Plastics. Problems and possible solutions

Plastic pollution intensifies as worldwide production and consumption of plastics rise. Plastic is particularly problematic since it is non-biodegradable and hence lasts far longer than other types of trash. Plastic waste pollutes the soil, groundwater, seas, and oceans. During their combustion, toxic substances are released into the atmosphere.

One of the major environmental challenges facing the planet is the vast accumulation of plastics. The figures are staggering: only 9 % of the incredible amount of plastic discarded globally is recycled. Recycling it the way it happens today is a transitory measure, not a long-term solution. So far, the main problem is reducing the quantity of plastic used. However, today people are searching for solutions in new creative inventions more often.

One of the most significant limitations of today's plastic recycling is the requirement to process various types of plastic separately. This constraint clashes with the reality in which most packaging is created by blending plastics with diverse qualities. Separating them is difficult at best and very expensive.

The behavior of the consumers has begun to shift significantly as the environmental repercussions of plastic use become more apparent. The environmental impact of plastic waste has been at the forefront recently, causing reputational implications for businesses and investors.

The cup lids, grocery bags, and cocktail straws are among the 90 % of plastic things that are used once and then thrown away. Replacing them with reusable alternatives is the greatest option for customers.

Although people can change their habits, corporations have a considerably greater impact on the situation with plastic waste. Do not be silent if you believe a company could do a better job with its packaging. Write a post online, or simply buy from a more environmentally friendly manufacturer.

Along with changing our habits and putting pressure on the big corporations, there are new scientific ways of managing plastic waste. Sometimes, they sound hard to believe, but their efficiency has already been proven.

Roads from Plastic

The Dutch project PlasticRoad created a section of a bike path from recycled plastic in the city of Zwolle. This startup showed a possibility of reusing plastic trash rather than burning or discarding it. The road surface is more durable than the conventional one. It is built faster, and requires less significant equipment, resulting in a lighter carbon “footprint.”

Fungi

The main issue with plastic is that it does not disintegrate. Finding agents capable of destroying polymers would be extremely beneficial. Microbiologists from Pakistan discovered that a special type of fungi (Aspergillus tubingensis) could dissolve polyurethane. The fungus secretes enzymes that destroy plastics. This fungus has the potential to degrade plastic directly in landfill sites.

Seaweed packaging

Seaweed is the packaging material of choice for Evoware, an Indonesian start-up. The company

produces seaweed-based packaging for different goods. Consumers can dissolve these wraps in hot water or even eat them to reduce waste.

Plastic Bank

The Plastic Bank is a non-profit organization that pays compensation for plastic garbage. Collectors of plastic can exchange it for cash, food, or services such as tuition fees. The project encourages people to collect plastic before it comes into the rivers, thereby alleviating poverty by providing an income, and reducing waste entering the oceans. Today, it operates in Haiti, Brazil, the Philippines, and most recently Egypt, with plans to expand to South Africa, India, Panama, and the Vatican shortly.

Legislative changes in countries around the world have also significantly improved the overall problem of plastic waste. The European Commission has already approved a ban on some single-use plastic products. In turn, in Ukraine, the law “On limiting the circulation of plastic bags on the territory of Ukraine” was adopted at the beginning of June of 2021. The document regulates the circulation of plastic bags and aims to stimulate the development of biodegradable plastic bags. However, when some individual countries are already recycling 99 % of plastic waste only 6 % is recycled in Ukraine.

Contamination of the environment by plastic waste is a common problem and should be addressed through joint efforts. All the above-mentioned solutions cannot be introduced in isolation and must be considered in the context of the whole plastics production sequence.

The negative impact of plastic on the planet and humanity is difficult to overestimate, but it can be reduced by using available resources responsibly. For example, eco-bags for fruits and vegetables decrease the amount of plastic waste. Garbage sorting and recycling of plastic products significantly improve the state of the environment as well. However, it is not yet possible to destroy or recycle 100 % of plastic waste. It is necessary to redistribute resources and fight the types of plastics that cause the most damage, such as microplastics. It should be understood that this requires not only consumers’ initiatives, but also decisions at the state level.

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