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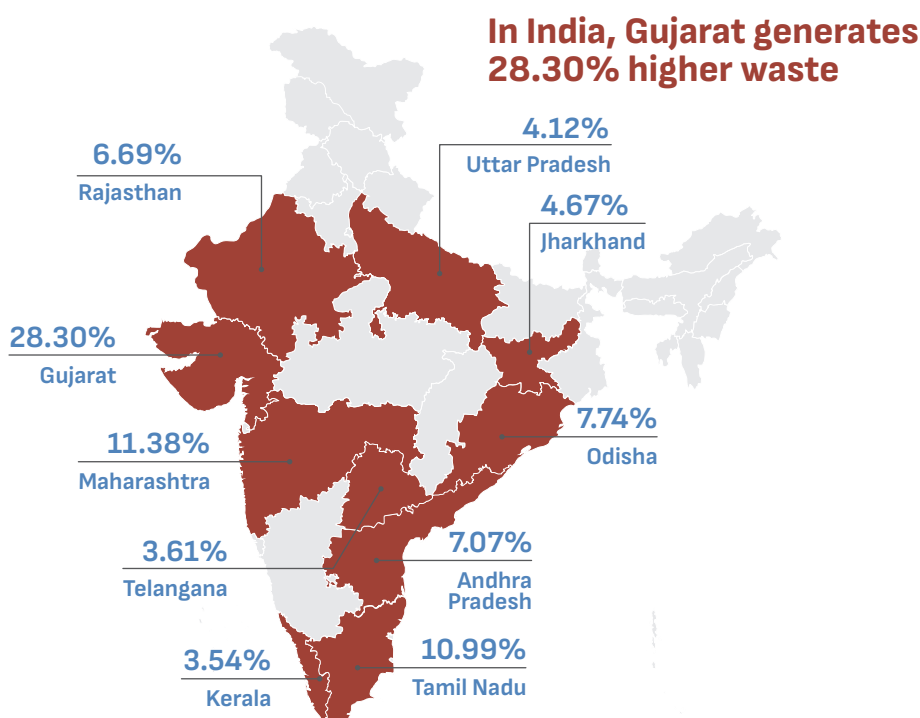
IMPACT OF INDUSTRIAL WASTE ON ENVIRONMENT AND HUMAN HEALTH

INTRODUCTION

In the last decade, the world has seen the proliferation of many manufacturing industries. Globalization of business operations has been the core driver of industrial processes as enterprises seek to position themselves strategically through value addition and profitability. The result is the rising industrialization, which comes with numerous benefits in the financial sphere but endless challenges on the environmental perspective. Bergeson ^[1] reported, industrial operations produce various waste products; some being highly toxic and hazardous to human life. Consequently, proper waste management at all levels of the society is required. Waste management is the actions and activities needed to manage or treat waste from its origin to its final disposal ^[2], including its prevention strategies. This includes the collection, transportation, prevention, treatment, and disposal of waste, together with the monitoring and regulation of waste management processes. Waste can be liquid, solid, or gas and each type of waste has different management and disposal methods.

Industrial waste is the waste generated by industrial activity which includes any material that is rendered useless during a manufacturing process such as that of mining operations, factories, and mills. Various types of industrial waste include concrete, masonry, dirt, scrap metal, gravel, oil, scrap lumber, solvents, chemicals, and vegetable matter from restaurants etc.,. It may be solid, semi-solid or liquid in form. It may be hazardous waste (some types of waste which are toxic) or non-hazardous waste. Industrial waste may pollute the nearby soil or adjacent water bodies, and can contaminate groundwater, lakes, streams, rivers or coastal waters. Industrial waste is often mixed into municipal waste, making accurate assessments difficult.

1. LEAD ARTICLE	1
IMPACT OF INDUSTRIAL WASTE ON ENVIRONMENT AND HUMAN HEALTH	
2. EDITORIAL	2
3. GUEST ARTICLE	4
TO BE OR NOT TO BE : BIODEGRADABLE PLASTICS CONUNDRUM	
4. WASTEWATER SURVEILLANCE	7
5. TEXTILE WASTE	9
6. NICOBAR PLAN	11
7. INTERVIEW	12
8. STUDENT ARTICLE	13
STUBBLE BURNING: A MENACE TO MILLIONS	
10. VOICE FROM THE FIELD	14
11. RESOURCES	14
12. NEWS	15



The pandemic situation prevalent for over one and half years has had a profound impact on our lives and on the work front too, most of us have been confined to our homes and residences and adapting ourselves to a new normal of working online. However, the situation appears to have eased a bit for now and we are making an effort to go out with hard copies too.

One of the major environmental concerns that stood out during the pandemic was of infectious waste and plastics and the challenge it posed to people engaged in managing such waste. While we await a more comprehensive understanding on the waste situation and its impacts, it however clearly indicates that the waste situation can be extremely complex and at times overwhelming, hence the need to have much better understating of all waste streams and our ability to handle such waste. The data on waste clearly indicated a sharp increase in generation of waste due to increased production and consumption patterns globally and the toxicity associated with these waste

streams especially with industrial and other hazardous waste being generated. While some of it is from designated and identified industrial units the challenge is further aggravated since significantly large quantities are today generated from small informal assembly and disassembly units and from households too. The nature of waste from such units can be both solid and liquid and these require highly specialised protocol and technologies to manage and minimise their environmental and health impacts. While we have been able to frame Rules to cover most waste streams in India the biggest worry has been on account of poor compliance to these rules. Most non-compliance issues are centred around poor governance mechanism, infrastructure inadequacies and poor awareness among stakeholders. This situation will need to change quickly since the impacts and fallouts due to improper handling of hazardous waste can adversely affect human health due to contamination of our water sources, land and the poor quality of air all of which we are witnessing so helplessly.

The issues of microplastics in soil, water and our food chain is a warning for us to get our act together for all kinds of waste being generated by the society and initiate remedial measures. The solutions need to be well deliberated, long-term and sustainable both on account of technology and systems.

The waste conversations are shifting to circular economy and opening new frontiers, thoughts and possible solutions. Waste can be resource-rich, some of it highly strategic in nature and will play a critical role in adding to economic strength. The need is to view waste from its lifecycle perspective and make most critical investments all around. Policy framework of Niti Aayog on circular economy is a welcome step and in the right direction and we hope all stakeholders are completely on board with this.

Best wishes for the oncoming festivals.

Satish Sinha
Associate Director, Toxics Link

There are 69,308 hazardous waste generating units in India having authorized annual capacity to generate about 39.46 Million MT of hazardous waste. However, during 2019-20, about 8.78 Million MT hazardous waste has been generated as per the annual returns submitted by such units. Out of 8.78 Million MT of generated hazardous waste, 4.18 Million MT is utilizable hazardous waste (47.60 % of total generation); 2.13 Million MT is landfillable hazardous waste (24.29 % of total generation); 2.07 Million MT is recyclable (23.59 % of total generation) and 0.40 Million MT is incinerable hazardous waste (4.52 % of total generation) [3].

In India, Gujarat generates 28.30% higher waste followed by Maharashtra (11.38%), Tamil Nadu (10.99%), Odisha (7.74%), Andhra Pradesh (7.07%), Rajasthan (6.69%), Jharkhand (4.67%), Uttar Pradesh (4.12%), Telangana (3.61%) and Kerala (3.54%) which together contributes about 88.11% of total hazardous wastes generated [3].

IMPACTS OF INDUSTRIAL AND HAZARDOUS WASTE

Water pollution has been one of the most common impacts of the industrial wastes

as most unregulated and unethical companies have recklessly failed to adopt the correct waste disposal procedures and instead channeled their waste products to water bodies. The impact of this is that hazardous waste pollutes water sources for the human populations and subjects them to consume toxic substances. There are rising cases of cancerous medical problems attributed to water consumption containing carcinogenic substances whose source can be traced back to industrial wastes in water bodies [4]. Industrial wastes also adversely affect aquatic life directly causing death of sea weed that is the primary source of nutrition to most water animals. There is a recorded decrease in fish population in water bodies that have suffered industrial waste disposal. The indirect impact is reduced source of food to human populations and their general welfare as some undertake fishing as a source of livelihood. The Clean Water Act (CWA) has been appraised severally to include clauses on water pollution control and the procedures thereof. Under the Environmental Protection Agency, industries are required to acquire a permit prior to the discharge of their waste into any surface waters. This follows a thorough assessment to ensure that the discharge is free

of any hazardous wastes on human populations.

Air pollution is yet another adverse impact of industrial and hazardous wastes globally. Most industries emit toxic gases from their operations and fail to undertake the recommended procedures for safe toxic gas disposal. As a result, the toxic gases have caused respiratory problems to the communities living around such industries with increased records of Pneumonia and Tuberculosis among other fatal lung diseases. Awuchi et al. [5], reported that the ozone layer has also been continuously depleted within the last decade; an occurrence attributed to the high industrialization leading to significant climate change globally. The melting glaciers in the Antarctic are alarming causing distress to the global sea levels. This would also affect humans as most coastal lands would be flooded requiring mass migration and resettlement. The Clean Air Act has been amended in order to make it more comprehensive and adaptive to the changes especially in the industrialization era. The act is effected through the Environmental Protection Agency that undertakes the assessment and issuance of permits to industries regarding the fulfilment of

the air pollution requirements. It seeks to reduce the mortality rate associated with diseases due to air pollution and the prevalence of fatal respiratory diseases.

Industrial and hazardous wastes have been one of the top-listed causes for mass migrations within countries in the last decade. As industries increase within the set industrial zones, the wastes pose several threats to the surrounding communities ranging from health risks to destruction of their immediate environment. This waste is wrongly disposed causing foul odor, and visual degradation among other impacts that change the natural environmental status. With no other option available, fear for their health and the need to pursue everyday lives, most families have sought shelter in new areas, totally moving from their original locations. This comes with many inconveniences and strains as the communities are not cushioned by the government or the companies responsible for the unethical waste disposal. Involuntary migration at this age of democracy in states across the globe would also qualify to be classified under human rights infringement on the human populations ^[6].

CONCLUSION & RECOMMENDATIONS

It is concluded that industrial and hazardous waste have adverse impacts on the environment and human

populations. It is also essential to note that the industrial and hazardous wastes affect the human populations both directly and indirectly; both ways are causing harm and destabilizing the everyday human life. Mismanagement of disposal of waste would create the problem in the future harming the sustainability of natural resources at present and to the coming generation. There are various laws and regulations which have been passed in India and across the globe for proper disposal of industrial waste. However, it is obvious that the continued review of the laws is yielding reduced impact of the industrial and hazardous waste on environment and human health which is a positive milestone in the important pursuit towards curbing a global menace.

FEW RECOMMENDATIONS:

- Raise awareness about waste hazards through concerned civil societies.
- Improve waste management which should involve the reduction, reuse, and recycling of waste in order to secure natural resources.
- Make a plan to relocate the residential areas far from industrial areas and remove the dumping sites to more spacious non-productive lands.

- Involve the target groups and affected community members in awareness programs and encourage their participation in non-governmental community-based organizations.

By Dr Amit

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GUEST ARTICLE

TO BE OR NOT TO BE

BIODEGRADABLE PLASTICS CONUNDRUM

By Pranay Kumar

Pranay is an entrepreneur and sustainability specialist. He is at the helm of an environment sustainability solutions company dealing with biodegradable plastics, recycling, solid waste management and drinking water. He is also an industry guest faculty at IIT Roorkee, Hult International Business School Boston, Indian Institute of Packaging



The word “plastic” derives from the Greek πλαστικός (plastikos) meaning “capable of being shaped or moulded”. Given

Plastics’ great applicability and transformative

contribution to a post-1950s phenomenon, it wouldn’t be an exaggeration to call the modern age as Plastics age.

Plastics’ flexibility, lightness, adaptability to high and low temperatures, inertness and its long polymeric chains’ innovativeness to bend and bond have let this group of raw materials to insert itself as a pen’s body to rocket nozzle, delicate food and fresh flowers packaging to car bumpers, sanitary pads to milk packets. Despite all these qualities plastic pollution is talk of the planet!

COST OF ALTERNATIVES OF PLASTICS

According to a detailed study in 2016 by American Chemistry Council and TruCost (image below), the environmental cost of using alternatives to plastics for society and economy is almost four times that of non-degradable plastics.

What is the environmental cost associated with the materials we use in consumer products and packaging?

\$ 98
Billion

More Sustainable
Plastic

\$ 139
Billion

Business as Usual
Plastic

\$ 533
Billion

Alternatives to
Plastic

The cost of using alternative materials is approximately four times that of using plastic (in a business as usual scenario). We're producing more and more consumer goods. So choosing the material that creates the least impact is important.

The cost of alternatives to plastics is calculated in the same study as USD 7 Billion versus USD 5 Billion Plastics. The impact of Sustainable (Biodegradable) plastics made using fossil fuel with added organic chemicals is estimated to be almost 5.5 times!

Bioplastics made with starch/PLA from plant food sources like sugarcane, corn, tapioca, potato peel is less sustainable vis-a-vis non-degradable plastics and biodegradable plastics, due to Bioplastics' large "Green water footprint" (water used during growth of the tree) and "grey water footprint" (water used in manufacturing).

The term Bioplastics (made of starch/PLA from plant food sources) should not be confused with Biodegradable plastics (made using fossil fuels) with added organic chemicals which is a big source of confusion across the world, especially in India.

Dissolving any organic materials like paper/cardboard/starch in river/ocean water contaminates it and increases the biological oxygen demand thus endangering life forms in water. It also results in algal growth, which further aggravates the problems in our water sources as we see in the river Ganges.

TERMINOLOGIES FOR DEGRADATION IN CONTEXT OF POLYMERS/PLASTICS

Biodegradable: Simply speaking biodegradable means degradable into biomass and gases (like CO₂ & CH₄) in presence (aerobic) or absence (anaerobic) of oxygen because of action of microbes (mostly fungi and bacteria like Actinomycetes). These are mostly made up from petroleum resources. Companies like Bio-Tec Environmental manufacture the biodegradable additives.

Bioplastics: Partially or fully made up of starch/polysaccharides/ aliphatic polyesters, either natural or synthetic and mostly aerobically biodegradable.

These can be subdivided into PLA (Polylactides), PHA (Polyhydroxyalkanoates), PHB (polyhydroxybutyrate), PCL (poly ε-caprolactone) and PVOH (Polyvinyl alcohol).

Starch (polysaccharides) PHA and PHB are naturally occurring, while PLA, PCL, PVOH are synthetic. These are mostly derived from plant sources and even food crop sources (like corn or potato). MNCs like Novamont and Dow Cargill manufacture these.

Photo-fragmentable/Oxodegradable/Oxo-biodegradable Photodegradable: Degradable/fragmentable in presence of oxygen creating Microplastics. Oxodegradable has been **declassified as non-biodegradable** recently by United Kingdom's department of food and environment², EU bioplastics Council* McArthur Foundation and Nature magazine.

This is the type of Plastics which has caused the most confusion across the world, by misbranding itself with different names and different pricing and claiming to be sustainable.

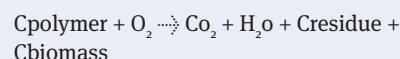
BIODEGRADABILITY:

In 1992, an international workshop called Towards Common Ground - *Meeting Summary of the International Workshop on Biodegradability*, Annapolis, MD, USA was organized to bring together experts from around the world to achieve areas of agreement on definitions, standards and testing methodologies. Participants came from manufacturers, legislative authorities, testing laboratories, environmentalists and standardization organizations in Europe, USA and Japan. Since this fruitful meeting,

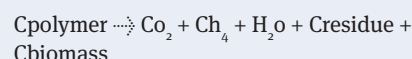
there is a general agreement concerning the following key points:

- For all practical purposes of applying a definition, material manufactured to be biodegradable must relate to a specific disposal pathway such as composting, sewage treatment, denitrification, or anaerobic sludge treatment.
- The rate of degradation of a material manufactured to be biodegradable has to be consistent with the disposal method and other components of the pathway into which it is introduced, such that accumulation is controlled.
- The ultimate end products of aerobic biodegradation of a material manufactured to be biodegradable are carbon dioxide, water and minerals and the intermediate products include biomass and humic materials.
- Materials must biodegrade safely and not negatively impact on the disposal process or the use of the end product of the disposal.

AEROBIC BIODEGRADATION:



ANAEROBIC BIODEGRADATION:



Microbiological degradation can take place through the action of enzymes or by products (such as acids and peroxides) secreted by microorganisms (bacteria, yeasts, fungi, etc). Also macro-organisms can eat and, sometimes, digest polymers and cause mechanical, chemical or enzymic ageing. It has been established that microbial biodegradation occurs mostly in two steps.

OCCURRENCE OF BIODEGRADATION

Two key steps occur in the microbial polymer degradation process: **first**, a depolymerisation or chain cleavage step, and **second**, mineralisation.

The first step normally occurs outside the organism due to the size of the polymer

chain and the insoluble nature of many of the polymers. Extracellular enzymes are responsible for this step, acting either endo (random cleavage on the internal linkages of the polymer chains) or exo (sequential cleavage on the terminal monomer units in the main chain).

Once sufficiently small size oligomeric or monomeric fragments are formed, they are transported into the cell where they are **mineralised**. At this stage the cell usually derives metabolic energy from the mineralisation process. The products of this process, apart from adenosine triphosphate (ATP), are gases, (e.g., CO₂, CH₄, N₂, H₂), water, salts and minerals, and biomass.

Many variations of this general view of the biodegradation process can occur, depending on the polymer, the organisms, and the environment. Nevertheless, there will always be, at one stage or another, the involvement of enzymes.

BIODEGRADABILITY AND TYPES OF BIODEGRADABLE PLASTICS:

Biodegradability is the all encompassing term for consumption of any matter by microbes in aerobic and/or anaerobic conditions anywhere, whether manmade or natural not necessarily bound by time.

Compostability in context of Plastics as defined as per ISO 17088 is biodegradability under **controlled man-made Industrial complexes** in a specified time period. Aerobic degradation is the main form of degradation here.

The practical aspects of the above two terms have wider implications.

Biodegradability occurs practically everywhere, especially in landfills, heavy sewage sludge conditions or any natural or manmade conditions suitable for optimal microbial activity. Microbes have been used for decades to clean oil spills so why not plastics (a derivative of petroleum).

A sample of soil can contain depending on the location, at least 2000 genres of bacteria. In our country with limited land resources and no developed systems of disposal biodegradability, biodegradable plastics makes huge sense. Also, our landfills are wet, which is more conducive to biodegradation. Landfills have an anaerobic environment {except for the top layer}, which is suitable for anaerobic biodegradation. Evidence of newspaper/ cellulosic material being partially or practically non-degradable, even after two decades exists in the world (and can

be found on the Internet). So how can Bioplastics degrade in a landfill!

Biodegradation of Natural polymers like hemicellulose in wood, skin, ligaments, hair, tendons of animals with primary (bacteria), secondary (algae) and tertiary (fish) have been occurring since millions of years.

Industrial composting on the other hand requires industrial size compost facilities, where conditions have to be managed by man. [Composting here should not be confused with what we do with our kitchen waste at the back of the garden]. Hardly a few industrial composting units exist (as defined by standards) in Europe, where land is in ample supply.

Plastics biodegrade under two key steps:

1. Long polymer chain cut at the carbon-carbon bonds – by heat, moisture, enzymes, or other conditions depending on the polymer.
2. Shorter carbon chains pass through the cell walls of the microbes and are used as energy source.

Biodegradation: when the carbon chains are used as food source and converted into water, biomass, CO₂ or methane. Source DuPont

Certain Facts about biodegradability

- A. Even a banana peel biodegrades in 1-2 years substantially in modern landfills.
- B. Indian landfills do not practice composting activity
- C. Biodegradable Plastics are available in Natural Polymers (Like PLA for carry bags) and Petro-based Polymers (BioD for Bags, PET bottles, PP containers, PS & HIPS cutlery etc) www.biod.in

Biodegradation of plastics treated with Additive based formulation

MICROBIAL QUORUM SENSING

Microbes use quorum sensing to coordinate certain behaviors based on the local density of the bacterial population. Microbes that use quorum sensing constantly produce and secrete certain signaling molecules (called autoinducers or pheromones). These microbes have a receptor that can specifically detect the signaling molecule (inducer). When the inducer binds the receptor, it activates transcription of certain genes, including those for inducer synthesis.

As the microbial population grows the concentration of the inducer passes a threshold, causing more inducers to be synthesized. This forms a positive feedback loop, and the receptor becomes fully activated. Activation of the receptor induces the up regulation of other specific genes, causing all of the cells to begin transcription at approximately the same time. This coordinated behavior of microbial cells can be useful in a variety of situations such as multiplying.

Biodegradation of BioD® treated products is aerobic or anaerobic or a combination of both aerobic (with oxygen) and anaerobic (without oxygen). Microbes found in both conditions will be attracted to our biodegradable products and will colonize on the plastic, which will result in biodegradation.

The stages of the complete process of anaerobic biodegradation (landfill conditions) with BioD products are listed below:

It consists of four stages of 1) Aerobic 2) Anaerobic, Non-methanogenic 3) Anaerobic, Methanogenic Unsteady Phase 4) Anaerobic, and Methanogenic Steady Phase

Image below shows the process:

TIME PERIOD FOR BIODEGRADATION

There are a number of factors which contribute to the length of time required to fully biodegrade.

- Type of plastic (i.e. LDPE, PET, and PS)
- Surface area of the product
- Mass and Thickness of the plastic
- Microbial activity {which is further dependent on presence or absence of oxygen, temperature and pressure of the landfill/surrounding environment etc}.

For Instance a bottle with smooth surfaces will biodegrade slower than if the bottle had grooves. Generally thin films, bags will biodegrade in India's wet landfill conditions within a year. The PET bottles, rigid plastics (HDPE, PP, ABS), multilayered plastics packaging will take a maximum of 3 years.

Since ISO15985/ASTM 5511 methodology does not allow extrapolation of biodegradation, exact time to biodegrade cannot be estimated. Nature and its elements have a big role to play, which cannot be predicted by human beings.

SHELF LIFE:

There are three types of microbial environments; suspended, dormant, and active. Polymers treated with BioD® require an active microbial environment in order to break down. In most environments such as warehouses, offices, store shelves the microbial environment is suspended or dormant and would not be considered an active microbial environment. So these treated products will have unlimited shelf life in warehouses and other dormant and/or suspended environment settings.

Sustainability, plastic waste management and legal framework in India

The Ministry of Environment , Forests and Climate Change (MoEFCC) , Government of India(GoI)has come out with three Plastic Waste Management (PWM) legislations regarding Biodegradable Plastics.

- PWM 2016, MoEFCC has Nine Test methods of Biodegradation in Schedule 1 including Anaerobic/High solids/Landfill biodegradation.
- PWM 2018 (amendment) mentions in Clause 2 (ii) ga “ anaerobic digestion” and “ landfill gas recovery “.
- PWM 2021 (Draft) seeks to ban Single-Use Plastics like Plates, cups, straws, Thermocol (EPS) and PVC banners, besides increasing the thickness of Polyethylene bags to 120 microns.

Suggested Solutions: The simple solutions are:

- Phasing out** single-use plastics like Carry bags, Plates, Biobased cutlery like Bagass coated with polyethylene and thermocol step by step by allowing alternatives to come up within say 5-years time
- Allowing all NABL labs to test** plastics for biodegradability on all Nine standards in the act [Presently only CIPET is allowed and CIPET Chennai can test only 5 samples each simultaneously for a test period of 8-9 months* RTI]
- Allowing all 9 methods of biodegradability** for all types of plastics, letting best technologies to evolve and compete (focus presently is just on starch bags, although tertiary industrial packaging, food packaging like milk, agriculture plastics contributes almost 40% of plastic waste).
- Biodegradable plastics to be allowed for **Non-Recyclable plastics** products like Sanitary pads, Pesticide and Chemical bottles and pouches, Pharma packaging. Paint boxes etc , which cannot be Recycled or Reused due to its hazardous nature.

The challenge in management of plastic waste is not the plastic, but building of an infrastructure, waste management systems and behavioural change of citizens in India, which a few state governments have implemented but majority are not willing to implement. Looking at and

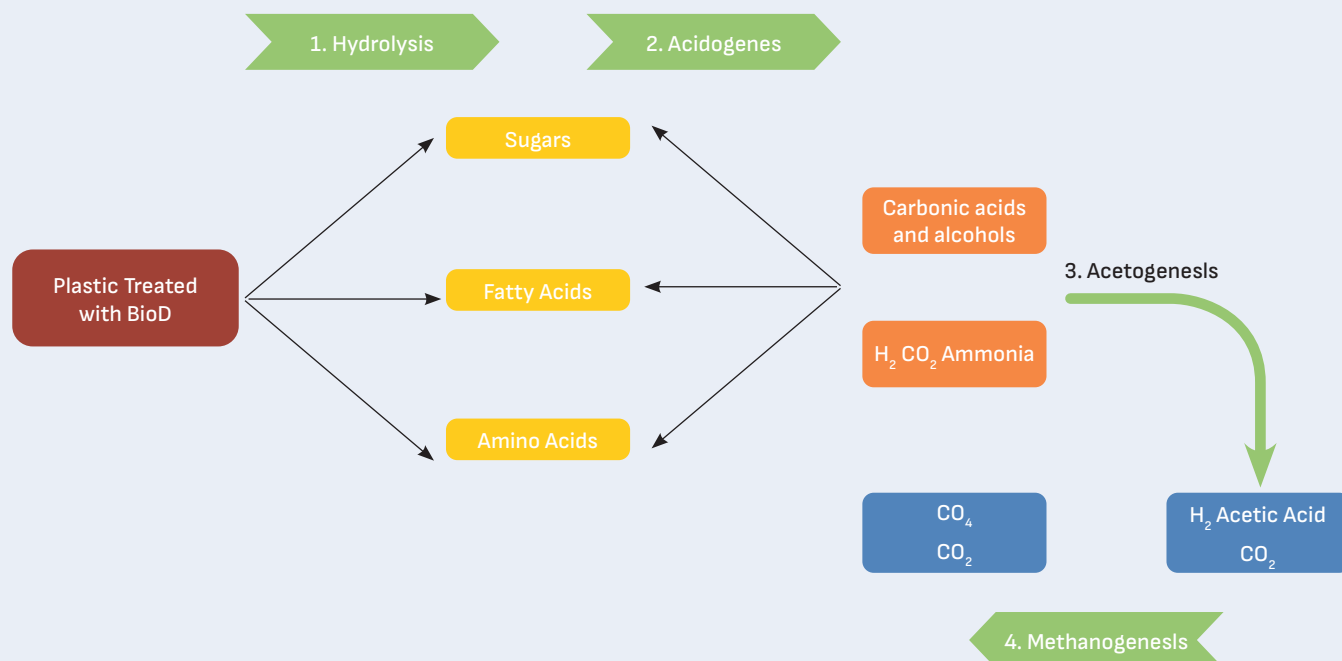
acting for plastic waste as part of solid waste and as an opportunity for ecological and economic goldmine would definitely transform the “waste to wealth” slogan into groundbreaking results.

CONCLUSION:

Biodegradable plastics are an important part of the value chain of Plastic waste management and more awareness of these, their properties and advantages to the society should be perpetuated to the governments and the courts, so that they can take informed decisions. NGOs and the public should also make themselves fully armed with complete knowledge of different aspects of packaging and the value chain with different materials and their carbon, water and energy footprints and impact on the environment and health of human beings and then act. The concept of 3 Rs: Reduce ,Reuse, Recycle would be highly beneficial for our country.

CITATIONS:

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WASTEWATER SURVEILLANCE

A KEY TOOL IN PREPARING FOR GLOBAL HEALTH CHALLENGES



The COVID-19 pandemic has highlighted some key shortcomings in our existing strategies for tracking and controlling disease outbreak. The current strategy involves testing symptomatic individuals and monitoring the disease infection rate. However, it is important for the affected individuals to first identify that they might be infected before they go for testing, which leads to a delay in reporting of cases. Moreover, in case of this pandemic, some COVID-19 positive individuals do not experience any symptoms i.e., they are asymptomatic. Such individuals may go undetected, resulting in an underestimation of the cases. This makes it essential to evaluate the true extent of disease outbreak, such as COVID-19 pandemic with minimal delay for disease outbreak management. In this context, Wastewater surveillance is a promising approach to understand the status of disease outbreak by monitoring load of infectious agents in the wastewater.

WHAT IS WASTEWATER SURVEILLANCE?

Wastewater surveillance works as many infectious agents are excreted through bodily fluids and stools, before and during active infection. When these materials are transported to wastewater treatment facilities through the sewerage systems, they can be detected. Wastewater represents a fingerprint of community health and a pooled sample of chemical and biological markers of human activities.¹ Wastewater surveillance offers the advantages of real-time and representative tracking of disease outbreak. In other words, it can

be used as an early warning system for such outbreaks.² Thus, this approach may help to overcome the limitations of current disease outbreak monitoring strategies by providing a detailed image of disease burden and transmission. The researchers at Yale University in 1960, first used this approach to evaluate the efficacy of polio vaccination campaigns.³ Although this method has been used for long to identify polio outbreaks and target immunization programmes, the COVID-19 pandemic has brought a new focus and investment in it as a means of tracking public health. Thus, wastewater surveillance is not only a valuable tool for tracking outbreak of infectious diseases but also for evaluating community health and release of chemicals into the environment. Therefore, it can also be a valuable resource in the fight against antimicrobial resistance (AMR).

ANTIMICROBIAL RESISTANCE: A GLOBAL CONCERN

AMR arises when bacteria, viruses, fungi and parasites change over time and no longer respond to medicines making microbial infections harder to treat. This leads an increased risk of disease spread, severe illness and death.⁴ AMR threat precedes the outbreak of COVID-19, and has the potential to accelerate into a public health emergency soon. AMR is one of the ten biggest and urgent threats that the world will face over the next decade, according to WHO.⁵ AMR leading to drug-resistant pathogens is also one of the key factors for the re-emergence of infectious diseases. Whilst

microbial evolution is a natural process, inappropriate usage of antibiotics further facilitates the rise and transmission of AMR. The rampant use of antibiotics and its various combinations is also observed during the current COVID-19 pandemic. The unsustainable use of antibiotics and the discharge of untreated effluents into the environment is increasing the resistance of microbes towards antimicrobials and thus, facilitating the growth of other potential pathogens. There is a lack of reliable information that accurately describes and characterizes the global phenomenon of AMR. Accurate and precise information is necessary to address this health concern and to support national and global action plans, public health efforts and treatment decisions.

AMR AND WASTEWATER SURVEILLANCE

Current surveillance of AMR is mainly focused on the isolation of specific pathogens from infected patients. This method is time consuming and often leads to incomparable data. It also does not provide insight into all the key AMR genes present in the population. Monitoring the general community for AMR is challenging due to numerous practical, ethical and regulatory constraints.⁶ Therefore, from a surveillance point of view, monitoring sewage is an attractive option because it provides sample from a large and mostly healthy population, which otherwise would not be feasible to monitor. Even one sample from a single site can be representative of a large population, and a complete profile of a large number of AMR genes within that population can be obtained. In addition, previous studies have also suggested that resistance data from sewage can correlate well with data from infected patients. This correlation was also observed during the wastewater surveillance studies in India during COVID-19.⁷ A recent surveillance of microbes in wastewater across sewage treatment plants, points along Sabarmati River, and lakes in Ahmedabad city by Indian Institute of Technology, Gandhinagar, has indicated an increased resistance to antibiotic drugs. The researchers suspected that the major driver could be the abundant prescription of antibiotics during the pandemic, as compared to pre-COVID-19.⁸

CHALLENGES FOR WASTEWATER SURVEILLANCE IN INDIA

In India, unlike western countries, the sewerage system is fragmented and surveillance could be incredibly challenging. Monitoring unsewered networks such as open drains, nullahs, informal settlements, and catchments independently could help bridge this gap. The implementation of a sewage-based AMR surveillance system would have considerable benefits, especially in regions with limited resources. It could be quickly implemented at a comparatively low cost. An increasing awareness is observed around the wastewater surveillance approach among scientists working in this field during COVID-19. However, this discipline itself is not yet an established one in India. One of the major reasons for this is the lack of awareness about this approach among public health officials, government and municipal bodies. A thickly populated country like India needs this arm of epidemiology the most which might also help it predict the third

wave of COVID-19 and future outbreaks. Mainstreaming of this method can offer a pluralistic approach to monitor the impact of antibiotic resistance and to track the progress of specific actions to combat AMR in future.

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THE HIDDEN COST OF OUR CLOTHES



The textile industry is vast and crucial; textiles are used everywhere in modern society. They are worn as protection and self-expression on the human body, used as decoration and comfort elements in homes, offices, hospitals, hotels or public buildings, as interior components in cars, buses, trains, ships and aeroplanes, or structural parts for tents, roofs, bridges, or as reinforcements for roads, and dikes and also as bags, nets or artificial turf in sports and outdoor activities. With such an immense field of application, it has several complications as well. During the production phase of organic or synthetic material, the amount of water and carbon emission is one issue. It's estimated that one kg of cotton



takes around 10,000 litres; this would be enough cotton for one t-shirt and one pair of jeans.¹ If we take a look at the next phase, which is textile processing. It's estimated that processing (including spinning, dyeing, finishing) a kilogram of fibre not just cotton and polyester, but other materials as well, requires 100 to 150 litres of water. The issue continues to grow worse as the textile waste coming from industries during textile production contains chemicals and additives which impact the water, soil and the ecosystem. The effluents released from textile industries contain biodegradable and non-biodegradable chemicals such as dyes, dispersants, levelling agents etc. These effluents are discharged into

water bodies, modifying the receiving water bodies' physical, chemical, and biological nature.² Not only during the manufacturing stage but during the use phase and after it is discarded, it carries certain complications which impacts the environment. These issues around textile waste have been highlighted, and a substantial amount of work has been done to address these issues; however, there is another problem which has gained attention over the years - Microplastic fibre coming from synthetic fabric and apparels.

The global textile market size was projected at USD 1000.3 billion in 2020³, while the global synthetic fibres market size was valued at USD 59.95 billion⁴. Though the market shares of synthetics are not much, they still have a strong presence in the textile market. Most of the synthetic material has some form of plastic that releases microplastic fibres, and these microfibrils are a growing concern for the textile industry. The National Oceanic and Atmospheric Administration (NOAA) defines microplastics as "plastic pieces less than 5 millimetres (mm) long which can be harmful to our ocean and



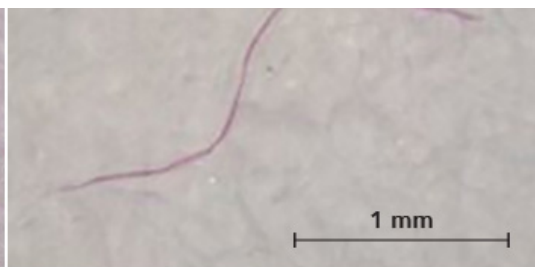
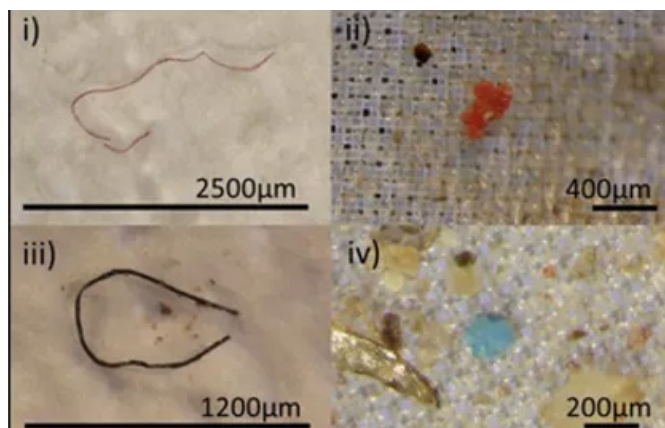
(Microscopic view of microfibre strands)

aquatic life". However, there hasn't been a consensus on the definition for microfibre; microfibres can be defined as a type of microplastic fibre/ strand of size below 5mm typically generated from nylon, polyethene terephthalate (PET), polypropylene (PP), polyester, acrylic, etc. One thing that needs to be understood is that all types of fabric, be it natural, animal-based or synthetic, shed some microfibre during different phases. This is due to the friction between strands during washing activities or movement. Microplastic fibre coming from synthetic material poses a more significant threat to the environment as it's non-biodegradable. There have been few studies done to assess the number of microfibres being

released by synthetic apparel during the laundering process; the results varied for all the studies as all the synthetic apparel incorporate different types of fabric, styles of production, weave pattern, quality of the fabric etc. Depending on these criteria the apparel releases microfibres. Here are few studies conducted to assess the amount of plastic microfibre released by synthetic apparel under various conditions. University of California, Santa Barbara, found that during laundering, a single fleece jacket sheds as many as 250,000 synthetic fibre particles. Another research showed that the number of microfibers discharged from 1 kg wash load of jeans was within the extent of 23,00,000–49,00,000 microfibers⁵. A

study conducted by Napper, examined the release of microfibres from polyester, polyester-cotton blend and acrylic fabrics. It was estimated that polyester released around 4,96,030 microfibre particles per wash, while polyester-cotton mix released around 1,37,951 microfibre particles and acrylic fabric released the most with 7,28,789 microfibre particles⁶. Washing machines and wastewater treatment plants aren't designed to trap these tiny plastic fibres. Many of these fibres sneak into our waterways and, ultimately, the oceans.

These microplastic fibres have various chemical properties, which can absorb toxic chemicals during the production phase and when exposed to the environment. Disturbingly once it reaches our oceans, sea organisms like plankton can easily mistake these tiny plastic fibres for food and consume them. In turn, many smaller animals and fish depend on plankton as their primary food source; the great blue whale is also a plankton eater. Anything that dines on the plankton will get a dose of microplastic fibre pollution, potentially passing microfibres up the food chain. This means seafood which is consumed all over the globe, contains some form of microplastic fibres in it. Some studies have found microplastic in seafood like mussels⁷.



Sea Salt

1.5 mm microfibre from Atlantic Ocean sourced sea salt.

Beer

1 mm microfibre from brewery drawing water from Lake Erie.

Tap Water

2.5 mm microfibre from U.S. tap water sample.

A 2016 UN report documented that over 800 animal species were contaminated with plastic via ingestion or entanglement; out of these 800 species, 220 were found to have ingested microplastic debris⁸. The issue now grows more problematic as microfibrils have been found in air, rivers, soil, drinking water, beer and table salt⁹.

Microplastic fibres have surrounded us, their impacts are not fully known to us now and extensive research is being conducted on the same. Though what should worry us is that, by the time we understand the gravity of the situation ample amount of microplastic fibres would have entered our ecosystem and bodies. So what is being done and can be done about it?

We as consumers need to be conscious of our purchases, not buying more than you absolutely need and wearing apparels to the end of their life cycle. We can try to choose our clothing wisely, instead of synthetic we can go for organic and plant-based materials. We can change our washing habits by filling the washing machine fully, a full washing machine

reduces friction between items. There are now microfibre filters which can be attached to our washing machines, few brands which sell these filters are PlanetCare, Lint LUV-R, Filtrol. There are other technologies present as well which helps you capture microfibre strands. These devices when placed inside the washing machine during a wash cycle, captures microfibrils and prevents them from being released into the water, Cora Ball by rozilla project is such a device. There are now laws being imposed which are making apparel producers get information on their products regarding the amount of microfibre pollution caused by their products. Thus this fight against microplastic fibres needs to be a collective effort and extensive research is required to curb this growing issue.

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'GREAT NICOBAR PLAN'

"HOLISTIC" OR DANGEROUS VISION FOR THE ISLAND?

The Indian government think-tank NITI Aayog was mandated to steer the holistic development of the Great Nicobar islands sustainably to attain sustainable development in the identified Islands without damaging the pristine biodiversity. In this regard, the NITI Aayog proposed a "*Great Nicobar Development plan*" and the plan outlines a concept for the "sustainable development" of Great Nicobar Island.

In this context, the National Board for Wildlife's Standing Committee denotified the entire Galathea Bay Wildlife Sanctuary in January to allow for the port and other associated facilities. *The Galathea Bay Wildlife Sanctuary* forms part of a UNESCO World Heritage Site. This will make the NITI Aayog's master plan for the development of the Great Nicobar Island a lot easier to implement. Experts, on the other hand, are concerned that this unnecessary interference may have catastrophic consequences.

IN THE NAME OF DEVELOPMENT

They are protected till now because the responsible agency for this blind development the *Island Development Agency* (IDA) was constituted in 2017 under the aegis of the Ministry of Home Affairs.

With an area of about 1,000 square kilometers, Great Nicobar is one of the archipelago's largest islands and for Phase I, of this 'holistic' and 'sustainable' vision for *Great Nicobar Island*, more than 150 square kilometers of land will be made available. It is the Andaman and Nicobar group's southernmost island. The Environment Appraisal Committee, which had previously expressed reservations about the proposal, has now 'recommended' that it be granted 'terms of reference' for EIA studies.

The committee had previously noted that there were no specifics about the trees to be felled — an amount that may be in the

millions, given that the project area covers 18 percent of land area and contains some of India's finest tropical forests. It asked for a study on the effects of dredging, reclamation, and port operations, including oil spills (to be carried out by nationally recognized institutions) with a focus on ecological and environmental impact, especially on the turtles, and evaluation of risk-handling capacities, a seismic and tsunami threat map, a disaster management plan, labor specifics, labor camps, and their specifications, a cumulative impact assessment, and a hydro-geological study to determine the impact on ground and surface water regimes.

The *green panel* allows Great Nicobar plan to forward:

- It will stretch for about a quarter of its coastline.
- The overall plan envisages the use of a major percentage of pristine forest and coastal ecosystems.

- Projects to be executed include an airport complex, a trans-shipment port (TSP) at South Bay, a parallel-to-the-coast mass rapid transport system, a free trade zone, and a warehousing complex on the southwestern coast. The implementing agency is Andaman and Nicobar Islands Integrated Development Corporation (ANIIDCO).

The proposed township is expected to cover an area spread over 149.60 square km of which 28.27 square km is revenue land, 8.37 square km is deemed forest and 112.96 square km is forest land, which is likely to impact turtle and megapode nesting sites and affect coral reefs. Concerns are being raised for the Tribal rights of Shompen, as these large diverge forest areas could become inaccessible for them.

CONSERVING MARINE TURTLE

Of seven species of marine turtles globally, of which five are found in Indian waters, *Four species of sea turtle* (leatherback *Dermochelys coriacea*, green *Chelonia mydas*, hawksbill *Eretmochelys imbricata*, and olive ridley *Lepidochelys olivacea*) nest on the beaches of the Nicobar group of islands in the Bay of Bengal.

Leatherback turtles are listed as an endangered species by the International Union for Conservation of Nature because their numbers are declining. Leatherback turtles are the world's largest turtles and the only species without scales or a hard shell, making them extremely vulnerable to temperature extremes. They got their name from their tough rubbery skin, and they've been around since the age of dinosaurs. According to the National Ocean and Atmospheric Administration, leatherback turtles migrate over 10,000 miles a year between nesting and

foraging grounds.

The leatherback turtle nesting population on Great Nicobar Island and Little Andaman Island is the largest in the central or northern Indian Ocean. Galathea is an iconic beach for leatherback nesting and is one of the few leatherback sites monitored over the last 30 years. Any development that harms these nesting beaches would have an unfavorable impact on the population.

Leatherback turtles are endangered animals and the Nicobar Islands is a prominent nesting place for these animals.

HOME OF THE SHOMPEN TRIBE

Most of the inhabitants of the Nicobar islands who are not recent immigrants are Nicobari. Despite some differences in language and culture between the inhabitants of the various islands, all the Nicobari are closely related.

Besides the Nicobari, however, there is a small group of tribal people living largely hidden lives in the interior of Great Nicobar — and only on Great Nicobar: *the Shompen*, and they are neither Nicobari nor are they related to the Andamanese Negrito. They speak a language or possibly a group of languages that is (or that are) quite different from the Nicobari languages although they seem to be related to it. The Shompen represent the original population of the Nicobar islands, predating the arrival of the Nicobari by many thousands of years. They practice a hunter-gatherer subsistence economy.

Because of their isolated lifestyle in the interior of the island, the Shompens were largely spared from the 2004 Indian Ocean earthquake and tsunami, which wreaked havoc on Nicobaris and Indians living along the coast. The project would devastate the islands' biodiversity, including their swamps and forests, as

well as the diverse species and Shompen tribes who have lived on the islands for centuries.

Humans are *increasing the likelihood* of pandemics like COVID-19 by reducing biodiversity by chopping down forests and developing more infrastructure. Previous research has indicated that disease outbreaks that pass from animals to humans, such as severe acute respiratory syndrome (SARS) and bird influenza, have increased in the last several decades.

As people move into undeveloped areas, increased contact between humans, wildlife, and cattle is thought to be the cause of this phenomenon. Shompens are living there for ages and they understand the relationships between multiple factors such as land use, ecology, climate, and biodiversity. Their vision to sustainably "Survive" is broader than our narrow vision of development.

The islands are located in the seismically active alpine-Himalayan belt and are classified as zone V, which means they are the most vulnerable to earthquakes. Moreover, the proposed area for diversion spreads over the vast tract of forests having the undulating configuration; they have ignored that geologically the island is very recent and the area is prone to soil erosion. The vegetation type is tropical rainforest, and the island receives around 3,774 mm of rainfall to 2020 annually spread out over eight months, resulting in extreme topsoil erosion if the forest cover is removed. The current forest cover acts as a linking factor, keeping the subsurface tightly bound in contact with the soil.

The need of the hour is to focus on our crumbling economy and the funds allocated for the Great Nicobar Plan can be redirected towards the other critical issues.

By Shania Tahir
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INTERVIEW

INTERVIEW WITH NEELAM DUTTA



Pabhoi Greens is a pioneer in starting the first organic seed production and seed bank in North East (NE) India and has been training women groups, young people, farmers and many students over the years in sustainable farming practices. Neelam Dutta, the Managing Director and Founder of Pabhoi Greens has been farming for 19 years and for the last 17 years his focus has been on organic farming. He is trained in Biodynamic Farming and natural Vedic farming. Since 2015 he has embarked on an ongoing learning process with Sativa Rheinau, an organic seed company in Switzerland. Having received an Ambassadors Grant from World Food System Centre (WFSC) by the ETH Zurich, he has visited many organic and Biodynamic seed companies like Bingenheimer Saatgut in Germany, Reinsaat in Austria, the University of Wageningen in the Netherlands and worked extensively with Sativa in Switzerland

Q: WHAT ARE THE BENEFITS OF SUSTAINABLE AGRICULTURE FARMING PRACTICES?

It brings more subsistence and self dependency to farmers.

Q: TELL US ABOUT PABHOI GREENS AND ITS ROLE IN PROMOTING THE BEST AGRICULTURAL PRACTICES?

We practice very simple and old techniques which our forefathers have done long before. We rely on interdependency where cows, fish ponds, crop rotation, green manuring, honey bees, etc., play an important role in the overall agricultural practices in the farm and its balances.

Q: WHAT ARE THE CHALLENGES FACING THE FARM?

Social challenge is the most important factor. Like an illegal brick kiln had been set up in agricultural land near the farm, also lack of proper drainage facilities and water treatment plant are few key areas that need to be addressed. And besides one of the most important challenges is proper funding - whether institutional or social funding for organic sustainable research

Q: HOW IS TECHNOLOGY HELPING INDIAN AGRICULTURE BECOME SMARTER AND MORE INCLUSIVE?

Only apps or tractors are not important to uplift Indian farmers. Proper labs to field research are required in the organic front - right from seeds to inputs

Q: WHAT MADE YOU STEP OUT OF YOUR COMFORT ZONE AND BECOME AN ORGANIC FARMER?

I think I find true happiness in it rather than hankering after money.

STUDENT'S CORNER

STUBBLE BURNING

A MENACE TO MILLIONS

Vanshika Bansal, Student at Shaheed Sukhdev College of Business Studies



Stubble Burning, a globally prevalent practice of setting crop residue on fire releases various greenhouse gases and particulate matter. In 2019, stubble burning in the northern states contributed to **46%** of the total air pollution according to System of Air Quality and Weather Forecasting And Research, making it one of the prime reasons for high air pollution levels in India. This stubble is deemed useless and thus burnt into ashes, emitting various pollutants in a large quantity. Moreover, it is rich in nutrients like phosphorous, iron, and nitrogen, which are very important nutrients for the growth of plants.

More than **11 million tons** of stubble was burnt in 2019 in Haryana and Punjab. Government and various companies have stepped in and tried to stop the mass stubble burning through In-situ and Ex-situ stubble management techniques. The **In-situ stubble management** technique promoted by the government ensures that the nutrients of stubble are sent back to the soil but the machines used in this process only sows the stubble on the top layer of land and increases the decomposition period, causing problems in the next season of crop production.

The other form of stubble extraction technique is **Ex-situ management** where the stubble is taken from the field which removes essential nutrients from the soil, thus hampering its fertility. Making this problem worse is the usage of stubble in various industries like paper, textile and packaging after being extracted from the fields, the stubble



is partially burnt to attain the desired product which in another form causes air pollution. Although Ex-situ stubble extraction technique helps to reduce stubble burning, it doesn't go a long way in ensuring the quality of nutrients in the field or the air pollution under control to a greater extent.

Seeking a solution to this grave problem, **Enactus Shaheed Sukhdev College of Business Studies** came up with **Project Pravaah**, wherein the idea of stubble pots was initiated. **Stubble pot** is a unique blend of both the methods. In our partnership with Deutec, the stubble is extracted and then made into pot forms which ensures that the nutrients go back into the soil and the problem of field burning gets discouraged as farmers get a decent return for their stubble which was earlier deemed useless. This method has been coined as the **Pseudo-In situ method of stubble management**.

The stubble pot is made in a self-designed machine, combined with a



proprietary combination of other raw materials including an outer clay to provide smooth texture as well as sturdiness to the pot. Stubble along with the various ingredients help in achieving higher growth and development for the plants while reducing the water consumption substantially. Each pot reduces 2kgs of carbon emissions, 300g of ash, 18g of Particulate matter, 130g of

Carbon monoxide, and 0.5g of Sulphur dioxide. The product was launched officially after an extensive market analysis. The customer feedback has been excellent with their plants growing at a much faster pace as compared to the conventional methods. The biggest learning from this initiative has been to make efficient use of a widely found waste product and convert it into a utility through rigorous research and experimentation.

Such initiatives motivate us to look for sustainable alternatives and not accept such practices as a part of our lifestyle.



VOICE FROM THE FIELD

Through the eyes of our researchers and field workers, Toxics Link's 'Voice from the Field' presents on-the-ground perspectives and first-hand insights of our work for environmental justice and freedom from toxics.

Toxics Link conducted a survey among waste workers in Delhi to understand their handling of menstrual waste and the perceptions around it. Various districts of Delhi were covered to get

a total of 55 responses, including both municipal workers and private players. The door-to-door waste collectors were also asked if the soiled/used sanitary napkins are handed to them separately. 70% of the people revealed that the soiled napkins are always mixed with the household waste and they have never received such waste separately from any of the households. While only 3.33% receive used/soiled pads separately. All the female respondents said that they have never been handed over such waste separately by any of the households. This clearly is indicative that almost all of this waste ends up in landfills. Also, 54.5% workers replied that they feel bad about dealing with sanitary waste or about finding them in daily waste. Only 11% waste workers were found to wear

proper PPE before handling menstrual waste while the majority of women waste workers were devoid of any PPE.

As per the rules and the manual on MSW, sanitary waste needs to be wrapped securely in the pouches provided by the manufacturer or brand owners and handed over separately to the waste collector to avoid manual handling of such waste. But clearly, there is no implementation of EPR and there is a lack of any initiative from companies to address the issue of menstrual waste. It raises serious concerns on improper disposal methods and non-segregation of menstrual waste from household waste, which leads to unhygienic working conditions for waste workers, and posing the risk of infectious diseases among them.

PUBLICATIONS



QUANTITATIVE ANALYSIS OF MICROPLASTICS ALONG RIVER GANGA

The study titled, 'Quantitative analysis of Microplastics along River Ganga' finds that the river is heavily polluted with microplastics. It has thrown up alarming results as microplastics were found in all the samples. The river water testing was carried out in collaboration with the National Institute of Oceanography in Goa and a set of five water samples were collected from the river at Haridwar, Kanpur and Varanasi. The samples were tested through FTIR to identify the exact type or resin core and the results showed presence of significantly high (40) different kinds of polymers as microplastics in Ganga waters. Resins like EVOH, Polyacetylene, PIP, PVC and PVAL were predominant in all three locations.



DON'T DUMP THAT:

An overview of Biomedical waste management in Gujarat

The study focuses on the on-ground situation of biomedical waste management in the state. The survey conducted across 145 HCFs in the four districts of Gujarat painted a picture which differed greatly from the existing records in various reports. Most of the hospitals do not have an Effluent Treatment Plant to treat liquid biomedical waste. Many hospitals were also not pre-treating their laboratory waste which is required as per the rules. Since, most of



INFORMATION SHEET ON DENTAL PRACTISE ENVIRONMENTAL FOOTPRINT

Oral health care professionals use vast amounts of resources in their daily clinical operations, which contribute to the global pollution burden and climate change. The field of dentistry has various subspecialties and nearly all of them create a carbon footprint via the appliances or techniques used in the day-to-day running of a dental office. In simpler terms, an operational dental clinic has various environmental impacts occurring as a result of unsustainable or faulty practices. There is increasing awareness of the problems but there is lack of knowledge on how to become more environmentally sustainable. Green dentistry is a relatively new and emerging concept in dentistry. Most dental offices are privately-owned small establishments and hence are hesitant in investing in environmental-friendly practices. But small steps can be taken at various levels to assist in the process of achieving sustainable dental practice. There are also financial and reputational benefits to becoming more sustainable for dental practices.

the healthcare facilities are operating without adhering to the norms of the BMW, 2016 rules, it raises a question on the quality of monitoring mechanisms being adopted in the state. The findings of the study give a clear illustration that while, there isn't a lack of infrastructure at most of the places, the shortfalls are mostly management-based. Lack of thorough monitoring, incomplete utilization of the available resources and half-hearted implementation of rules, have led to gross errors which if not rectified may negatively impact the health of not only the healthcare workforce but also may be harmful for the environment.



INDIA'S PROGRESS ON STRATEGIC APPROACH TO INTERNATIONAL CHEMICAL MANAGEMENT

Toxics Link developed this report to highlight the current developments in SAICM and how far the world has progressed in addressing the challenges of emerging chemical safety issues. Furthermore, the report has also highlighted the initiatives in India towards chemical management, while also outlining some of the gaps in successfully implementing the SAICM in India. The report has also tried to establish the linkages of chemical management and the Sustainable Development Goals 2030 and has proposed some effective approaches towards SAICM beyond 2020.



MENSTRUAL PRODUCTS & THEIR DISPOSAL

12.3 billion or 113,000 tonnes of used sanitary pads are dumped in landfills in India every year, adding to the already existing plastic pollution in the country. The study titled 'Menstrual Products and their Disposal' raises serious concerns on improper disposal methods and non-segregation of menstrual waste from household waste, which leads to unhygienic working conditions for waste workers, and poses the risk of infectious diseases among them. The survey, done during the study, clearly shows that disposable sanitary napkins are the most popular choice among women, who are using commercially available products in India, and hence results in huge amounts of waste. The study further reveals that most women are unaware that commonly available disposable sanitary napkins constitute 90% plastic and they are adding to the plastic crisis. The study found that currently there is no proper management or recycling of this non-biodegradable waste, and hence it ends up in landfills, where it stays for centuries and over the years will add to the microplastic pollution. Another major concern raised in the report is over the presence of several harmful chemicals in the products, which may create health risks.

1. SEMINARS, LECTURES HELD IN NAME OF PROTECTION OF ENVIRONMENT BUT WORK ON GROUND LACKING: NGT

Outlookindia, July 30, 2021

A lot of seminars, lectures and debates are held in the name of protection of environment but on the ground level substantial work is wanting, the National Green Tribunal said on Friday.

The green panel said that torch bearer for protection of environment in the last about 40 years is only judiciary.

The observations came while quashing the environmental clearance granted to a high-rise luxury project by Godrej Properties Limited and Wonder Projects Development Private Limited in Bengaluru and directing its immediate demolition.

“Executives primarily have responsibility to preserve, protect and maintain environment as clean and green but unfortunately, treat as enemy to their own notion of development.

“A lot of seminars, lectures and debates are held in the name of protection of environment by Executives, political and otherwise but on the ground level substantial work is wanting,” the bench said.

The tribunal said that the Executive sometimes feel satisfied by framing some laws without being serious to the execution and implementation thereof.

Read more at: <https://www.outlookindia.com/newscroll/seminars-lectures-held-in-name-of-protection-of-environment-but-work-on-ground-lackingngt/2131571>

2. USING PLASTIC WASTE, INDIA CONSTRUCTED 703 KM OF HIGHWAYS

IANS, Junly 29, 2021

So far 703 km of National Highways have been constructed with the use of waste plastic in “wearing coat of flexible pavement”, the Parliament was told on Thursday.

Union Road Transport and Highways Minister Nitin Gadkari told the Lok Sabha, in a written reply, that the ministry has issued guidelines for mandatory use of waste plastic in periodic renewal with hot mixes and in wearing coat of service road on national highways within 50km periphery of an urban area having population of more than 5 lakhs.

Use of plastic waste in the construction of road protects the environment from adverse impact of waste plastic.

Plastic roads consist of 6-8 per cent plastic, while 92-94 per cent is bitumen.

Read more at: <https://www.indiatvnews.com/news/india/highway-road-construction-plastic-waste-transport-ministry-722932>

3. 31.6% RISE IN E-WASTE GENERATION LAST YEAR: ASHWINI CHOUBEY TO RAJYA SABHA

The Indian Express, July 27, 2021

India generated 10,14,961.2 tonnes of e-waste last year, a massive 31.6 per cent increase from the previous year, Minister of State for Environment, Forests and Climate Change, Ashwini Kumar Choubey informed the Rajya Sabha on Monday. Choubey was responding to a question placed before the House by MP Neeraj Shekhar, who asked for details on the e-waste generated in the past three years. Shekhar also asked for state-wise data and a report on deaths, if any, that had resulted from e-waste.

The minister informed Parliament that data regarding e-waste is only available in the country from 2017-18 onwards, that too only National data.

Read more at: <https://indianexpress.com/article/india/31-6-rise-in-e-waste-generation-last-year-ashwini-choubey-to-rajya-sabha-7424095/>

4. PH POLICY BANNING LEAD PAINTS RECOGNIZED GLOBALLY

Manilla Bulletin, July 24, 2021

A Chemical Control Order (CCO) banning lead, a toxic substance, in paints promulgated by the government through the Department of Environment and Natural Resources (DENR) has been crowned one of the five winners for this year’s Future Policy Award (FPA), which is also known as the “Oscar on best policies.” Given by the Germany-based World Future Council (WFC), this year’s FPA puts the spot light on the most effective policy solutions that minimize the adverse effects of harmful chemicals on human health and the environment.

“Every day, our rights are violated by the exposure to toxic chemicals and pollution. Especially children are disproportionately affected,” said Alexandra Wandel, Executive Director,

WFC. “For the sake of current and future generations, it is absolutely critical that stakeholders make the protection from hazardous chemicals a priority. The Philippines and the other winning policies show the way forward and are an inspiration for policymakers worldwide.”

Read more at: <https://mb.com.ph/2021/07/24/ph-policy-banning-lead-paints-recognized-globally/>

5. HERE’S WHAT HAPPENS WHEN YOU EAT FROM PLASTIC CONTAINERS

EcoWatch, July 1, 2021

Drinking water is supposed to be good for you, but what happens when you diligently carry that disposable water bottle around all day, to remind yourself to take a sip? With that sip, you take in an undue amount of plastic, according to recent research. And that’s not all.

Takeout cartons, shelf-stable wrapping, those water bottles, even canned goods can be the culprit. And while no one likes the idea of consuming plastic, most of us still shrug and throw that container in the microwave.

Read more at: <https://www.ecowatch.com/plastic-container-health-risk-2653620879.html>

6. UK WASTE FIRM FINED £1.5M FOR EXPORTING HOUSEHOLD WASTE

The Guardian, July 30, 2021

The UK’s largest waste company, Biffa, has been fined £1.5m after exporting filthy rubbish marked as waste paper for recycling in India and Indonesia, in actions a judge called “reckless, bordering on deliberate”.

Last week, the company was convicted of sending more than 1,000 tonnes of household waste to India and Indonesia, in breach of a ban on sending such waste to developing countries after a two-week trial at Wood Green crown court.

Approximately 50,000 tins, 40,000 plastic bags, 25,000 items of clothing, 3,000 nappies – and even a frying pan, condoms and a souvenir New York T-shirt were among the items packaged as waste paper for export to Asia in Biffa’s recycling facility in Edmonton, north London, between 2018 and 2019.

Read more at: <https://www.theguardian.com/environment/2021/jul/30/uk-waste-firm-fined-15m-for-exporting-household-waste>

TRAVELLING FILM FESTIVAL- "QUOTES FROM THE EARTH"

Along with the biennial "Quotes from the Earth", Toxics Link also organises travelling film festival at cities, towns and remote locations of our country. The purpose is to provide a platform for local residents/institutes to connect their surrounding issues with that of larger global environmental concerns, to further enhance awareness and strengthen the policy advocacy initiatives at all levels. The travelling film festival is organised with support of local civil society organisations or schools or any other environment based institution. If you are interested in organising "Quotes from the Earth" in your area, please write to us or call us at our office numbers.



PHASING OUT BPA!

It's almost impossible to find a product that does not have synthetic chemical added into it, and one of them is the commonly used baby feeding bottle containing the chemical BPA in it. BPA or Bisphenol-A found in baby feeding bottles play the role of Endocrine Disruptive Chemicals (EDCs) that are capable of harming infants and newborn babies. Many countries have banned it as a precautionary measure. Toxics Link has been campaigning against the chemical and released a lab tested report titled "Bottles can Be Toxic" that received considerable attention from all stakeholders including the media. The report was also discussed during winter session of the Indian Parliament. Currently, we are having dialogues with Bureau of Indian Standards to completely phase out BPA from India. Join us in our campaign against BPA.

TOXICS LINK LIBRARY-A TREASURE HOUSE OF KNOWLEDGE

The library of Toxics Link houses a variety of books, magazines and reports which are well-stocked, classified and indexed, for the benefit of the readers. One can also get the entire collection of around 520 documentary films from around the world on various issues concerning environment. It has over 4900 books and research based reports; and new books, magazines and periodicals are added from time to time. One can also find media coverage on environment that are updated on a regular basis. Besides, the library also has stock of parliament questions that are raised on the research based studies on environment done by Toxics Link. The readers can find all the studies done by Toxics Link on its website.

TOXICS ALERT (E-NEWS)

An environment news bulletin

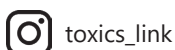
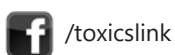
Visit: <http://enews.toxicslink.org/>, for our monthly e-newsletter on environment related news, articles, policy interventions, events on toxicity and its management. You can also subscribe to receive its update via e-mail.



Toxics Link
for a toxics-free world

STAY CONNECTED

For more information materials, invitations and updates on environmental issues please write to us at info@toxicslink.org



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