ton/year out of which 30% (10083.6 Tonnes) directly discharged in the water, releasing potentially toxic substances, such as bisphenol A and substances known as polystyrene-based (PS) oligomers which affect the growth and development of marine organisms. Bisphenol A has been implicated in disrupting the hormonal system of animals.

[7] https://ipen.org/news/toxic-ash-poisons-our-food-chain#:~:text=Ash%20and%20other%20residues%20from,human%20health%20and%20the%20environment.

Air Pollution

- Carbon dioxide and methane are released into the air when plastic waste is dumped with organic material in landfill. This produces large amounts of methane a potent greenhouse gas. Plastic does not decompose with organic matter so when it is dumped in landfill it exacerbates the problem of methane generation by creating space and facilitating methane generation. During the decomposition of solid waste in landfills in 2008, an estimated CO_2 equivalent (eq CO_2) volume released into the atmosphere was 20 million tonnes. CO_2 is also released into the atmosphere during the burning of plastics and plastic products, and this CO_2 is capable of trapping radiant heat and hinder it from escaping from the earth causing global warming. Air pollution is one of the major environmental threats to public health, and it is responsible for more than 6 million deaths associated with environmental pollution. The role of plastics in air pollution in the developing and poor countries like Bangladesh of the world cannot be overemphasized, and the impact on the future generations may be massive.

Water Pollution

- Dredging work in the Karnaphuli River was slowed because of a deep layer of polyethylene in the riverbed. Approximately 165 million tonnes of plastic wastes were estimated to be present in the oceans of the world in 2012, while an average of 8 million tonnes of plastics are annually released into the ocean, with about 5 trillion plastic pieces floating on the ocean. During plastic degradation process, toxic chemicals like polystyrene and BPA can be released into the water causing water pollution. Wastes found in the oceans are made up of approximately 80% plastics. Around 73,000 tonnes of plastic waste end up in the sea every day through the Padma, Jamuna and Meghna rivers. In addition to the domestic waste, plastic waste from India, Nepal and China flowing down the Ganges, Yamuna and Brahmaputra end up in our waterbodies, including rivers and canals. The scale of the problem is as massive as it gets. the use of microbeads released from cosmetics and toiletries and has focused on the final sink (i.e., rivers and the Bay of Bengal) and the detrimental effects on aquatic animals.

Soil Pollution

- Dumping of plastics on land or landfilling plastics leads to abiotic and biotic degradation of the plastics, where plastic additives (e.g. stabilizers, harmful colorant moieties, plasticizers and heavy metals) can leach and eventually percolate into various aspects of the environment, thereby causing soil and water contamination. In Bangladesh, extensive use of single-use plastics and the indiscriminate management of these in suburban areas, accompanied by improperly managed landfills lacking waste separation procedures, have been reported as the primary and secondary sources of micro plastics in agricultural soil in the region. Some pilot-phase projects led by the United Nations Development Program and Environment and Social Development Organization (ESDO) have revealed the existence of MP pollution in both the terrestrial and marine ecosystems of Bangladesh.

Source: (Okunola A Alabi, 2019); (Islam, 2019); (ESDO, 2016); (Aniruddha Sarker, 2020)

The picture brought forward by National Geographic's recent study, 'Sea to Source' is even worse. Around 300 types of plastic were entering the Bay of Bengal through the river Padma[8]. This included soda bottles, plates, labels of cosmetic products, jugs and more. These were dumped in various water bodies after use and later ended up in the Bay of Bengal via various rivers. A recent survey by the Department of Environment under the Ministry of Environment, Forest and Climate Change found that plastic waste constitutes more than 60% of the litter found in the four sea beaches: Laboni and Inani in Cox's Bazar, and Ananda Bazar and Patenga in Chittagong of Bangladesh.

In Bangladesh, extensive use of single-use plastics and the indiscriminate management of these in suburban areas, accompanied by improperly managed landfills lacking waste separation procedures, which have been reported as the primary and secondary sources of micro plastics in agricultural soil in the region.

The waste sector is a significant contributor to GHG emissions accountable for approximately 5 per cent of the global greenhouse budget with total emissions of approximately 1,300 metric tonnes of Carbon Dioxide (CO_2)-equivalent as reported by the Intergovernmental Panel on Climate Change (IPCC). The waste in Dhaka comprises mainly of organic waste which can produce landfill gas (methane) upon decomposition. Methane only stays in the atmosphere around 8-12 years while carbon dioxide can last for centuries. But methane (CH_4) has a bigger effect in its short time— CH_4 is responsible for 75% as much warming as CO_2 measured over any given period of 20 years. This means methane reductions could have an immediate beneficial effect on our climate, faster than comparable reductions to CO_2 (S.M. Shamimur Rahman, 2010). To calculate CH_4 emission the following expression from IPCC tier-1 can be considered:

$$\boldsymbol{Methane\ Generation} = (\boldsymbol{A} \times \boldsymbol{B} \times \boldsymbol{C} \times \boldsymbol{D} \times \boldsymbol{E} \times \boldsymbol{F} \times \boldsymbol{G} - \boldsymbol{R}) \times (\mathbf{1} - \boldsymbol{OX})$$

Where,

A = Total Municipal Solid Waste (MSW) generated (Giga gram)
B = Fraction of MSW disposed at landfill sites (Giga gram)
C = Methane correction factor
D = Fraction of Degradable Organic Carbon (DOC) in MSW
E = Fraction of Degradable Organic Carbon (DOC) which actually degrades
F = Fraction of Carbon (C) as methane
G = Conversion factor from Carbon (C) to methane (CH4)
R = Recovered methane (Gg/year - 0 in Dhaka city to consider)
OX = Oxidation factor (0 in in Dhaka city to consider)

[The methane correction factor can be considered as 0.4 due to unmanaged landfill site in Dhaka city based on Inter Governmental Panel of Climate Change IPCC 2006 guidelines. From the previous study of Bangladesh Centre for Advanced Studies (BCAS), Fraction of Degradable Organic Carbon (DOC) in MSW can be considered as 15%. Moreover, the fraction of actual Degradable Organic Carbon (DOC) in MSW is 77% which value is close to that in other South Asian Countries. Fraction of Carbon (C) as methane can be considered as 0.55 based on IPCC value (range 0.50 to 0.60). In Bangladesh, the recovered methane is considered zero. If considered that there is no burning in any landfill site, Oxidation factor can be taken as zero too]

[8] https://en.prothomalo.com/environment/pollution/30000-tonnes-of-plastic-in-4-rivers#:~:text=A%20female%2Dled%20team%20of,Bengal%20through%20the%20river%20Padma.&text=The%20source%20of%20this%20waste,Ganges%2C%20Padma%20and%20Jamuna%20basin.

It was found from the calculation that, there are about **26.89 Giga gram (Gg) methane (CH4) emitted from municipal solid waste at Dhaka city 2010**. It is also found from the GHG emission calculation on the basis of IPCC Guideline tier-1 that there are 20.5 Gg and 16.96 Gg methane emitted from the landfill site at Dhaka City for **1670 tonnes and 1375 tonnes municipal solid waste in 2005 and 2001**. Existing waste-management practices offer a fairly decent GHG emissions mitigation potential. Dumpsites are the largest GHG emitters in the waste sector.

The manufacture of one pound of PET can produce up to three pounds of carbon dioxide. Processing plastic resins and transporting plastic bottles contribute to a bottle's carbon footprint in a major way. On an average, 400 crore PET bottles are manufactured every year in Bangladesh and most of them are discarded after being used only once1. Estimates show that one 500-milliliter (0.53 quarts) plastic bottle of water has a total carbon footprint equal to 82.8 grams (about 3 ounces) of CO_2 (Marie-Luise Blue). So, a **minimum 165600000000 grams of carbon footprint** is producing every year if considered the PET bottles are of minimum size (250 mL).

THE BASEL BAN AND PLASTIC WASTE AMENDMENTS

Compared to neighboring countries, Bangladesh lags far behind in waste administration. Most of these nations have a well-developed legitimate framework, organizational structure and mechanical base for recycling to handle solid waste produced in civil regions. Bangladesh has just begun to comprehend the antagonistic results of plastic waste but has yet to set up proper legal system and organization structure in order to manage waste. There is a total absence of a holistic approach, particularly from the sustainable waste management point of view. In contrast to other developing countries, there are no specific laws, rules and guidelines for municipal solid waste management in Bangladesh.

According to the Chinese National Sword Policy, China has banned the importation of certain types of solid waste, as well as set strict contamination limits on recyclable materials. This means that China will not accept shipments that are mixed with trash, the wrong type of recyclable, or low-quality recyclables like greasy paper goods. The policy was announced in July 2017, and the ban officially began on January 1, 2018. In addition to the bans, China is reducing the number of import licenses, meaning that fewer businesses will be able to import waste. As, China has been the world's biggest importer of waste for decades, the implementation of National Sword has reduced the rate at which these materials are imported. This has created a significant effect on Bangladesh as China used to take a prominent percentage of plastic waste from Bangladesh. From ESDO's relevant survey in Bangladesh PET Flakes Manufacturers and Exporters Association (BPFMEA), it was found that Bangladesh used to export on an average nearly 30,000 tonnes of PET bottle flakes mainly to China, South Korea and Taiwan worth $14 million dollars per year. Of the total, some 99% of the materials would export to China, while the rest to Vietnam, South Korea, Taiwan and Thailand. After the ban on importing waste in China, Bangladesh is exporting these flakes to some countries in Europe, Turkey, USA, Mexico, Canada, Dubai and Pakistan as India is currently not taking recycled flakes from Bangladesh.

Bangladesh is a signatory of Basel Convention. The Basel Ban Amendment does not create a ban of any kind for trade between Annex VII Parties. between non-Annex VII Parties (mostly developing and transition countries), or from non-Annex VII Parties to Annex VII Parties. So, according To Basel Amendments-any hazardous waste need to be managed within the country of its origin and any importing nation accepting waste reserve the right to refuse whenever discovered mis-announcement and resistance and exporting nation would be bound to reclaim the waste back.

Additionally, according to Bangladesh Import Policy Order 2015-2018; Chapter 2-Section 3; Sub Section 1 (a) "unless or otherwise specified in this order, all kinds of waste" is in the list of prohibited goods for import in annexure 1 (Part B). Bangladesh has a Constitutional Mandate to protect the environment under Article 18A of the constitution which is to 'Protection and improvement of environment and biodiversity'. Also, Article 25 of the constitution mentioned that 'State should have respect for all international laws and legal principles.' Furthermore, Article 32 of the constitution established the 'Right to protection of life' includes environmental protection. Therefore Bangladesh Govt. should incorporate Basel Ban Amendment within their national jurisdiction.

In Bangladesh, there are two groups who are associated with the recycling of plastic known as formal and informal (H. Zia, 2009). Formal sector is industrialized and financially backed by government agencies. Whereas, informal groups stay out of the state control along with maintaining active links with the formal ones (Mesharch W.Katusiimeha, 2013). In addition, the informal groups act as a front-line service, in turn, put an impact on the whole system. In Bangladesh, informal recycling is mainly managed by the poor and less privileged people. They collect the plastic product and sold to the buyers in order to conduct the recycling process (Chukwunonye Ezeah, 2013).

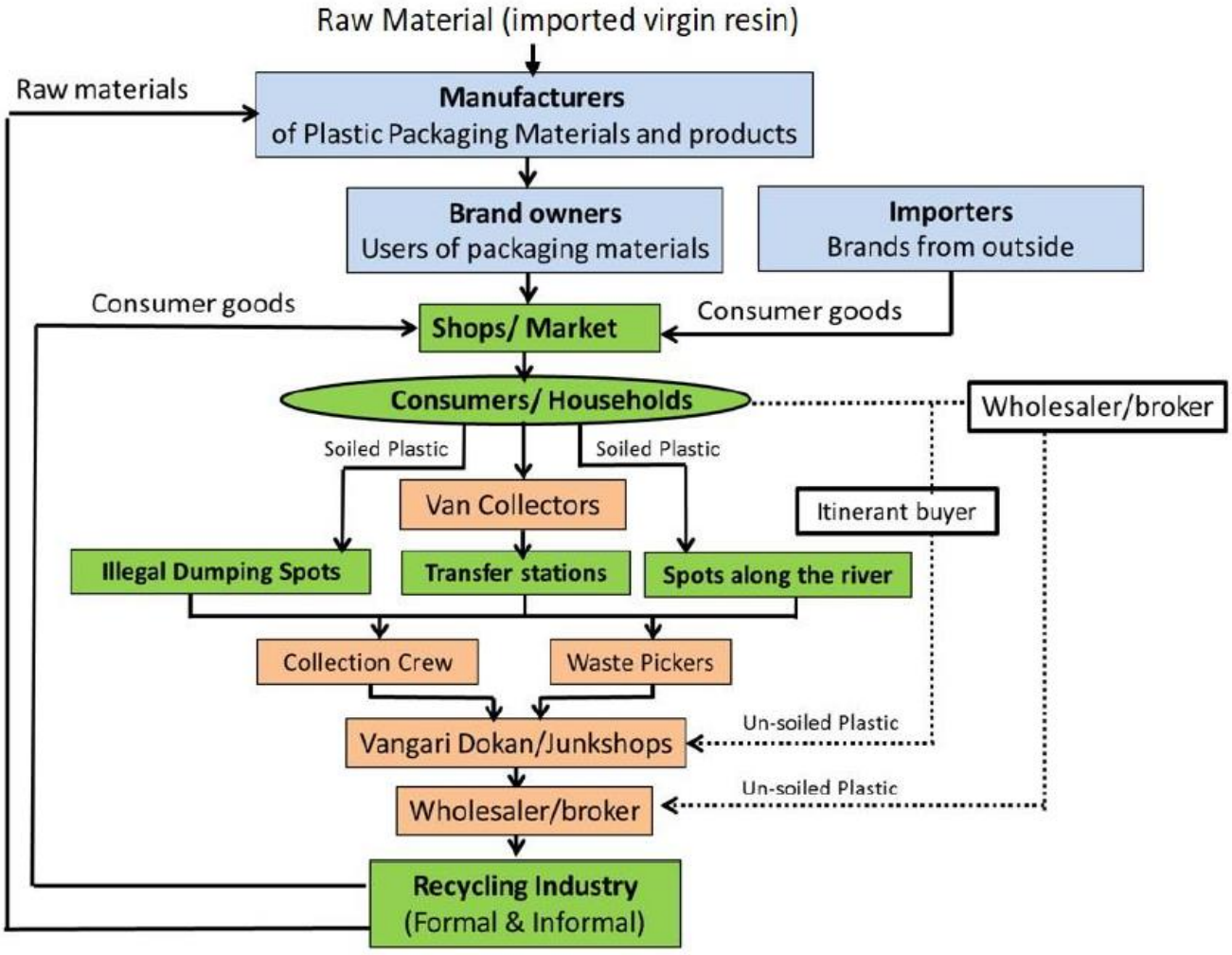


Figure 9: Plastic recycling trade chain in Bangladesh {*Source: (DoE, WasteConcern, The World Bank, 2020) }

The International Labour Organization (ILO) defines informal waste workers as, 'individuals, or small and unregistered micro-enterprises, that intervene in waste management informally and are in charge of providing waste management services. These actors are usually found at the beginning of the value chain and become the main suppliers of materials to formal recycling enterprises and manufacturers.

In spite of the fact that all enterprises in the value chain pay an annual license for their activities, in addition to land rents and utility bills, these informal workers are not formally hired for recycling in Bangladesh. Most of the waste pickers are children aged 10-12 years, and older. They usually collect from the streets and local markets and sell recyclables to scrap shops for money, chocolates, or sweets. However, women do not work as street waste pickers but work sorting the materials by type and color for scrap dealers and exporters. None of the areas maintain even the minimum standards of health, hygiene and safety. The majority of workers wear sandals, and gloves and masks are largely absent. Many of the areas are replete with filth, with recyclables scattered over the compound, and on the verge of collapse. Existing research about the plastic recycling industry found that due to its low-cost labour, Bangladesh can produce recycled plastic pellets for a price two to three times lower than the price of imported virgin resin. The sector may not have the feasibility if salaries and costs increase to meet minimum labor and environmental working standards (2019).

Bangladesh government intends to support the plastic recycling industry by offering 10 percent cash incentive on plastic export. There are around 5,000 companies, mostly SMEs, that operate in the sector providing employment of 1.2 million people. Most of the industries are located in Dhaka (65 percent) and the remaining are in Chattogram (20 percent), Narayanganj (10 percent) Khulna, Comilla, Bogura and Rajshahi (BPGMEA). There are around 50 to 300 exporting firms (Rahman, 2020).

PLASTIC WASTE AND COVID-19

According to a recent survey of Environment and Social Development Organization (ESDO), In Bangladesh, during the first month of official lockdown to prevent corona virus outbreak, around 14,500 tonnes of hazardous plastic waste emerged, comprising of face masks, hand gloves and polythene bags. After the emergence of Covid-19, about 5796 tonnes of plastic waste were generated in a single month of which 3076 tonnes generated in Dhaka city, capital of the country, alone. Managing this unprecedented level of plastic waste pose a great challenge for countries, especially developing nations like Bangladesh. These wastes are, in part, likely to undergo uncontrolled incineration, releasing GHGs, heavy metals, dioxins, PCBs and furans as discussed previously. It is likely that a big portion will find their way into rivers and oceans, followed by sewage and canal blockage, and continue to degrade to microplastics that will easily be mistaken for food by the biota. Besides, because of their elastic components, masks also have increased risks of entanglement for a wide variety of fish, animals and birds. Moreover, the use of single used plastic bags has also increased in parallel during this pandemic to ensure safety against cross contamination from reuse of plastic bags during home delivery and carrying groceries. Their use also increased due to relief activities to support people who became jobless in this situation. It has been estimated that demand for global plastic packaging is expected to increase by 40% due to the current Covid-19 situation. Overall, if these large amounts of contaminated single use plastics go unmanaged, they will create an immediate outbreak of the second phase of the virus and in the long run, they will continue to pollute the air, soil, and water compartment. Hence, an immediate action is sought for the safe management of the mounting medical and health care sector plastic waste streams generated in this pandemic situation.

Overall Discarded Single Used Plastic

- Total discarded single-use plastic (82,824 tonnes annually) comes solely from food and personal care packaging (food wrappers and sachets)
- In 2014, the number of consumed plastic polybags were recorded as 10 million
- 14 million pieces of polythene bags are used every day in Dhaka city
- 33% of the total generated single-use plastic wastes are sachets

Discarded Plastic During COVID-19 Situation

- About 11.2% of plastic waste apparently coming from the use of surgical face masks
- 21.5% from polythene made normal hand gloves
- 20% from surgical hand gloves
- 40.9% from the single use polythene shopping bags used for carrying food items
- 6.4% from empty containers of hand sanitizers

*Source: (KG, 2016); (Markus Klar, 2014); (ESDO, 2020); (Islam, 2019)

RECOMMENDATION

Plastic is so vastly wrapped around us that the precise amount of plastic waste created cannot be discovered as the data on trans-boundary movement of plastics streaming from India to Bangladesh is not accessible. The plastic contamination of the Bay of Bengal should ideally incorporate both Bangladesh and India and the amount will be much higher than national estimates. Micro and Nano plastics have been found to enter tissues of creatures eventually getting into the food chain which is unsafe. ESDO strongly recommends that the government of Bangladesh should regulate a law regarding all types of plastic usage considering its environmental and health impacts. Nevertheless, there is lack of authentic data on the plastic waste trade of Bangladesh. So detailed research is required to establish a roadmap that would cover all requisites for managing this waste trading in undisputed way.

Our primary focus should be on sustainable zero waste policy that enshrines source separation and separate collection of all waste streams. Due to mismanagement our waterways are choking with plastics. Bangladesh must follow the example of India and other Asian nations in banning single-use plastics and act accordingly. It needs to impose a ban on the import of SUP on an urgent basis. Otherwise, plastic scraps from the neighboring nations will find their way to Bangladesh through trans-boundary movement worsening the situation even more.

The government also needs to promote cost-effective alternatives to single-use plastics available in Bangladesh. Straws made up of bamboo sticks are being used and manufactured in hilly regions of the country. In Kushtia district, compostable ice cream cups are being produced from leaves. Moreover, local production of plant-based alternatives can provide rich opportunities to increase local sustainable manufacturing and create jobs throughout Bangladesh while ensuring environmental and health protection.

Additionally, Basel amendment framework regarding trans-boundary movement of hazardous waste need to be implemented for proper management right away. Bangladesh should strictly follow the UNEA resolution adopted regarding Trans-boundary movement. We must update ourselves with waste trade policy framework to identify waste coming from within the country, make specific intervention of strategies, collaborate with originating countries (if exported to Bangladesh), give training to custom officers to identify waste, update knowledge of global waste movement, and cooperate with the environment ministry. Finally, plastic waste must be regulated by the authorities who handle cargo at the port of entry.

To address all of the serious issues raised in our report, the Bangladeshi government must invest in Zero Waste policies that support local economies and a safe healthy environment for all. It is high time we understand the gravity of the situation and start living by zero waste concept to reduce the pressure of this huge waste and all the mismanagements associated with it. We should feel accountable personally for the waste we generate and take the responsibility on our own rather than to solely feel depended on the authority. According to Zero Waste principle, we need to segregate our waste at initial level; refuse what cannot be reused or recycled and single use plastic items are in top of them. If we start

composting our household organic waste a huge portion of waste will already get reduced and shall be converted into a resource (i.e.: organic fertilizer) which is the prime motto of building zero waste community. Additionally, Bangladesh like many Southeast Asian countries already has the historical wisdom and knowledge to live without single use plastics. Returning to banana leaves, bamboo and other natural materials that compost easily are easy steps to take with big positive outcomes for health and the environment.

This is also to state that there is a lack of knowledge on trading of hazardous wastes. So technical assistance is needed for strict control of TBM of hazardous plastic waste. So far, there is no space for disposal of hazardous waste and we lack logistic facilities for disposing.

Nonetheless, combined efforts need to be taken by all countries to face the situation and minimize wastage. Most of the developed countries must find ways to bring back a circular economy - reuse of wealth. More responsible for CO_2 emissions, than countries like Bangladesh, the developed countries should take liability and stop trans-boundary movement of plastic waste. However, most importantly, the first need to resolve the present situation and uplift it from polluting the environment is to create public consciousness which is highly needed.

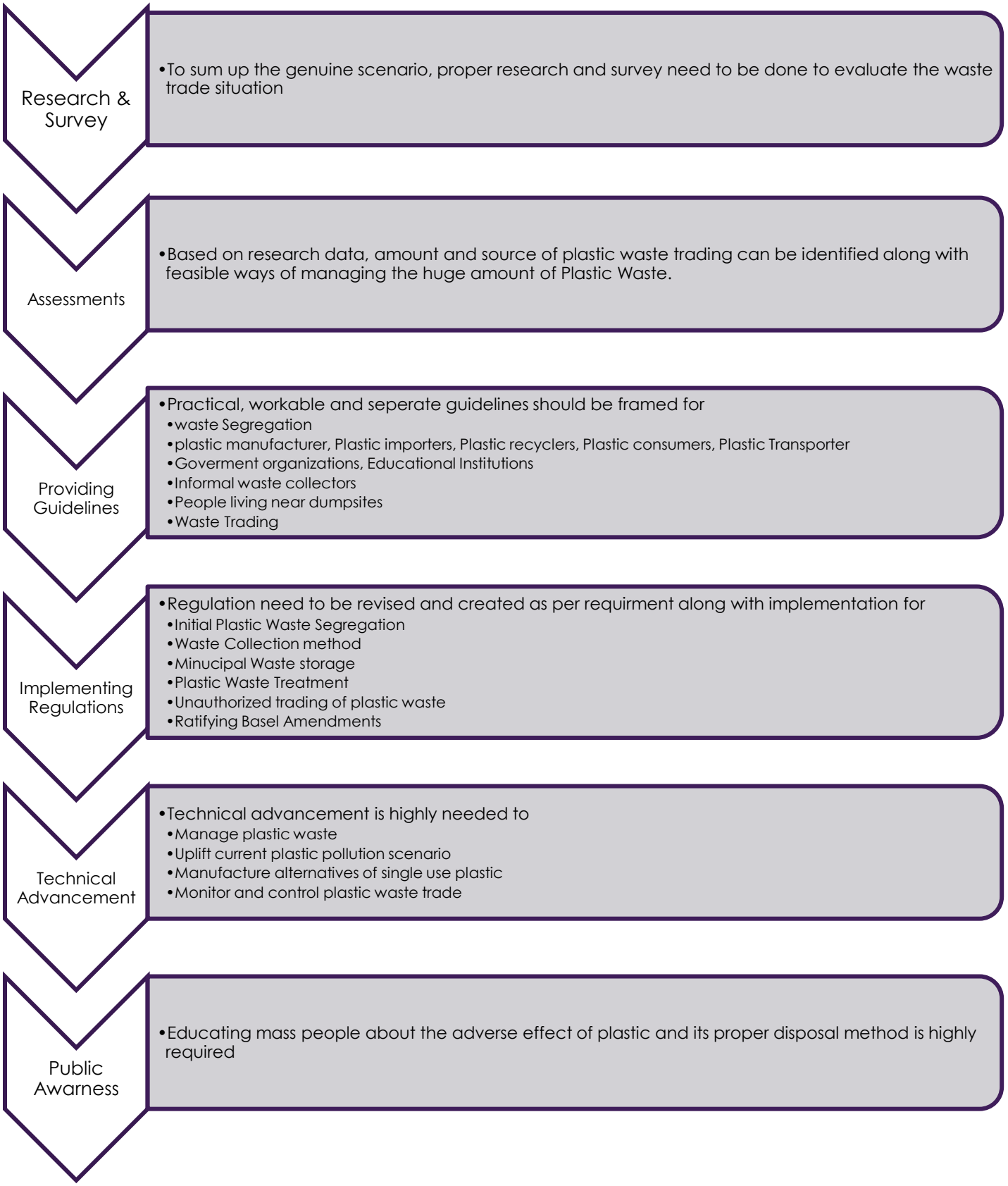


Figure 10: Recommended Guideline for Plastic Waste Management and Surveillance Plastic Waste Trade

Project Outcomes

DESCRIPTION OF CONDUCTED ACTIVITIES

Activity	Date & Time (Bangladesh Time; GMT+6)	Place
High Level Policy Dialogue on "Stopping Plastic Waste Trade and its Transboundary Movement"	13th December, 2020 11:00 AM- 1:00 PM	Virtual Platform (Zoom)
Mobile Awareness Raising Campaign on "Ban Single Used Plastic" and 'Proper dumping of Plastic waste'	16th January, 2021 10:00 AM – 5:30 PM	Hatir Jheel, Baily Road, Press Club, TSC and New Market in Dhaka
Press Briefing on "Toxic Plastic Waste: Situation of Disposal, Management and Trade of Bangladesh"	11th February, 2021 11:30 AM- 1:00 PM	ESDO Dhaka Office at Lalmatia and Virtual Platform (Zoom)
Mobile Awareness Raising Campaign on "Building Toxic Plastic Free Environment in Bangladesh"	14th February, 2021 10:00 AM – 4:30 PM	TSC, New Market, Shimanto Square, Rabindra Sharobar, Manik Mia Avenue in Dhaka
Social Media Campaign	Continuous social media campaign was conducted via Facebook, Twitter and Instagram	https://www.facebook.com/esdobd90 https://twitter.com/esdobd https://www.instagram.com/esdobd

High Level Policy Dialogue on "Stopping Plastic Waste Trade and its Transboundary Movement"

A high-level policy dialogue was successfully organized in virtual platform Zoom on 13th December, 2020. Honorable Minister of Environment, Forestry and Climate Change graced the dialogue as chief guest. Eminent environmentalists, policymakers, stakeholders and academicians shared their thoughts and concerns. The main objective of this dialogue was drawing Govt. attention to create urge for the implementation of Basel Amendment to prevent toxic plastic waste trade in Bangladesh and to sensitize

mass awareness across the country on the impacts of trans-boundary movement of hazardous plastic waste. This high-level policy dialogue has steered huge media drive. More than 50 news media have broadcast the event.

Mobile Awareness Raising Campaign on 'Ban Single Used Plastic' and 'Proper dumping of Plastic Waste'

As part of ESDO's beating plastic pollution initiative, an awareness-raising campaign was held in Dhaka City on 16th January 2021. A total of 5 specific places were visited through the campaign and people were made aware of single use plastic concerns in an interactive manner. The primary objective of this campaign was to raise mass awareness about the detrimental impacts of particularly single use plastic pollution and subsequently gain their support in the form of signature. It also aimed at encouraging the general mass in adopting environment-friendly alternatives to SUP. A team of four members from ESDO and two volunteers was entitled to the responsibility to conduct the campaign. People from different stakeholder groups were individually consulted and motivated during this campaign.

Press Briefing on "Toxic Plastic Waste: Situation of Disposal, Management and Trade of Bangladesh"

A press briefing was successfully organized in both physical and virtual platform Zoom on 11th February, 2021. The target group for this particular event was media representatives from various print and electronic media. It aimed at sharing ESDO's research findings on toxic plastic waste trade in Bangladesh with the media and initiate discussion on the same. ESDO Chairperson and former Secretary Syed Marghub Murshed, Mokhlesur Rahman, Former Additional IGP of Bangladesh Police and Technical Advisor of ESDO, Dr. Shahriar Hossain, Secretary General of ESDO and Siddika Sultana, Executive Director of ESDO were present as guest speakers in the event. The event was marked with the presence of journalists from multiple print and electronic media.

Mobile Awareness Raising Campaign on "Building Toxic Plastic Free Environment in Bangladesh"

The awareness-raising campaign was held in Dhaka City on 14th February, 2021. Total five major places in Dhaka city were visited and people were made aware of plastic pollution in an interactive manner. The primary objective of this campaign was to raise mass awareness about the detrimental impacts of toxic plastic pollution and subsequently gain their support in the form of signatures. This campaign also aimed at encouraging the general mass in adopting environment-friendly alternatives to plastic and total 454 signatures were collected as a form of people's support.

COMMUNICATION WITH NATIONAL AND LOCAL AUTHORITIES

The targeted audience for the High-Level policy dialogue were the officials of Ministry of Environment, Forestry and Climate Change, eminent environmentalists, policymakers, stakeholders and academicians to advocate the importance of Basel Amendments ratification. Mass people were targeted in both the awareness campaign to make people realize the toxicity of plastics. Electronic and Print media were the target audience of the press briefing to share ESDO's research findings on toxic plastic waste trade in Bangladesh emphasizing particularly on the illegal trading.

Prominent People for 'High Level Policy Meeting':

1. Honorable Minister, Md. Shahab Uddin, Ministry of Environment, Forest and Climate Change.
2. Dr. A.K.M. Rafique Ahammed, Director General, Department of Environment, Ministry of Environment, Forest and Climate Change.
3. Md. Ziaul Haque, Director, Department of Environment, Ministry of Environment, Forest and Climate Change.
4. Razinara Begum, Director, Department of Environment, Ministry of Environment, Forest and Climate Change.
5. Keya Khan, Joint Secretary, Department of Environment, Ministry of Environment, Forest and Climate Change.
6. ITO Naoki, Ambassador, Japan Ambassy
7. Tripti Arora, Coordinator, IPEN South Asia Hub
8. Shibu Nair, Indian Coordinator, GAIA

Recommendations to improve the existing legislative framework were shared in this event. The impact of plastic waste trade in the economy of Bangladesh; sources, and reasons behind the growth of informal recycling sector were also discussed in this policy dialogue. Additionally, the impact of unsafe informal recycling on human health and environment and the scope of formal recycling and waste management in Bangladesh also took into consideration. Negative side of informal incineration; Understanding the role of different organizing body, stakeholder and government in managing plastic waste trade and reviewing the existing regulatory framework of waste management and its gaps in Bangladesh were also analyzed in open discussion session.

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Media Coverage of High-Level Policy Dialogue on "Stopping Plastic Waste Trade and its Transboundary Movement"

SL No	Name of Media	Title of the News	Date	Link
1	The Financial Express	Govt won't allow plastic waste trade: Minister	December 14, 2020	https://today.thefinancialexpress.com.bd/trade-market/govt-wont-allow-plastic-waste-trade-minister-1607877121
2	বাসস	প্লাস্টিকের ব্যবহার বন্ধে প্রয়োজনীয় পদক্ষেপ নিয়েছে সরকার: পরিবেশ মন্ত্রী	December 13, 2020	https://www.bssnews.net/bangla/?p=296892
3	Daily Sun	Govt won't allow plastic waste trade	December 14, 2020	https://www.daily-sun.com/printversion/details/523542/Govt-won%E2%80%99t-allow-plastic-waste-trade
4	Somoy News	একবার ব্যবহার্য প্লাস্টিক বন্ধে কাজ করছে সরকার: পরিবেশ মন্ত্রী	December 13, 2020	https://www.somoynews.tv/pages/details/252206/%E0%A6%8F%E0%A6%95%E0%A6%AC%E0%A6%BE%E0%A6%B0-%E0%A6%AC%E0%A7%8D%E0%A6%AF%E0%A6%AC%E0%A6%B9%E0%A6%BE%E0%A6%B0%E0%A7%8D%E0%A6%AF-%E0%A6%AA%E0%A7%8D%E0%A6%B2%E0%A6%BE%E0%A6%B8%E0%A7%8D%E0%A6%9F%E0%A6%BF%E0%A6%95-%E0%A6%AC%E0%A6%A8%E0%A7%8D%E0%A6%A7%E0%A7%87-%E0%A6%95%E0%A6%BE%E0%A6%9C-%E0%A6%95%E0%A6%B0%E0%A6%9B%E0%A7%87-%E0%A6%B8%E0%A6%B0%E0%A6%95%E0%A6%BE%E0%A6%B0-%E0%A6%AA%E0%A6%B0%E0%A6%BF%E0%A6%AC%E0%A7%87%E0%A6%B6-%E0%A6%AE%E0%A6%A8%E0%A7%8D%E0%A6%A4%E0%A7%8D%E0%A6%B0%E0%A7%80
5	Bonik Barta	একবার ব্যবহার্য প্লাস্টিক বন্ধে কাজ করছে সরকার	December 14, 2020	https://bonikbarta.net/home/news_description/250077/

SL No	Name of Media	Title of the News	Date	Link
6	Kaler Kontho	একবার ব্যবহার্য প্লাস্টিক ইউজ বন্ধে কাজ করছে সরকার : পরিবেশমন্ত্রী	December 13, 2020	https://www.kalerkantho.com/online/national/2020/12/13/985147
7	Amar News	প্লাস্টিকবর্জ্য ও বাংলাদেশে এর অবৈধ বাণিজ্যের অনুমতি দেয়নি সরকার পরিবেশ, বন মন্ত্রী	December 14, 2020	https://amarnewsbd.net/%e0%a6%aa%e0%a7%8d%e0%a6%b2%e0%a6%be%e0%a6%b8%e0%a7%8d%e0%a6%9f%e0%a6%bf%e0%a6%95%e0%a6%ac%e0%a6%b0%e0%a7%8d%e0%a6%9c%e0%a7%8d%e0%a6%af-%e0%a6%93-%e0%a6%ac%e0%a6%be%e0%a6%82%e0%a6%b2%e0%a6%be%e0%a6%a6/
8	Bangla Pratidin	‘বাংলাদেশ সরকার প্লাস্টিক বর্জ্য বাণিজ্য অনুমোদন করবে না	December 14, 2020	https://banglapratidin.net/2020/12/14/%e0%a6%ac%e0%a6%be%e0%a6%82%e0%a6%b2%e0%a6%be%e0%a6%a6%e0%a7%87%e0%a6%b6-%e0%a6%b8%e0%a6%b0%e0%a6%95%e0%a6%be%e0%a6%b0-%e0%a6%aa%e0%a7%8d%e0%a6%b2%e0%a6%be%e0%a6%b8%e0%a7%8d%e0%a6%9f%e0%a6%bf/
9	Ekushe Television National News	প্লাস্টিকের ব্যবহার বন্ধে পদক্ষেপ নেওয়া হয়েছে: পরিবেশ মন্ত্রী	December 13, 2020	https://www.ekushey-tv.com/national/news/119085
10	Jagonews24.com	একবার ব্যবহার্য প্লাস্টিক বন্ধে কাজ করছে সরকার: পরিবেশমন্ত্রী	December 13, 2020	https://www.ekushey-tv.com/national/news/119085
11	Raisingbd.com	একবার ব্যবহার করা প্লাস্টিক বন্ধে ব্যবস্থা নিচ্ছে সরকার	December 13, 2020	https://www.risingbd.com/environment/news/384945

SL No	Name of Media	Title of the News	Date	Link
12	United News of Bangladesh	‘ওয়ান টাইম প্লাস্টিক’ বন্ধে কাজ করছে সরকার: পরিবেশ মন্ত্রী	December 13, 2020	https://unb.com.bd/bangla/category/%E0%A6%AA%E0%A6%B0%E0%A6%BF%E0%A6%AC%E0%A7%87%E0%A6%B6%20%E0%A6%93%20%E0%A6%95%E0%A7%83%E0%A6%B7%E0%A6%BF/%E2%80%98%E0%A6%93%E0%A7%9F%E0%A6%BE%E0%A6%A8-%E0%A6%9F%E0%A6%BE%E0%A6%87%E0%A6%AE-%E0%A6%AA%E0%A7%8D%E0%A6%B2%E0%A6%BE%E0%A6%B8%E0%A7%8D%E0%A6%9F%E0%A6%BF%E0%A6%95%E2%80%99-%E0%A6%AC%E0%A6%A8%E0%A7%8D%E0%A6%A7%E0%A7%87-%E0%A6%95%E0%A6%BE%E0%A6%9C-%E0%A6%95%E0%A6%B0%E0%A6%9B%E0%A7%87-%E0%A6%B8%E0%A6%B0%E0%A6%95%E0%A6%BE%E0%A6%B0:-%E0%A6%AA%E0%A6%B0%E0%A6%BF%E0%A6%AC%E0%A7%87%E0%A6%B6-%E0%A6%AE%E0%A6%A8%E0%A7%8D%E0%A6%A4%E0%A7%8D%E0%A6%B0%E0%A7%80/37406
13	Newsbangla24.com	একবার ব্যবহার্য প্লাস্টিক বন্ধ চায় সরকার: পরিবেশমন্ত্রী	December 13, 2020	https://www.newsbangla24.com/national/118015/%E0%A6%8F%E0%A6%95%E0%A6%AC%E0%A6%BE%E0%A6%B0-%E0%A6%AC%E0%A7%8D%E0%A6%AF%E0%A6%AC%E0%A6%B9%E0%A6%BE%E0%A6%B0%E0%A7%8D%E0%A6%AF-%E0%A6%AA%E0%A7%8D%E0%A6%B2%E0%A6%BE%E0%A6%B8%E0%A7%8D%E0%A6%9F%E0%A6%BF%E0%A6%95-%E0%A6%AC%E0%A6%A8%E0%A7%8D%E0%A6%A7-%E0%A6%95%E0%A6%B0%E0%A6%BE%E0%A6%B0-%E0%A6%86%E0%A6%B9%E0%A7%8D%E0%A6%AC%E0%A6%BE%E0%A6%A8-%E0%A6%AA%E0%A6%B0%E0%A6%BF%E0%A6%AC%E0%A7%87%E0%A6%B6%E0%A6%AE%E0%A6%A8%E0%A7%8D%E0%A6%A4%E0%A7%8D%E0%A6%B0%E0%A7%80%E0%A6%B0
14	amadershomoy.com	মানবদেহে ও পরিবেশের ওপর একবার ব্যবহার্য প্লাস্টিকের ক্ষতিকর প্রভাব বিবেচনায় এর ব্যবহার বন্ধে পদক্ষেপ নিচ্ছে সরকার: পরিবেশ মন্ত্রী	December 13, 2020	https://www.amadershomoy.com/bn/2020/12/13/1257341.html

SL No	Name of Media	Title of the News	Date	Link
15	Bangla Tribune	ওয়ানটাইম প্লাস্টিক ব্যবহার বন্ধে কাজ করছে সরকার: পরিবেশ মন্ত্রী	December 14, 2020	https://www.banglatribune.com/national/news/657214/%E0%A6%93%E0%A7%9F%E0%A6%BE%E0%A6%A8%E0%A6%9F%E0%A6%BE%E0%A6%87%E0%A6%AE-%E0%A6%AA%E0%A7%8D%E0%A6%B2%E0%A6%BE%E0%A6%B8%E0%A7%8D%E0%A6%9F%E0%A6%BF%E0%A6%95-%E0%A6%AC%E0%A7%8D%E0%A6%AF%E0%A6%AC%E0%A6%B9%E0%A6%BE%E0%A6%B0-%E0%A6%AC%E0%A6%A8%E0%A7%8D%E0%A6%A7%E0%A7%87-%E0%A6%95%E0%A6%BE%E0%A6%9C-%E0%A6%95%E0%A6%B0%E0%A6%9B%E0%A7%87-%E0%A6%B8%E0%A6%B0%E0%A6%95%E0%A6%BE%E0%A6%B0
14	Aparajeo Bangla			https://www.aparajeobangla.com/news/capital/3723
15	The Bangladesh and Beyond	প্লাস্টিকের ব্যবহার বন্ধের প্রয়োজনীয় ব্যবস্থা গ্রহণ করেছে সরকার: পরিবেশ মন্ত্রী	December 14, 2020	https://thebangladeshbeyond.com/%E0%A6%AA%E0%A7%8D%E0%A6%B2%E0%A6%BE%E0%A6%B8%E0%A7%8D%E0%A6%9F%E0%A6%BF%E0%A6%95%E0%A7%87%E0%A6%B0-%E0%A6%AC%E0%A7%8D%E0%A6%AF%E0%A6%AC%E0%A6%B9%E0%A6%BE%E0%A6%B0-%E0%A6%AC%E0%A6%A8%E0%A7%8D%E0%A6%A7/
16	Aviation News	‘একবার ব্যবহার্য প্লাস্টিক বন্ধে কাজ করছে সরকার’	December 13, 2020	https://www.aviationnewsbd.com/%E0%A6%8F%E0%A6%95%E0%A6%AC%E0%A6%BE%E0%A6%B0-%E0%A6%AC%E0%A7%8D%E0%A6%AF%E0%A6%AC%E0%A6%B9%E0%A6%BE%E0%A6%B0%E0%A7%8D%E0%A6%AF-%E0%A6%AA%E0%A7%8D%E0%A6%B2%E0%A6%BE%E0%A6%B8%E0%A7%8D%E0%A6%9F/
17	দৈনিক তৃতীয় মাত্রা	একবার ব্যবহার্য প্লাস্টিক ইউজ বন্ধে কাজ করছে সরকার: পরিবেশমন্ত্রী	December 13, 2020	https://www.tritiyamatra.com/news/309287
18	Women Eye 24	একবার ব্যবহার্য প্লাস্টিক বন্ধে কাজ করছে সরকার : পরিবেশমন্ত্রী	December 13, 2020	https://www.womeneye24.com/details/article/10001476/%E0%A6%8F%E0%A6%95%E0%A6%AC%E0%A6%BE%E0%A6%B0-%E0%A6%AC%E0%A7%8D%E0%A6%AF%E0%A6%AC%E0%A6%B9%E0%A6%BE%E0%A6%B0%E0%A7%8D%E0%A6%AF-%E0%A6%AA%E0%A7%8D%E0%A6%B2%E0%A6%BE%E0%A6%B8%E0%A7%8D%E0%A6%9F%E0%A6%BF%E0%A6%95-%E0%A6%AC%E0%A6%A8%E0%A7%8D%E0%A6%A7%E0%A7%87-%E0%A6%95%E0%A6%BE%E0%A6%9C-%E0%A6%95%E0%A6%B0%E0%A6%9B%E0%A7%87-%E0%A6%B8%E0%A6%B0%E0%A6%95%E0%A6%BE%E0%A6%B0-%E0%A6%AA%E0%A6%B0%E0%A6%BF%E0%A6%AC%E0%A7%87%E0%A6%B6%E0%A6%AE%E0%A6%A8%E0%A7%8D%E0%A6%A4%E0%A7%8D%E0%A6%B0%E0%A7%80/

SL No	Name of Media	Title of the News	Date	Link
19	Current News	একবার ব্যবহার্য প্লাস্টিক ইউজ বন্ধে কাজ করছে সরকার : পরিবেশমন্ত্রী	December 13, 2020	https://www.currentnews.com.bd/bn/news/631262
20	বিডি বাংলা ২৪	একবার ব্যবহার্য প্লাস্টিক বন্ধে কাজ করছে সরকার: পরিবেশ মন্ত্রী	December 13, 2020	https://bd-bangla24.com/?p=34392
21	বাংলার কথা	একবার ব্যবহার্য প্লাস্টিক বন্ধে কাজ করছে সরকার: পরিবেশমন্ত্রী	December 13, 2020	https://banglarkotha.news/?p=84691
22	United News 24	একবার ব্যবহার্য প্লাস্টিক বন্ধে কাজ করছে সরকার: পরিবেশ মন্ত্রী	December 13, 2020	https://www.unitednews24.com/%E0%A6%8F%E0%A6%95%E0%A6%AC%E0%A6%BE%E0%A6%B0-%E0%A6%AC%E0%A7%8D%E0%A6%AF%E0%A6%AC%E0%A6%B9%E0%A6%BE%E0%A6%B0%E0%A7%8D%E0%A6%AF-%E0%A6%AA%E0%A7%8D%E0%A6%B2%E0%A6%BE%E0%A6%B8%E0%A7%8D%E0%A6%9F%E0%A6%BF/
23	আনন্দবাজার	একবার ব্যবহার্য প্লাস্টিক ইউজ বন্ধে কাজ করছে সরকার	December 13, 2020	https://dainikanandabazar.com/%E0%A6%8F%E0%A6%95%E0%A6%AC%E0%A6%BE%E0%A6%B0-%E0%A6%AC%E0%A7%8D%E0%A6%AF%E0%A6%AC%E0%A6%B9%E0%A6%BE%E0%A6%B0%E0%A7%8D%E0%A6%AF-%E0%A6%AA%E0%A7%8D%E0%A6%B2%E0%A6%BE%E0%A6%B8%E0%A7%8D%E0%A6%9F/

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24	উত্তরন বার্তা	সিঙ্গেল ইউজ প্লাস্টিকমুক্ত বাংলাদেশ গড়তে কাজ করছে সরকার: পরিবেশমন্ত্রী	December 13, 2020	https://uttaranbarta.com/details/2789/-%E0%A6%B8%E0%A6%BF%E0%A6%99%E0%A7%8D%E0%A6%97%E0%A7%87%E0%A6%B2-%E0%A6%87%E0%A6%89%E0%A6%9C-%E0%A6%AA%E0%A7%8D%E0%A6%B2%E0%A6%BE%E0%A6%B8%E0%A7%8D%E0%A6%9F%E0%A6%BF%E0%A6%95%E0%A6%AE%E0%A7%81%E0%A6%95%E0%A7%8D%E0%A6%A4-%E0%A6%AC%E0%A6%BE%E0%A6%82%E0%A6%B2%E0%A6%BE%E0%A6%A6%E0%A7%87%E0%A6%B6-%E0%A6%97%E0%A7%9C%E0%A6%A4%E0%A7%87-%E0%A6%95%E0%A6%BE%E0%A6%9C-%E0%A6%95%E0%A6%B0%E0%A6%9B%E0%A7%87-%E0%A6%B8%E0%A6%B0%E0%A6%95%E0%A6%BE%E0%A6%B0:-%E0%A6%AA%E0%A6%B0%E0%A6%BF%E0%A6%AC%E0%A7%87%E0%A6%B6%E0%A6%AE%E0%A6%A8%E0%A7%8D%E0%A6%A4%E0%A7%8D%E0%A6%B0%E0%A7%80
25	দ্যা নিউজ	প্লাস্টিক বন্ধে প্রয়োজনীয় ব্যবস্থা গ্রহণ করছে সরকার -পরিবেশমন্ত্রী	December 13, 2020	https://thenewse.com/?p=200948
26	দৈনিক বাংলা	একবার ব্যবহার্য প্লাস্টিক বন্ধে কাজ করছে সরকার :পরিবেশ মন্ত্রী	December 13, 2020	https://www.dainikbangla.com.bd/details.php?id=47292
27	আমাদের নতুন সময়	ওয়ানটাইম পলিথিনের বিকল্প হিসেবে পাটের ব্যাগ উদ্ভাবনে কাজ করছে সরকার: পরিবেশ, বন ও জলবায়ু পরিবর্তন মন্ত্রী	December 14, 2020	http://amadernotunshomoy.com/newsite/2020/12/14/%E0%A7%A7%E0%A6%93%E0%A7%9F%E0%A6%BE%E0%A6%A8%E0%A6%9F%E0%A6%BE%E0%A6%87%E0%A6%AE-%E0%A6%AA%E0%A6%B2%E0%A6%BF%E0%A6%A5%E0%A6%BF%E0%A6%A8%E0%A7%87%E0%A6%B0-%E0%A6%AC%E0%A6%BF%E0%A6%95%E0%A6%B2/#.X9bqkNgzbIU

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28	Our News	একবার ব্যবহার্য প্লাস্টিক বন্ধে কাজ করছে সরকার: পরিবেশ মন্ত্রী	December 13, 2020	https://ournewsbd.net/%E0%A6%8F%E0%A6%95%E0%A6%AC%E0%A6%BE%E0%A6%B0-%E0%A6%AC%E0%A7%8D%E0%A6%AF%E0%A6%AC%E0%A6%B9%E0%A6%BE%E0%A6%B0%E0%A7%8D%E0%A6%AF-%E0%A6%AA%E0%A7%8D%E0%A6%B2%E0%A6%BE%E0%A6%B8%E0%A7%8D%E0%A6%9F%E0%A6%BF/
29	আলোচিত বাংলা	সরকার একবার ব্যবহার্য প্লাস্টিক বন্ধে কাজ করছে: পরিবেশমন্ত্রী	December 13, 2020	https://www.alochitobangladesh.com.bd/%E0%A6%B8%E0%A6%B0%E0%A6%95%E0%A6%BE%E0%A6%B0-%E0%A6%8F%E0%A6%95%E0%A6%AC%E0%A6%BE%E0%A6%B0-%E0%A6%AC%E0%A7%8D%E0%A6%AF%E0%A6%AC%E0%A6%B9%E0%A6%BE%E0%A6%B0%E0%A7%8D%E0%A6%AF-%E0%A6%AA%E0%A7%8D/
30	Bangladesh Global	একবার ব্যবহার্য প্লাস্টিক বন্ধে কাজ করছে সরকার: পরিবেশ মন্ত্রী	December 13, 2020	http://bangladeshglobal.com/?p=cont&news_id=28703&sub_cat=2&active=m_4
31	The World News	একবার ব্যবহার্য প্লাস্টিক বন্ধের সিদ্ধান্ত নিচ্ছে সরকার	December 13, 2020	https://theworldnews.net/bd-news/ekbaar-bybhaar-kraa-plaasttik-bndhe-bybsthaa-nicche-srkaar
32	The Parliament face	একবার ব্যবহার্য প্লাস্টিকমুক্ত বাংলাদেশ গড়তে কাজ করছে সরকার: পরিবেশমন্ত্রী	December 13, 2020	https://magazine.theparliamentfacebd.com/post.php?p_id=3496

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33	এই বাংলা	একবার ব্যবহার্য প্লাস্টিক বন্ধে কাজ করছে সরকারঃ পরিবেশ মন্ত্রী	December 13, 2020	https://eaibangla.com/%E0%A6%8F%E0%A6%95%E0%A6%AC%E0%A6%BE%E0%A6%B0-%E0%A6%AC%E0%A7%8D%E0%A6%AF%E0%A6%AC%E0%A6%B9%E0%A6%BE%E0%A6%B0%E0%A7%8D%E0%A6%AF-%E0%A6%AA%E0%A7%8D%E0%A6%B2%E0%A6%BE%E0%A6%B8%E0%A7%8D%E0%A6%9F%E0%A6%BF/
34	দেশের গর্জন	একবার ব্যবহার্য প্লাস্টিক বন্ধে কাজ করছে সরকার: পরিবেশ মন্ত্রী	December 13, 2020	https://www.deshergarjan.net/%E0%A6%8F%E0%A6%95%E0%A6%AC%E0%A6%BE%E0%A6%B0-%E0%A6%AC%E0%A7%8D%E0%A6%AF%E0%A6%AC%E0%A6%B9%E0%A6%BE%E0%A6%B0%E0%A7%8D%E0%A6%AF-%E0%A6%AA%E0%A7%8D%E0%A6%B2%E0%A6%BE%E0%A6%B8%E0%A7%8D%E0%A6%9F%E0%A6%BF/
35	জাগো জনতা	সিঙ্গেল ইউজ প্লাস্টিক মুক্ত বাংলাদেশ গড়া হবে	December 13, 2020	https://dainikjagojanata.com/archives/66843
36	দেশ রুপান্তর	ওয়ান টাইম প্লাস্টিক বন্ধে কাজ করছে সরকার: পরিবেশ মন্ত্রী	December 13, 2020	https://www.deshrupantor.com/national/2020/12/13/264302
37	যমুনা নিউজ	একবার ব্যবহার্য প্লাস্টিক বন্ধে কাজ করছে সরকার: পরিবেশ মন্ত্রী	December 13, 2020	http://www.jamunanewsbd.com/%E0%A6%93%E0%A7%9F%E0%A6%BE%E0%A6%A8-%E0%A6%9F%E0%A6%BE%E0%A6%87%E0%A6%AE-%E0%A6%AA%E0%A7%8D%E0%A6%B2%E0%A6%BE%E0%A6%B8%E0%A7%8D%E0%A6%9F%E0%A6%BF%E0%A6%95-%E0%A6%AC%E0%A6%A8/

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38	Sylhet Protidin	একবার ব্যবহার্য প্লাস্টিক বন্ধে কাজ করছে সরকার: পরিবেশ মন্ত্রী	December 13, 2020	https://sylhetprotidin24.net/%E0%A6%8F%E0%A6%95%E0%A6%AC%E0%A6%B0-%E0%A6%AC%E0%A6%AF%E0%A6%AC%E0%A6%B9%E0%A6%B0%E0%A6%AF-%E0%A6%AA%E0%A6%B2%E0%A6%B8%E0%A6%9F%E0%A6%95-%E0%A6%AC%E0%A6%A8%E0%A6%A7-%E0%A6%95%E0%A6%9C-%E0%A6%95%E0%A6%B0%E0%A6%9B-%E0%A6%B8%E0%A6%B0%E0%A6%95%E0%A6%B0-%E0%A6%AA%E0%A6%B0%E0%A6%AC%E0%A6%B6-%E0%A6%AE%E0%A6%A8%E0%A6%A4%E0%A6%B0
39	Somoy News	একবার ব্যবহার্য প্লাস্টিক বন্ধে কাজ করছে সরকার: পরিবেশ মন্ত্রী	December 13, 2020	https://www.somoynews.tv/pages/details/252206/%E0%A6%8F%E0%A6%95%E0%A6%AC%E0%A6%BE%E0%A6%B0-%E0%A6%AC%E0%A7%8D%E0%A6%AF%E0%A6%AC%E0%A6%B9%E0%A6%BE%E0%A6%B0%E0%A7%8D%E0%A6%AF-%E0%A6%AA%E0%A7%8D%E0%A6%B2%E0%A6%BE%E0%A6%B8%E0%A7%8D%E0%A6%9F%E0%A6%BF%E0%A6%95-%E0%A6%AC%E0%A6%A8%E0%A7%8D%E0%A6%A7%E0%A7%87-%E0%A6%95%E0%A6%BE%E0%A6%9C-%E0%A6%95%E0%A6%B0%E0%A6%9B%E0%A7%87-%E0%A6%B8%E0%A6%B0%E0%A6%95%E0%A6%BE%E0%A6%B0-%E0%A6%AA%E0%A6%B0%E0%A6%BF%E0%A6%AC%E0%A7%87%E0%A6%B6-%E0%A6%AE%E0%A6%A8%E0%A7%8D%E0%A6%A4%E0%A7%8D%E0%A6%B0%E0%A7%80
40	পানকৌড়ি নিউজ	একবার ব্যবহার্য প্লাস্টিক বন্ধে কাজ করছে সরকার: পরিবেশ মন্ত্রী	December 13, 2020	https://www.pankourinews.com/2020/13/79943/
41	প্রথম সংবাদ	একবার ব্যবহার্য প্লাস্টিক বন্ধে কাজ করছে সরকার – পরিবেশ মন্ত্রী	December 13, 2020	https://www.dailyprothomsangbad.com/archives/25207?fbclid=IwAR11ssO1MkfFSkAajp1GV_6q4S923VYDrcm2zzTg9pfvMOBMEab4Ae9VMx4
42	বাংলা ৭১ নিউজ	প্লাস্টিকের ব্যবহার বন্ধে পদক্ষেপ নেওয়া হয়েছে: পরিবেশ মন্ত্রী	December 13, 2020	https://bangla71news.com/%E0%A6%AA%E0%A7%8D%E0%A6%B2%E0%A6%BE%E0%A6%B8%E0%A7%8D%E0%A6%9F%E0%A6%BF%E0%A6%95%E0%A7%87%E0%A6%B0-%E0%A6%AC%E0%A7%8D%E0%A6%AF%E0%A6%AC%E0%A6%B9%E0%A6%BE%E0%A6%B0-%E0%A6%AC%E0%A6%A8%E0%A7%8D%E0%A6%A7/

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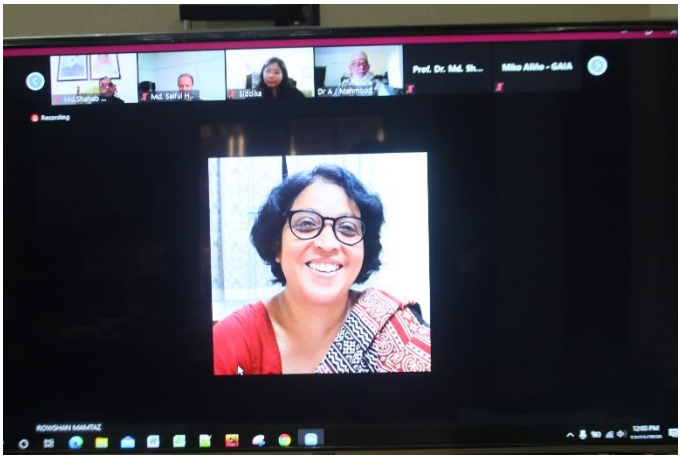
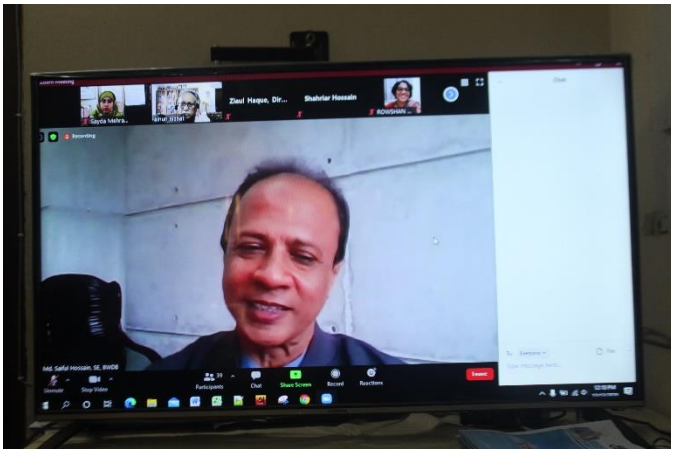
43	বাংলা ৭১ নিউজ	প্লাস্টিকের ব্যবহার বন্ধে পদক্ষেপ নেওয়া হয়েছে: পরিবেশ মন্ত্রী	December 13, 2020	https://bangla71news.com/%E0%A6%AA%E0%A7%8D%E0%A6%B2%E0%A6%BE%E0%A6%B8%E0%A7%8D%E0%A6%9F%E0%A6%BF%E0%A6%95%E0%A7%87%E0%A6%B0-%E0%A6%AC%E0%A7%8D%E0%A6%AF%E0%A6%AC%E0%A6%B9%E0%A6%BE%E0%A6%B0-%E0%A6%AC%E0%A6%A8%E0%A7%8D%E0%A6%A7/
44	Daily Times 24	একবার ব্যবহার্য প্লাস্টিক বন্ধে কাজ করছে সরকার – পরিবেশ মন্ত্রী	December 13, 2020	https://www.dailytimes24.com/2020/12/13/163750
45	BD Financial	একবার ব্যবহার্য প্লাস্টিক বন্ধে কাজ করছে সরকার – পরিবেশ মন্ত্রী	December 13, 2020	https://bdfinancialnews24.com/ministry/%E0%A6%8F%E0%A6%95%E0%A6%AC%E0%A6%BE%E0%A6%B0-%E0%A6%AC%E0%A7%8D%E0%A6%AF%E0%A6%AC%E0%A6%B9%E0%A6%BE%E0%A6%B0%E0%A7%8D%E0%A6%AF-%E0%A6%AA%E0%A7%8D%E0%A6%B2%E0%A6%BE%E0%A6%B8%E0%A7%8D%E0%A6%9F%E0%A6%BF/
46	Live 24	একবার ব্যবহার্য প্লাস্টিক বন্ধে কাজ করছে সরকার – পরিবেশ মন্ত্রী	December 13, 2020	https://live24.com.bd/%E0%A6%8F%E0%A6%95%E0%A6%AC%E0%A6%BE%E0%A6%B0-%E0%A6%AC%E0%A7%8D%E0%A6%AF%E0%A6%AC%E0%A6%B9%E0%A6%BE%E0%A6%B0%E0%A7%8D%E0%A6%AF-%E0%A6%AA%E0%A7%8D%E0%A6%B2%E0%A6%BE%E0%A6%B8%E0%A7%8D%E0%A6%9F%E0%A6%BF/
47	সময় এখন	সিঙ্গেল ইউজ প্লাস্টিক বন্ধে পদক্ষেপ নিচ্ছে সরকার	December 13, 2020	https://somoyekhon.net/news/29551
48	ডাকপিয়ন	প্লাস্টিকের ব্যবহার বন্ধে পদক্ষেপ নেওয়া হয়েছে: পরিবেশ মন্ত্রী	December 13, 2020	http://dakpeon24.com/254716/

Pictorials of High-Level Policy Dialogue on "Stopping Plastic Waste Trade and its Transboundary Movement"



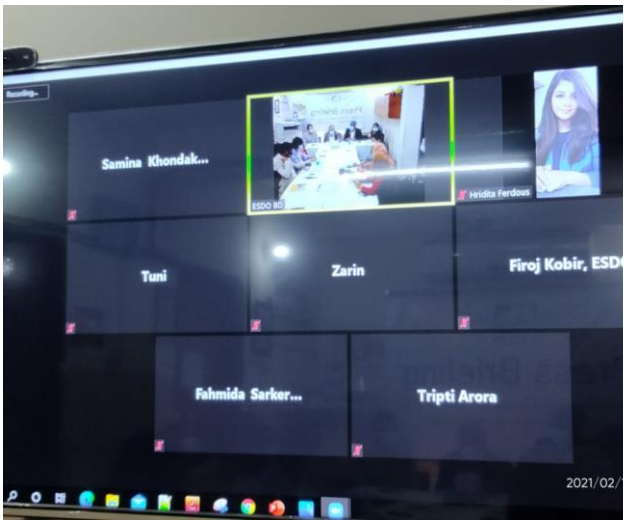


Media Coverages of the press briefing on "Toxic Plastic Waste: Situation of Disposal, Management and Trade of Bangladesh"

SL No	Name of Media	Title of the News	Date	Link
1	New Age	1.2m tons plastic waste imported in 3 years: study	February 12, 2020	https://www.newagebd.net/article/129937/12m-tons-plastic-waste-imported-in-3-years-study
2	Daily Sun	Illegal plastic waste affects Bay of Bengal ecosystem	February 12, 2020	https://www.daily-sun.com/printversion/details/535292/Illegal-plastic-waste-affects-Bay-of-Bengal-ecosystem
3	The Financial Express	1.2m tons plastic waste shipped to Bangladesh	February 12, 2020	https://thefinancialexpress.com.bd/national/12m-tons-of-plastic-waste-shipped-to-bangladesh-1613102048
4	Priyo.com	1.2m tons of plastic waste shipped to Bangladesh	February 12, 2020	https://m.priyo.com/e/2934057-12m-tons-of-plastic-waste-shipped-to-Bangladesh
5	দৈনিক পৃথিবী	বাংলাদেশে গড়ে প্রতিদিন ৩ হাজার টন প্লাস্টিক বর্জ্য উৎপন্ন হয়": এসডো	February 12, 2020	http://dainikprithibi.com/2021/02/11/09:10:41pm/%22%E0%A6%AC%E0%A6%BE%E0%A6%82%E0%A6%B2%E0%A6%BE%E0%A6%A6%E0%A7%87%E0%A6%B6%E0%A7%87%E0%A6%97%E0%A7%9C%E0%A7%87%E0%A6%AA%E0%A7%8D%E0%A6%B0%E0%A6%A4%E0%A6%BF%E0%A6%A6%E0%A6%BF%E0%A6%A8%E0%A7%A9%E0%A6%B9%E0%A6%BE%E0%A6%9C%E0%A6%BE%E0%A6%B0%E0%A6%9F%E0%A6%A8%E0%A6%AA%E0%A7%8D%E0%A6%B2%E0%A6%BE%E0%A6%B8%E0%A7%8D%E0%A6%9F%E0%A6%BF%E0%A6%95%E0%A6%AC%E0%A6%B0%E0%A7%8D%E0%A6%9C%E0%A7%8D%E0%A6%AF%E0%A6%89%E0%A7%8E%E0%A6%AA%E0%A6%A8%E0%A7%8D%E0%A6%A8%E0%A6%B9%E0%A7%9F%22%253A-%E0%A6%8F%E0%A6%B8%E0%A6%A1%E0%A7%8B

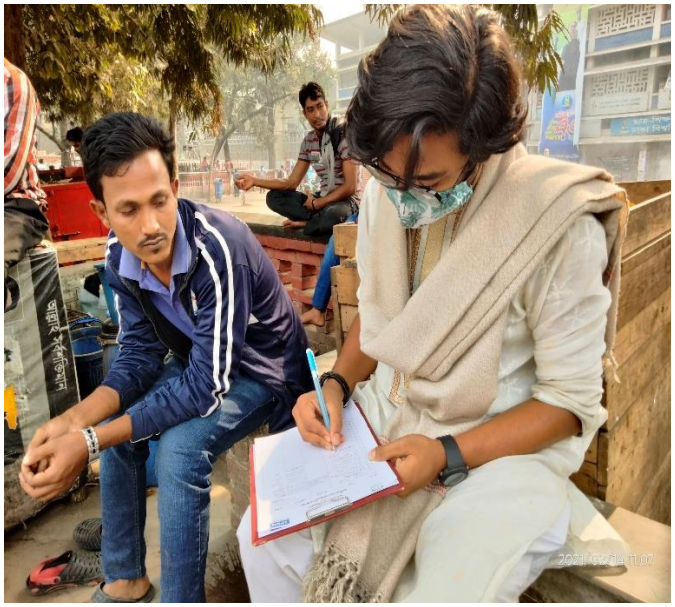
SL No	Name of Media	Title of the News	Date	Link
6	Channeli Online	দেশে গত তিন বছরে ১২ লাখ টন প্লাস্টিক বর্জ্য আমদানি	February 11, 2020	https://www.channelionline.com/%E0%A6%A6%E0%A7%87%E0%A6%B6%E0%A7%87-%E0%A6%97%E0%A6%A4-%E0%A6%A4%E0%A6%BF%E0%A6%A8-%E0%A6%AC%E0%A6%9B%E0%A6%B0%E0%A7%87-%E0%A7%A7%E0%A7%A8-%E0%A6%B2%E0%A6%BE%E0%A6%96-%E0%A6%9F%E0%A6%A8-%E0%A6%AA/
7	বাংলার চোখ	প্লাস্টিক বর্জ্যের অবৈধ বাণিজ্য এবং আন্তঃসীমান্ত পরিবহণ রোধে এসডোর আহ্বান	February 12, 2020	http://www.banglarchokh.com.bd/detailsnews.php?nssl=70301
8	Bangla Protidin	তিন বছরে বাংলাদেশে ১.২ মিলিয়ন প্লাস্টিক বর্জ্য আমদানি হয়েছে	February 11, 2020	https://banglapratidin.net/2021/02/11/%e0%a6%a4%e0%a6%bf%e0%a6%a8-%e0%a6%ac%e0%a6%9b%e0%a6%b0%e0%a7%87-%e0%a6%ac%e0%a6%be%e0%a6%82%e0%a6%b2%e0%a6%be%e0%a6%a6%e0%a7%87%e0%a6%b6%e0%a7%87-%e0%a7%a7-%e0%a7%a8-%e0%a6%ae%e0%a6%bf%e0%a6%b2/
9	News Flash 71	প্লাস্টিক বর্জ্যের অবৈধ বাণিজ্য এবং পরিবহণ বন্ধের আহ্বান	February 12, 2020	https://www.newsflash71.com/national/article/4129/%E0%A6%AA%E0%A7%8D%E0%A6%B2%E0%A6%BE%E0%A6%B8%E0%A7%8D%E0%A6%9F%E0%A6%BF%E0%A6%95%E0%A6%AC%E0%A6%B0%E0%A7%8D%E0%A6%9C%E0%A7%8D%E0%A6%AF%E0%A7%87%E0%A6%B0%E0%A6%85%E0%A6%AC%E0%A7%88%E0%A6%A7%E0%A6%AC%E0%A6%BE%E0%A6%A3%E0%A6%BF%E0%A6%9C%E0%A7%8D%E0%A6%AF%E0%A6%8F%E0%A6%AC%E0%A6%82%E0%A6%AA%E0%A6%B0%E0%A6%BF%E0%A6%AC%E0%A6%B9%E0%A6%A3%E0%A6%AC%E0%A6%A8%E0%A7%8D%E0%A6%A7%E0%A7%87%E0%A6%B0-%E0%A6%86%E0%A6%B9%E0%A7%8D%E0%A6%AC%E0%A6%BE%E0%A6%A8

Pictorials of the press briefing on "Toxic Plastic Waste: Situation of Disposal, Management and Trade of Bangladesh"



Pictorials of Awareness Campaign on 'Ban Single Used Plastic' and 'Proper dumping of Plastic Waste'

Pictorials of Awareness Campaign on "Building Toxic Plastic Free Environment in Bangladesh"



OUTREACH TO GOVERNMENT AUTHORITIES AND INDUSTRIES

The stakeholders and sectors were engaged in this activity are:

1. Department of Environment, Ministry of Environment, Forest and Climate Change.
2. Ministry of Health and Family Welfare
3. Ministry of Industry
4. Ministry of Commerce
5. Ministry of Foreign Affairs
6. Planning Ministry
7. Ministry of Water Resources
8. Bangladesh Water Development Board
9. National Board of Revenue
10. Bangladesh Standards and Testing Institute – BSTI
11. Directorate General of Health Services (DGHS)
12. Federation of Bangladesh Chambers of Commerce and Industries (FBCCI)
13. Food and Agriculture Organization (FAO)

ESDO believes that following up to advance the relationships with these stakeholders have great potentials for advocating on Basel Amendment Ratification, particularly regarding toxic plastic waste.

ESDO is an active member of the National Advisory Committee lead by Secretary of Ministry of Environment, Forest and Climate Change for beating Plastic Pollution and Steering Committee lead by Director General of Department of Environment, Ministry of Environment, Forest and Climate Change for banning Single Used Plastic Items.