Reassessing the Future of Legality of Plastics in the Global Economy

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I. PRECIS

1. Introduction:

An amiable and equitable relationship between mankind and nature on the mother earth is indispensable for the sustainable development of life. With the dawn of industrial development, humans incidentally and accidentally interfered with the natural environment for its comfort and luxury. One of the most meticulous and noxious weapons discovered by humans, eroding our natural habitat is plastic. Pollution and plethora of other problems caused by plastic due to its tantamount shattering of ecology has led to a new term called white pollution.

“The who’s who of the scientific fraternity was hunched over tables trying to create gold and silver using science and sorcery. But their attempts landed them nowhere near the material that kicked off a revolution some hundreds of years later. It was the polymer, a material that is durable, pliable, light and relatively inert. The first synthetic polymer, or plastic as we know it, was created in the early 20th century. Since then, contemporary alchemists have been cutting up and repurposing hydrocarbon molecules into thousands of materials that make up the plastics family. Everything from bottles to money is now plastic.” Plastics are non-biodegradable, synthetic polymers derived primarily from petro-fossil feedstock and made-up of long-chain hydrocarbons with additives and can be moulded into finished products excluding compostable plastic or polymer confirming IS/ISO 17088:2008. Plastics can be divided into two general categories and they are; 1. Thermoplastics: They have either linear or branched structure and can be amorphous or semi-crystalline materials, these can remoulded, reshaped and reused i.e. thermoplastics can be reclaimed from waste.

2. Thermosetting plastics: These plastics have three-dimensional, cross-linked, networked structures in which the polymeric chains are held together by strong covalent bonds i.e. thermosetting plastics cannot be remoulded and cannot be reused.

Plastics majorly are non-biodegradable. Alternatively, they splinter into smaller shards also known as microplastics. There are various studies revealing that plastic bags and containers made of expanded polystyrene foam/Styrofoam can squander up to thousands of years to decompose, adulterating soil and water health. Plastic bags disrupting waterways is a common phenomenon across the world aggravating natural disasters. An analytical study done by Moser and Lee in 1992 and Shaw and Day in 1994 on 1033 birds collected off the coast of North Carolina in the USA found that 55% of the species studied had plastic particles in their guts, as seabirds select specific plastic shapes and colors, mistaking them for food preys. Carpenter et al. in 1972 studied diverse species of fish and turtles with plastic debris in their guts and found that white plastic spherules

had been ingested, indicating that they feed selectively. According to the observations made by Ryan et al., the main component polluting marine food webs are polychlorinated biphenyls (PCBs). The harmful after effects though not apparent are reproductive disorders or increase the risk of diseases and alter hormone levels. Assembling of plastic bag wastes causes environmental pollution that can be manifested in a number of ways such as deterioration of the natural beauty of an environment, death and entanglement of the marine ecosystem, blockage of sewerage systems of cities and towns in developing countries. Worldwide, a trillion single-use plastic bags are used each year, nearly 2 million each minute. The Pacific Institute estimates the raw material used to make single-use plastics items is petroleum or natural gas, both are finite resources of energy. For example, 14 plastics bags are the equivalent of fuel used to drive 1.2 kilometers.

The financial impact on Asia Pacific region due to plastic litter affecting its tourism, fishing and shipping industries is around $1.3 billion per year and in the Europe Union, cleaning plastic waste from coasts and beaches costs about €630 million every year. Various accounting research studies submit that the total economic damage to the world's marine ecosystem caused by plastic amounts to more than $13 billion every year. The problems due to plastics are very clear, it is imperative to implement global solutions which are practically possible to administer.

2. Historical Development:

The meaning of the term plastic with a linguistic reference can be dated back to 1630s, "capable of shaping or molding," from Latin plasticus and from Greek plastikos "able to be molded". In 1907 Leo Baekeland used coal tar to create phenol, which he developed into the very first synthetically derived plastic from fossil fuels. Baekeland used the plastic for radio and telephone casings and electrical insulators because of its non-conductive and heat-resistant properties. Later in 1953, American chemist Daniel Fox invented a new kind of polycarbonate thermoplastic resin. The Age of Plastics began with a mistaken laboratory hypothetical and it is often phrased 'discovered by accident'. In 1954, styrene (better known as Styrofoam) was accidentally invented by Ray McIntire. In 1965, chemist Stephanie Kwolek developed Kevlar. World War II forced a tremendous expansion of the plastics industry. A Time magazine article noted that because of the war, "plastics have been turned to new uses and the adaptability of plastics demonstrated all over again", during World War II plastic production in the United States increased by 300%. According to author Susan Freinkel, "In product after product, market after market, plastics challenged traditional materials and won, taking the place of steel in cars, paper, and glass in packaging, and wood in furniture." Ronald Geyer et. al. concluded in a 2017 study: 8,300 million tonnes of virgin plastics have been produced to date. Of this, around nine percent have been recycled and 12 percent incinerated. 79 percent have found their way into landfills or the natural environment.

II. A NEW DISCOURSE? BEGINNING OF THE END OF PLASTIC MENACE

1. Feasibility of a complete ban on plastic and strengthening the production for recovery & recycling:

The rise of plastic as a global treat saw panaceas of expositions and resolutions, with the majority of them embracing the idea of completely recycling plastic coupled with partly banning single use plastic and a minority of the world calling for and reinforcing a blanket ban. We are moulded by plastic pervasively from laptops, door hinges, shower curtains, waste collectors, automobiles, meal trays, wall tiles, toys, pacifiers, tongs, pails, bins, bottles, and mouldings. This exposition of a blanket ban of plastic is difficult to achieve and still remains a distant dream because of its ubiquitous and omnipresent nature. There are realms where plastics are indispensable and vital, such as the medical industry, defense industry or automobile industry. As stated in the report published by the Ministry of Environment, Forest and climate change titled Plastic in life and Environment, "The industry's agenda is very simple. Another variation, another resin, another application, another barrel of crude oil, more pellets or nurdles, another product, another avenue of profit." The sincere, civil, morally appropriate 'ban plastics' slogan, by practical comparison and implementable nature is too uncertain and unclear. The 'say no to plastics' slogan is achievable, for it has an actionable intent. High level of recycling, as with a reduction in use, reuse, and repair or re-manufacturing combined with waste management strategies like landfill, incineration and energy recovery, downgauging, re-using of plastic packaging is the permanent solutions to white pollution. In addition to this, the focus should be given to promoting the creation of waste management infrastructure coupled with an investment in developing and unorganized recycling units. The issue is a global phenomenon, best practices and successfully tested techniques for packaging waste, which follow a covenant of better product design to ensure reduction, re-use, and recycling of packaging materials should be adopted. Recycling of plastic as the terminology suggests is a complex process to do and a confusing process to understand. Recycling and recovery are divided into four major categories: primary (mechanical reprocessing into a product with equal properties), secondary (mechanical reprocessing into products requiring lower properties), tertiary (recovery of chemical constituents) and quaternary (recovery of energy). Most of the plastics (PP, PVC, PET) etc. can be recycled via the mechanical route. Whereas, engineering plastics like PBT, SAN, and Nylon etc. are recycled by selected recyclers. In the so-called prosperous plastic industry in this global economy, recycling of plastics is one of the foremost steps towards innovation and sustainability. According to Government statistics, currently in India, out of the 7500 units, the number of organized recycling units for plastics is 3,500 along with additional 4,000 unorganized recycling units. Central Government also plans to invest in 100 such plants by 2020. In India, recycling of plastics is currently 3.6MnTPA and it provides employment to almost 1.6 Million people (0.6 million directly, 1 million indirectly). One of the major problems when it comes to statistical analysis of plastic pollution is the inaccuracy and imprecision of data. There are various reports of both Government and established Think Tanks which shows divergent figures. The report on Implementation of Plastic Waste Management Rules published in 2016, the plastic waste generated across the country is close to 1.6 million tonnes a year. The Central Pollution

Control Board (CPCB) report in 2017 estimated that India generates 25,940 tonnes of plastic waste each day. Out of which about 94 percent comprises a thermoplastic, such as PET/polyethylene terephthalate and PVC/polyvinyl chloride, which is recyclable. The deficiency of this estimated figure has jurisdictional limitation as it was estimated out of data extrapolated from 60 major cities, but various studies also say that India produces a lot of thermosets and other categories of plastics, such as sheet molding compound (SMC), fibre reinforced plastic (FRP) and multi-layer thermocol, which are non-recyclable. So, the idea of re-usage, recycling, and avoidance of hazardous plastic is more practical than a blanket ban.

Recycling in its practical terminology is only the secondary step, whereas, the primary process and the real grassroots solution lie in segregation of waste at source. The most impactful area is the need for public awareness and disciplined conscience towards segregation. This responsibility for increasing awareness through Public Private Partnership of Plastics Waste Management has dual stakeholders, both Government Organizations and all participating NGO. Indians consume 11 kg of plastic per year in comparison to 109 kg by an average American. Waste-to-energy (WTE) plants that convert municipal waste to produce energy have been eulogized as a solution to this gargantuan problem. Analyzing the worldwide perspective and considering the variety of problems and limitations faced by economies across the world, it is advisable that there is no single solution to this problem, what is needed is not piecemeal ban or piecemeal reform, a concentrated approach to selective banning of non-recyclable waste coupled with reuse and recycle techniques is the all-inclusive and universal explication to the quandary.

2. The Effectiveness of Alternatives:

A cursory investigation into the effects of the plastic ban across the world reveals that such regulations are perforated with arbitrariness and absence of any error-free assessment of the scale of the problem of plastic waste. Such bans have the unintended consequence of creating a downturn in the plastic recycling sector and the absence of well-defined alternatives. It is still not thinkable to find alternatives to plastic in sectors like automobiles and medico pharmacy where plastic is the predominant material.

Over the past 15 years, bioplastics and reused cotton have been promoted as potential alternatives. They are classified as oxi-biodegradable plastics, hydro-biodegradable plastics, and just biodegradable plastics. Various research studies suggesting the discovery of plastic eating bacteria are also doing the rounds. It has to be thoroughly assessed whether the alternatives cause lesser damage than polymers. It is important to focus on eco- friendly and desirable alternatives than cheap ones. Plastics, chemically are made from carbon, which comes from non-renewable fossil fuel, oil and other materials that are heated, broken down and moulded. This combination affects the nature negatively and it is important for policies to focus on effective alternatives of plastic. Finding an all-inclusive alternative of plastic which can eradicate its use in a blanket way is impossible, what can be effective is finding alternatives according to its use. Single use plastic can be replaced by bio-degradable materials. Non-reusable plastic bottles can be

replaced by glass, which can be recycled and are made by renewable materials having zero impact on the environment. It is now becoming a worldwide phenomenon to alternate the use of plastic bags with eco-friendly paper bags and promote the use of additives called prodegradant concentrates (PDCs) which promote oxidation processes and break the plastic down into brittle, low-molecular-weight fragments. Totally Degradable Plastic Additives or TDPA can be used in the manufacturing process which replaces the non-degradable plastic poundage with purer and environment friendly polymers. Research studies are reinvigorating the idea of converting casein, the predominant protein found in milk, into a biodegradable material that matches the stiffness and compressibility of polystyrene. There are suggestions to replace PET with polycaprolactone (PCL), a synthetic aliphatic polyester. It is made from renewable resources and completely degrade after six weeks of composting. It can be easily processed but has not been used in significant quantities because of manufacturing costs. The best alternative to plastics is "naturally produced polymers" i.e. polyhydroxyalkanoate (PHA) polyesters, the two main members of which are polyhydroxybutrate (PHB) and polyhydroxyvalerate (PHV). To deal with the plastic penance there has to be a systematic set of alternatives to replace plastic on a case by case basis. Ban on plastic is mostly legislated by States via executive orders, which on a subjective reading clearly defines the problem and issues guidelines on how ban should be implemented. The focus should be shifted from bare rules to inclusive regulations which provide for readily available and accessible alternatives.

III. PLASTIC ECONOMY AND INTERNATIONAL PERSPECTIVE

The flourishing production of plastic has largely outpaced all other materials from mid 1950s and it is estimated that if the growth in plastic production persists at the current rate, by 2050 the plastic industry may account for 20% of the world's total oil consumption. The all-embracing perspective of the New Plastics Economy is that plastics never become waste, instead; they enter again in the economy as valuable technical or biological nutrients. The new plastics economy nourished by the principles of the circular economy. International jurisprudence has often let the interpretation and constitutionality of executive orders issued in the interest of public policy to the wisdom of courts. The Government of India notified the Plastic Waste Management Rules, 2016, vide G.S.R. 423(E), in the suppression of the earlier Plastic Waste (Management and Handling) Rules, 2011. With Bills regulating and imposing a ban on plastic pending with the legislature of many countries, territories including various states in the United States in America, Asia and EU has preferred an option of state executive orders issued by Governors and competent authorities to tackle this problem. The European Commission proposed the banning of plastic single-use plastic products such as cotton buds and plastic straws in an effort to reduce marine litter and replacing it with more environmentally sustainable materials. The proposal is still pending before the European Parliament and Council. In 2015, the European Parliament passed Directive 2015/720 to reduce plastic bag use by 50% by 2017 and 80% by 2019 and an agreement was signed

between trade representatives and the Federal Ministry of Germany for Environment, Nature Conservation, Building, and Nuclear Safety in April 2016 to reduce plastic.

Denmark- Denmark had taxed the usage of plastic bag in early 1993. Denmark has one of the lowest consumptions of light-weight single use plastic bags, ranging up to 4 per person each year. Ireland- Ireland reduced the consumption of single use plastic bags by 90% in a year by imposing a levy of EUR 0.15 (AUD 0.24) in 2002. It was passed on to the consumer and these funds were directed to an environment fund which raised EUR 9.6 million in 2002. Australia- The states of South Australia and North Territory along with some cities have independently banned the plastic in some way or the other.

United Kingdom- The Climate Change Act 2008 is the legislative framework for the regulation of plastic bags in the United Kingdom. UK has been in the forefront to ban the use of plastic in the EU. It introduced a tax on plastic in 2015 and the consumption was reduced by 80%. The government also predicted significant socio-economic benefits from the ban, including £60 million reductions in litter cleanup costs and £13 million in carbon savings.

United States of America – San Francisco started the culture banning of single use plastic in 2007, which led to a 72% reduction in plastic bag pollution. Seattle made its first step towards reducing plastic pollution in 2012 by banning retail stores from handing out single-use plastics. The legislation passed despite the American Chemical Society spending around $1.4 million lobbying against it. Various other states are on its way to implementing a dual approach of taxation and bans on single-use bags.

China – China made a historic diplomatic decision in January 2018 as the nation banned the import of plastic for recycling. China is one of the biggest recyclers of plastic in the world with many of the developed countries dumping their waste there. In spite of having the technical facilities intact, they took the populist measure keeping in mind the health of the people. This has forced the developed nations to check for alternatives and create a circular economy which is prudently economical.

The Constitutional Court of Chile ratified a bill that bans the retail use of plastic bags across the country, ruling against an appeal filed by the plastics industry. Chile's Congress had unanimously approved the new ban, citing concerns of plastic pollution in the ocean and on land. More than 16 African countries have announced bans on certain types of plastic items to varying levels of effectiveness on the basis of demography and ecological distribution. Before a ban on bags, plastic bags were christened South Africa's "national flower" because of their prevalence in bushes and trees. Kenya has one of the most stringent bans on plastic, anyone in Kenya who's found using, producing, or selling a plastic bag faces up to four years in jail or a $38,000 fine (Gazette notice number 2356). The EU Parliament has taken up the issue to discuss measures that would require member states to cut plastic bag use by 80 percent by 2019. A memo on the proposal noted that "plastic bags have been found in stomachs of several endangered marine species," including various turtles and 94 percent of North Seabirds. Almost all members of the UN General Assembly have some form or the other ban on plastics in their respective countries.

The plastics industry has invested a substantial amount of money to lobby against plastic bag ordinances. The question that is apposite and germane to the discussion is whether the selective ban by countries according to their convenience is the perfect solution to solve this global threat. An international assessment of the practicality of a common norm, questions as to amendments, implementation and review remain unanswered. As contamination by waste plastic is a transnational issue and beyond the territorial jurisdiction of many states, a common standard or a universal acceptance of certain parameters will be absolutely beneficial to curb this monstrous issue. The most important factor to tackle white pollution is the awareness of consumer and layman, which is possible internationally only with the participation of organizations and influencers from various walks of life. Many innovative steps have been taken by various non-governmental groups which has in turn generated a universal oneness among people to oust plastic pollution. From floating trash collector steams out of San Francisco on a mission to clean up the Great Pacific Garbage Patch, Airlines banning plastic materials, Carlsberg beer ditching the evil plastic multipack rings that hold beer, Walt Disney Company banning single use plastic at its theme parks and resorts, to the National Geographic selling a separate anti plastic themed magazine, the world has come together to beat the plastic pollution.

IV. ROLE OF COURTS AND ENVIRONMENTAL JURISPRUDENCE IN INDIA

"Let us all join together to beat plastic pollution and make this planet a better place to live." [Indian Prime Minister Narendra Modi announced the Government's intent to eliminate all single-use plastic in the country by 2022. With a fast-growing economy and population of 1.3 billion, India is still struggling to manage its vast waste stream, and is a significant contributor to global ocean plastic.]

India was the host for 2018's World Environment Day which is themed 'Beat Plastic Pollution.' With the enormous utilization of plastic in day to day life, a complete ban on plastic might not be implemented, nonetheless, the individual usage of plastics comprises of almost 40 percent (per capita consumption levels of polymers in India is 11 kg, 38 kg in China, 65 kg in Europe and the global average is 28 kg) of the total plastic production which can easily be done away with and this small steps with alternative methods. The Centre for International Environmental Law (CIEL) noted; "Current initiatives to tackle plastic pollution focus on the symptoms but not the root of the problem." The industrial revolution brought an awakening among the men inhabiting this Earth that nature, with all its resources, was not unlimited and forever renewable. The uncontrolled industrial development generating tonnes of industrial waste including plastic and other related poly waste disturbed the ecological balance by polluting the soil, water and air which in turn, had a devastating effect on the wildlife, marine life and soil health and, therefore efforts are taken by judiciary and legislative bodies to protect the ecological balance. With this constitutional and statutory provision, the Supreme Court has held that the precautionary principle and polluter pays principle are part of the environmental law of the country. It is pertinent to understand that how much ever policy and judicial actions can influence our everyday lives, reducing plastic ultimately falls on the individual

consumers to act, but, what we lack are binding rules for land-based sources of plastic pollution that apply to countries around the world. Pollution from plastic and polythene bags is a serious problem not only in cities and towns but also in the villages. There is no specific legislation on the subject. In the case of Animal and Environment Legal defense fund v. UOI, a state government alleged that even tribal people throw polythene bags into the forest while they travel to and fro for fishing in a reservoir within a national park. Large scale use of plastic and polythene bags block the normal flow of drain water, causes serious logging problem, danger to the public to public hygiene, and creates environmental pollution as these bags neither melt not dissolve in the soil. On one hand, there is a greater acceptance of our concerns, but on the other, there is growing resistance against the required action. Disposal of plastics has been a pressing problem all over the country. In Milkman Colony Vikas Samiti v. State of Rajasthan, the Supreme Court had to deal with the problem. Stray cattle often consume plastics which are injurious to their health. Discussing the issue, the court asked the municipal corporations to ensure that used plastics and plastic materials are separated from other garbage and then destroyed in order to prevent consumption by cattle, bulls and other animals.

In Wing Commander Utpal Barbara v. State of Assam, the petitioners sought the issuance of an appropriate writ to quash the order of the executive magistrate imposing a ban on the use of polythene bags throughout the state. The Guwahati High Court said that s144 of the CrPC could not be used for arriving at a permanent solution to the problem of pollution from plastics and polythene. The provision was used for immediate prevention and as a speedy remedy in the case of imminent danger, and was not designed for solutions of either permanent or semi permanent in character. The polythene bags do not create an imminent danger. Use of polythene bags containing toxic element because of dye used as an ingredient may be dealt with under s144 of CrPC for a short period, but not in perpetuity. If any manufacturer undertakes the recycling process in violation of law in force, the problem has to be dealt with under that law only. The 'legislative intent' embodied in the language of s144 suggests that this power is available only to meet an 'imminent situation'. Considering all these aspects, the court was of the opinion that the satisfaction arrived at by the additional district magistrate is issuing the impugned order could not be justified in the given circumstances of this case.

The environmentalists and manufacturers have been debating on the efficacy of plastic in its biodegradable avatar. According to the environmentalists, plastic elements can continue to gnaw at the soil for more than 500 years after the destruction of part of biodegradable plastic by an inbuilt mechanism. They say that the presence of chemical compounds such as dyes and colored pigments can inflict greater damage. On the other hand, citing the biodegradable version as the perfect solution to curb pollution, manufacturers argue that under the biodegradable version, the plastic can be completely decomposed in 3 months. According to the manufactures, the biodegradable version consists of polythene granules and carbohydrate- based polythene which burn like paper without emitting toxic gases like dioxin. The magnitude of these problems prompted Almitra Patel of Bangalore to file an Article 32 writ petition before the Supreme Court, seeking writs against the states and principal municipalities to implement cradle to grave waste management The Bombay High Court addressed a more modest agenda in Shanti

Park Co-op Society Ltd. v. Municipal Corporation of Greater Mumbai. The residents of Shanti Park complained against the daily burning of waste including plastic at Deonar. The High court issued a series of orders requiring the municipal corporation to improve its dumping practices and to prevent the burning of plastic. The Court has time and again proliferated on the constitutional principle that the state has sufficient authority to enact the impugned law in the exercise of its sovereign powers as distinguished from police powers of the state. This authority was duly exercised when the Plastic Waste Management Rules, 2016 was implemented to ban the use of carry bags below 50 microns. This dictum was observed by the Supreme Court in the case of Ivory Traders & Manufacturers Association v. Union of India, where the Court highlighted that the legislation which provides for the extinction of the ownership of a person is not a law for the purpose of acquisition and requisitioning of the property by the State. Any person of the locality has a right to complain to authorities who are obliged to monitor environmental degradation and ecological imbalance. On record, notices have been served to respondents that the improper and untreated discharge of polymers and other pollutants, causing harm to the environment of the locality. Protecting the environment is now a fundamental duty under Article 51-A of the Constitution of India.

As many as 25 states in India have banned different types of plastics over the last two decades, but the implementation of the ban has been bleak. The Plastic Waste Management Rules, 2016 had banned the use of carry bags below 50 microns, while directing a phase out for all multi-layered packaging in two years, but the latest revision in the rules, remove the blanket ban. After Sikkim, Maharashtra became one of few first states in India to impose a very stringent ban on plastics. The 2017 monsoon flooding in Mumbai due to clogging of drains by plastic waste and construction debris paved way for such a ban. Since, plastics have become part of our everyday life, banning commodities made of it is a herculean task. Therefore, a transition and active propagation for the same are required. The resolution of Maharashtra Plastic and Thermocol Products (Manufacture, Usage, Sale, Transport, Handling and Storage) Notification, 2018, which came into effect on March 23, 2018 imposes restriction on manufacturing, usage, storage, distribution, wholesale and retail sale, import and transportation of all kinds of plastic bags (with or without handle), disposable cutlery items made of plastics (polystyrene)— plates, cups, glass, bowls, forks, spoons—straw, non-woven polypropylene bags, plastic sheets, plastic pouches and all kinds of plastic films, in the entire state.

The State of Himachal Pradesh has shown the world baby steps for effective implementation of environmental principles by banning on all forms of polythene bags. The entire process of controlling polythene started in 1955 with the legislative backing of the Government formulating the Non-Biodegradable Garbage (Control) Act, 1995. The repercussion was a partial ban which could not deliver reasonable results as it imposed on traders, retailers, and vendors for using colored polythene carry bags manufactured from recycled plastic. In 2011, the State Government introduced a blanket ban on the use of polythene in all its forms. Many of the one-time use plastic items like plastic cups, glasses, plates, etc. were covered under this new order notified and dated March 19, 2011. The connection of events shows that it is not just the legislative which can solve

the problem but requires participation from all other constitutional bodies. The High Court of Himachal Pradesh has played a pro-active role by judicial activism in the writ petition of Sanjeev Kumar v. Union of India and Ors, where the Court directed the government to take more stringent and effective measures to manage plastic. It was widely reported that the enforcement of this order was more interesting than the order itself, not only the officers but also multiple agencies (Pollution control board, the local bodies, and the police) who were assigned the task of compounding users and vendors carrying plastic material with punitive powers. Social campaigns were initiated to create awareness and create the consciousness of dissuading people from using plastic bags which led to more than1162 cases being registered and fines were collected up to Rs. 9,48,950 in total. The ban had a dual nature to tackle production and sale of plastic and even smuggling was brought under its ambit. A small-scale industry where hundreds of families, especially in the urban poor households, started manufacturing bags made out of newspapers was created after this.

V. MARINE PLASTIC POLLUTION AND CROSS-BORDER SOLUTIONS: A PLANETARY CRISIS

Take action to reduce the incidence and impacts of pollution on marine ecosystems, through effective implementation of relevant conventions adopted in the framework of the International Maritime Organization (IMO), and the follow-up of the relevant initiatives… as well as the adoption of coordinated strategies to this end. We further commit to take action to, by 2025, based on collected scientific data, achieve significant reductions in marine debris to prevent harm to the coastal and marine environment.

[Paragraph 163- Future We Want, Rio+20: Oceans and Seas]

Plastic because of its omnipresent and prevalent nature accompanied by its longevity is the utmost and major element of marine debris. The quantity of unmanaged and untreated plastic waste entering the ocean known as plastic waste leakage has outstretched crisis levels and has caused significant economic and environmental damage. The problem calls for a collective global response or a cross-border solution. The option of setting targets and timelines by an international treaty is practically considered not possible because of the cost and time involved. But the subjective solution to marine pollution by cross-border regulations and restrictions is still achievable. As the plastic entering sea cannot be fully contained by national legislation and plastic disposed of by one country may end up in the nautical territory of another country. Just like greenhouse gases and ozone depletion it is a transnational issue as it travels beyond national boundaries. Many research studies argue that considering the ubiquity, persistence, and cross-boundary nature of plastic pollution, streamlining it is not an unconquerable task. The determination at the international level is slowly gaining popular support as the time is now ripe for initiating talks at an international level targeting disposal restriction and issuing waste management procedure with an intention to protect the oceans and marine life.

An estimated 4.5 to 13 million metric tons of plastic is added to the oceans annually. More than 50% of the ocean is beyond national jurisdiction, including the infamous "garbage patches" in oceanic gyres where plastic accumulates. This nature of Moana has forced the international community to come together to control white pollution from disintegrating the pristine marine ecosystem. Despite being one of the most serial killers of Mother Nature, international agreements have often neglected plastic pollution from their purview. There are various local, regional and national level policy blueprints spreading across the globe aimed at preventing and mitigating plastic pollution, but none has a level of commitment that scales with the global magnitude and accelerating growth of the problem, but there are a few non-binding international documents focused on plastic pollution, including MARPOL and the United Nations Environmental Program's (UNEP) new Clean Seas campaign.

According to the United Nations Environment Programme (UNEP) there is little evidence to suggest that products labeled as biodegradable will significantly decrease the volume of plastic entering the ocean. Solutions must be global, effective and fast and require a full view of the integrated life cycle with path dependency. According to a joint study conducted by China and Philippines achieving this goal will require a six-point plan: (1) commitment by government at all levels to set and achieve ambitious waste management targets; (2) on-the-ground wins that provide proofs of concept for integrated waste management approaches in "beta" cities; (3) expansion of proofs of concept to a critical mass of cities/regions through a best-practice-transfer mechanism; (4) establishment of the necessary project-investment conditions to pave the way for private, public, and multilateral funding; (5) facilitation of technology implementation; and (6) prioritization of the ocean-plastic challenge as part of the global policy agenda on the ocean.

VI. GLOBAL TREATY ON PLASTIC POLLUTION:

If there are any geologists in millions of years, they will easily be able to pinpoint the start of the so-called Anthropocene – the geological age during which humans became the dominant influence on our planet's environment. Wherever they look, they will find clear evidence of its onset, in the form of plastic waste. The global production of plastic each year amounts to around 381 million tonnes and out of which only 5-9% is recycled, as this a globally threatening figure there has been a persistent demand to have reduction targets for future. As plastic pollution caused by one country directly or indirectly affects another country, so it is peremptory to have a global plan to address it, as we have for carbon emission to tackle climate change. The viability of the proper implementation of a global treaty or international agreement depends on 3 important factors – a properly drafted treaty which suffices the needs and meets the aspiration; technological and technical availability and willingness of the nation. As it is a sensitive topic, this concept has proponents and attackers. Proponents have compared the proposal with past success stories of Montreal Protocol on Ozone layer depletion and the Minamata Convention on Mercury as they have been influential and contributed in safeguarding the environment and human health. The advocates supporting the demand of having a global treaty have

raised suggestions to add this to the Paris Agreement on Climate change. The attackers of this policy include United Nations Environment Chief Erik Solheim, he stated, “Climate pollution is invisible. You can’t sense it because it has no taste and, therefore, you need a global mechanism. Plastic pollution is harming you. People are much more likely to act even without treaties and targets”. There are doubts at the diplomatic level due to devious, manipulative and trade adherent decisions with the Machiavellian intent being imposed on frail economies in these treaties. As the issue is not a win-lose negotiation but a win-win necessity, it better to knock down the issue with consensus and national efforts, with the indirect assistance from international bodies, like in the case of smoking addiction. The proponents form their conceptual opinion on the global nature of plastic pollution and the fact that a significant amount of it is generated by multinational companies, international action is a must as regional and city level decisions will not be enough.

There has been a paradigm shift in the global policy with recent developments in climate change policy paving way for a plastic pollution treaty. It took around 25 years of deliberation among international communities to build an international agreement to limit carbon emissions. It is noted that considering the amount of time required in building consensus, in terms of drafting a treaty and crafting discussions and deliberating arguments, an all comprehensive treaty can only come into force by 2040, by this time there will be more plastics than fish in the ocean. The current stage of plastic pollution can be compared to climate change when the UN Framework Convention on Climate Change formally recognized the climate change as a threat to the world and encouraged voluntary, undefined support. The basic principle of public policy is that the pace of solutions must match the scale and pace of problems. So, it is practically possible for local and national actions to primarily attack the problem from the roots by using mechanisms like bans, taxing, limiting and through punitive actions. It is pragmatic for countries to come together to establish measurable reduction techniques through diplomatic assistance aimed toward zero waste as the current production estimates that roughly around 12,000 million metric tons of plastic will be in the natural environment by 2050. Shift to a sustainable plastics economy, and improving waste management infrastructure that promotes zero waste requires collaboration rather than compulsion. It is significant to study that the ability to prevent and mitigate plastic pollution locally and nationally varies on the basis of nation and region because of resource availability for waste management. Many countries receive large imports of single use plastic despite having the inadequate infrastructure for waste management, this lack of direct link between the two leads to open burning and illegal dumping. But in Kenya, local people insist that a year’s ban has already had a significant effect and streets and fields are now mostly free of bag litter. Rwanda also has a strict ban in place and visitors arriving at Kigali airport are greeted with signs warning them that non-biodegradable bags are prohibited. Prison sentences have been handed down to people ignoring the rules and even a smuggling ring has cropped up. During the last U.N. Environment Assembly, the international community failed to incorporate reduction targets and encompass a stringent timetable. The only hopeful resolution was establishing a group to “further examine the barriers to, and options for, combating marine plastic litter and micro plastics from all sources,

especially land-based sources." The U.N. Environment Assembly actions are not legally binding but the majority of the signatories have adopted national measures to protect the environment in a comprehensive manner. Alternatively, many countries have called for a legally binding treaty focusing on reducing, reusing, re-purposing and recycling plastic and creating a global fund to help in better management of waste. Considering the pace of pollution, it is necessary to take immediate steps at possible levels rather than waiting for an international dictum. A comprehensive, irrevocable, progressive and forward-looking global plastics treaty cannot be easily achieved. The amount of time and money required to frame a treaty which will inevitably include loopholes and have shortcomings, it will be wise to decipher a strategy to manage the problem at national and local level. We will not have an international society if we destroy the environment, as the environment and the economy are really both two sides of the same coin, if we cannot sustain the environment, we cannot sustain ourselves.

VII. WHAT ELSE CAN A NATION DO IN ORDER TO MATCH THE SCALE AND PACE OF SOLUTIONS WITH THE SCALE AND PACE OF EMISSIONS?

Today, 95% of plastic packaging material value i.e. $80 to $120 billion annually, is lost to the economy after a short first use. Plastic packaging generates significant negative externalities, conservatively valued by UNEP at $40 billion and expected to increase with strong volume growth in a business-as-usual scenario. Various innovative methods have popped up but none of them showing the potential to resolve the global crisis. An international agreement still remains a faraway aim with antediluvian procedures. A global treaty with its time consumption and cost is not an immediate solution to the problem. Instead of, or in addition to the abovementioned policy instruments, other actions that could be pursued to reduce the amount of plastic waste include technological, social and waste management system responses at regional and national level. Public awareness is a common denominator for the success of any of the above-mentioned initiatives aiming at having a broader social impact, similarly, awareness raising, monitoring and continued communication of progress to the public will help to build confidence and strengthen commitment to the cause. Public-private partnerships and voluntary agreements can, for instance, be valid alternatives to bans and can achieve reductions in the consumption of single use plastics.

Considering the ubiquity of plastic and the ubiquity of plastic pollution's impact on the ecosystem, UN Environment has drawn up a 10-step roadmap for governments that are planning to tackle the problem at source. The steps are based on the best practiced experiences of 60 countries around the globe:

i. Target the most problematic plastics by conducting a baseline assessment, as well as the current causes, extent and impacts of their mismanagement.
ii. Consider the best actions to tackle the problem, given the country's socio-economic standing and considering their appropriateness in addressing the specific problems identified.

iii. Assess the potential social, economic and environmental impacts (positive and negative) of the preferred short-listed instruments/actions
iv. Identify and engage key stakeholder groups – retailers, consumers, industry representatives, local government, manufacturers, civil society, environmental groups, tourism associations – to ensure broad buy-in.
v. Raise public awareness about the harm caused by plastics.
vi. Promote alternatives – Provide economic incentives to encourage the uptake of eco-friendly and fit-for-purpose alternatives that do not cause more harm.
vii. Provide incentives to the industry by introducing tax rebates or other conditions to support its transition.
viii. Use revenues collected from taxes or levies on plastics to maximize the public good by supporting environmental projects or boosting local recycling with the funds.
ix. Enforce the measure chosen effectively, by making sure that there is a clear allocation of roles and responsibilities.
x. Monitor and adjust the chosen measure if necessary and update the public on progress.

The Vedic perspective on environment says that the well-being of Mother Earth depends on the preservation and sustenance of the environment. Problems like plastic pollution are transnational in nature, threatening the ecosystem of the world as a whole, and with inaccurate readings and figures, it is not attainable to give a precise and clear solution to this problem. There has been a sundry of research hypotheticals and multitudinous proposals with completely divergent views, but none of them have the potential to give a blanket solution. It is hare-brained to think about completely banning plastic but imprudent to continue the production of hazardous plastics, there has to be a bridge way whereby the single-use and other detrimental components of polymers are subtly removed from the global economy without interrupting the socio-economic dimensions. The focus should be shifted from banning and taxing to strengthening the production in an eco-friendly way and setting up recycling units. It has been deliberated and excogitated throughout this study that, an international agreement with specific regulations and guidelines upon which national legislation must be streamlined coupled with waste reduction targets and timelines due to its unsuitableness cannot be obtruded readily. A global treaty requires global consensus, global deliberation, global persuasion, and global ideology. Which due to its inherent needs and demands makes it a time consuming and costly process, as the problem of plastic pollution requires immediate action it is sagacious to tackle the problem specifically at national and regional level. But in areas where national jurisdiction fails to contain and limit it, best possible intergovernmental solutions and assistance can be availed as in the case of marine pollution. It is felicitous to choose methods which focus on the root of the problem rather than the symptoms and this is not realizable without the support of humans across the world.

“Whatever I dig from thee, O Earth, may that have quick recovery again. O purifier, may we not injure thy vitals or thy heart”. [Rig Veda – For any inadvertent action leading to earth’s excessive exploitation the seers prayed for forgiveness]