BESS

Blue Economy – Sustainable Solutions Monthly Newsletter

Volume 1 | Issue 7 | July, 2020

The Sea of Plastic

You might think that throwing a single piece of plastic into the sea would not do much harm on its own. And you would be right, if it was only you that was doing it. The trouble is that there are over 7 billion of us on planet earth and approximately 44% (3 billion) of us live within 150 kilometres of the sea (UN's Atlas of the Oceans, 2018). Imagine if each of these persons threw just one piece of plastic into the sea each year. Unfortunately, it is not just one piece and it is not only restricted to the people on the coast. The majority of marine litter comes from land, of which plastic accounts for %.

In 2010, an estimated 7,725,477 tonnes of plastic rubbish ended up in the oceans; that is the equivalent of five carrier bags full of rubbish for every foot of coastline across the globe. It is estimated that there is already 150 million tonnes of plastic rubbish in the world's oceans. Scientists from the University of Georgia projects that if the rate of plastic consumption and disposal continues, there will be a doubling of the amount of plastic going into the world's oceans each year by 2025. By then, there will be a kg of plastic for every 3 kg. of fish

The Ocean & Covid-19!

The United Nations Environment Programme (UNEP) 2018 estimates that approximately 13 million tonnes of plastic go into the ocean annually.

Between 2006 and 2012, UNEP marine cleanup data for the Wider Caribbean Region revealed a total of 3,990,120 plastic debris items that were removed from coastal and underwater sites, covering 2,317 miles. The Mediterranean Sea alone annually accounts for 570,000 tonnes. The World Wildlife Fund describes this as the equivalent of dumping 33,800 plastic bottles every minute into the sea.

These figures risk growing substantially as countries confront the coronavirus pandemic. Masks often contain plastics such as polypropylene, and with a lifespan of 450 years, they represent a problem for our environment.

For a region that relies on the Caribbean Sea for more than $400 billion in income per year, the 18 billion pounds of plastic pollution that are disposed into the ocean each year is a real and dangerous threat. This should cause us to consider the long-term human health impact of supporting any action that risks large-scale irreversible damage to the ocean.

Research, Education, Citizen Science & Change

Microplastics

Plastic starts out as small grains or **'nurdles'**, which are then melted and molded to form objects. As it degrades and is broken down in the oceans, it gradually returns to the size of nurdles again (smaller than 5mm (microplastics). It is estimated to be more than 5.25 trillion pieces currently drifting in the ocean. Its sheer size meant that the Pacific Garbage Patches went largely unnoticed until the early 1990s when Captain Charles Moore of the Algalita Marine Research Foundation made the observation. The garbage patches are the big, obvious eyesores we can easily observe.

What of Biodegradables?

Biodegradable plastics are made from petroleum-based plastic but contain special additives to make them degrade in certain conditions. Photodegradable plastics break down when exposed to sunlight, while oxydegradable plastics break down in the air.

Downsides of biodegradable plastic and bioplastic

- Certain bioplastics use as their raw materials crops that could otherwise be used to feed people.
- Some bioplastics produce methane (a powerful greenhouse gas) when they break down in a landfill.
- Some can only be broken down in industrial digesters. Some can leave behind toxic residues even after the plastic has disappeared.
- Neither bioplastic nor biodegradable plastic can be recycled easily.

Newsletter prepared in partnership with the CMU Environmental & Sustainability Club

Is Plastic Recyclable?

Plastic drink bottles can be melted down and made into other items, like fleece jackets or plastic chairs for example, but they cannot be made into other drink bottles, as this requires brand-new plastic. This means that plastic tends to be 'down-cycled' rather than recycled.

A real problem when it comes to recycling plastic is that all of the plastic you melt down has to be of the same type. If you melt down different kinds of plastic in one big pot, they will 'phase-separate' in a similar way to oil floating on water. This phase separation leads to layering and causes weaknesses in the resulting plastic.

Also, the dyes and other additives used in plastics mean that it is more difficult to recycle, because it is very hard to remove the dyes and other additives. There tends to be fewer additives used in plastic carrier bags and drink bottles and it is because of this that they tend to be the most likely candidates for down-cycling.

What is the solution?

There is no straightforward answer to this question. Developments in bioplastics and biodegradable plastics may provide a solution in the future to prevent newly-made plastic from building up in the environment. However, that will not solve the problem of all the plastic that is already there, gradually getting smaller, but never going away. Like the plastic itself, this will be a problem for years to come. ***So how can you help?*** Here are a few ideas for some simple changes you can make:

- Avoid using single use drink bottles, disposable plastic cups, cutlery etc.
- Don't use plastic carrier bags, use re-usable bags instead.
- Recycle plastic whenever you can.
- Cut down on foods wrapped in plastic packaging. Try to buy fruit, vegetables, meat etc. from the fresh food counter or local shops instead.
- If you do have any plastic waste to get rid of, dispose of it responsibly. Never just drop it and walk away.

Follow the discussion on plastic at earthambassadeurs.org/blog