THE NEW FASHION INITIATIVE

BIODEGRADABLE PACKAGING

HOW ARE THE CURRENT SYSTEMS
THAT PRODUCE, USE, RECOVER,
AND PROCESS PLASTICS
AFFECTING THE ENVIRONMENT
AND ECONOMY?

WHAT ARE OUR ALTERNATIVES?

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WHAT DOES THE CURRENT SYSTEM LOOK LIKE?

In order to comprehend and understand what must be done to fix the issues associated with the plastic industry, the industry as it is must be assessed. The United States is producing over 300 million tons of plastic every year, 50% of which is for single-use purposes. It is utilized for only a few moments, yet does not biodegrade for hundreds of years. Plastic is cheap and versatile which ultimately makes it ideal for a variety of applications and purposes. For example, it is often used in the fashion industry for the purpose of packaging and transportation as well as hangers. While suitable for many purposes, these qualities are environmentally damaging. It has been estimated that around 50% of plastic is single-use and thrown away immediately after use. We have created a “disposable” lifestyle and it’s leaving an impact on our environment.

When further analyzing the fashion industry and the ways in which it uses plastic, it is found that packaging is the overall largest end-use market segment. This packaging segment accounts for over 40% of the total plastic use. Annually, approximately 500 billion plastic bags are used worldwide per year. That being said, a plastic bag has an average “working life” of 15 minutes. After being used, these bags are simply thrown away. With the combined packaging materials as well as plastic based fibers, it is apparent how the fashion industry has such a large impact on the environment. Once disposed of, most of this waste ends up in landfills.

CURRENT SYSTEM

DATA:

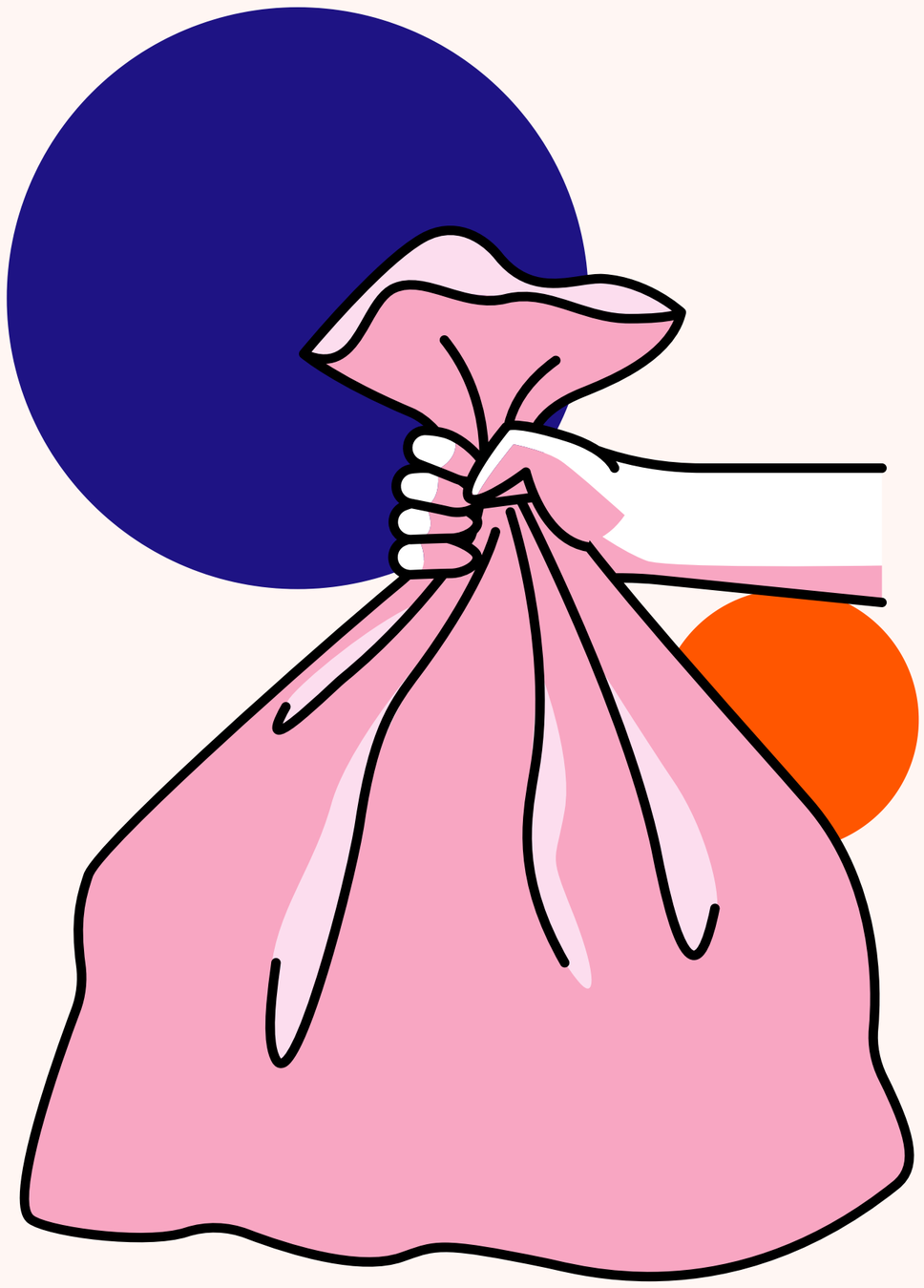
- ♻ about 10% of plastic is taken in as recycling
  - → about 8% is cascaded recycling where the recycling waste is turned into lower -value applications
  - → about 2% is closed-looped and turned into something of similar value
- ♻ 14% of the waste is put into incineration
- ♻ 40% is directly brought into landfills
- ♻ 32% is considered 'leakage'

Unfortunately, it takes centuries for plastic to breakdown, which is polluting our oceans. Only plastics that are exposed to sunlight can experience photo-degradation. With that being the case, the plastics that end up getting buried last even longer, as the bonds of the plastic hinders bacteria from breaking them down. Even after waiting centuries for the plastic to breakdown, it doesn't disappear nor become safely absorbed. It just becomes smaller bits of plastic. They contain toxic chemicals that are harmful to animals and the environment as a whole. Ultimately, this even goes as far as to worsening the health of all humans. The chemicals and toxins from the microplastics are carried throughout the air and water and are ingested. Considering the waste created by the plastic industry, the harm seems to outweigh the benefits that plastic provides.

REDUCTION & REGULATION

The packaging industry is currently dominated by single use plastics such as the many variations of plastic bags with only a minor focus on the usage of biodegradable materials. Each year, roughly a trillion single use plastic bags are used globally which ultimately end up in landfills and various other trash containment methods around the world to be left for decades until they decompose. Regulatory legislation is becoming more prominent around the globe in various forms.

Companies will falsely label their products as being recyclable or degradable, which for the longest of time was completely unrestricted to increase consumer interest. The Federal Trade Commission passed a guide for the usage of such claims in 2012 stating that if a product is to be labeled as degradable, the entire item must “**completely break down and return to nature, i.e., decompose into elements found in nature within a reasonably short period of time after customary disposal**”. Proper labeling, or not labeling, the properties of products will serve as a motivating factor for companies to create new products that can accurately be given these labels to reach their end goal of an increase in sales.



A common method of reduction is the implementation of a tax on either the manufacturer or the consumer per individual bag. There are also countries that have implemented bans on either specific products or specific materials, but the numbers are less than half of those that utilize the taxation. Regulations are beginning to be put in place around the globe which is an important first step in the reshaping of the packaging industry to move more towards a focus on biodegradables or other more environmentally friendly products.

PLASTIC BAG REGULATORY METHODS WITHIN THE UN

22 CHARGE CONSUMER

20 CHARGE PRODUCER

7 CHARGE BOTH

143 CHARGE NEITHER

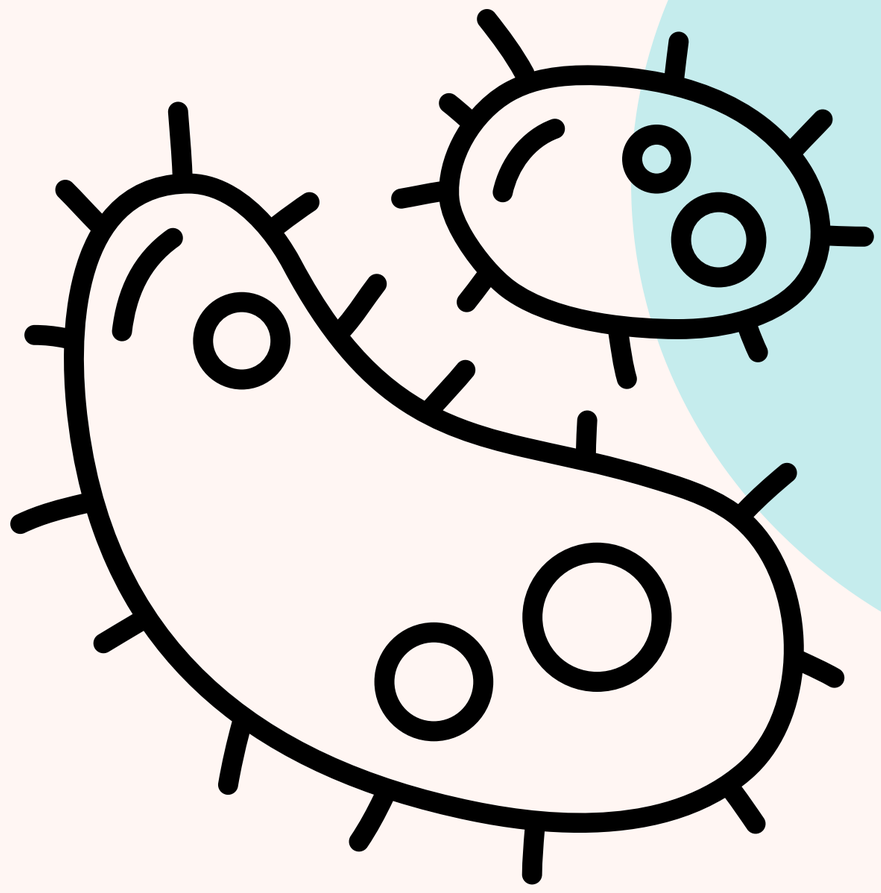
UNDERSTANDING AND FINDING THE ATERNATIVES...

Since plastics' widespread introduction in the mid-1950s, the production and development of plastics has expanded dramatically, with plastics being utilized in construction, clothing, transport, electronics, and household goods. It is without doubt that plastics have become an essential part of our lives, bringing about many societal benefits, yet plastic adoption has not been matched in pace by their social, economic, and environmental damage caused by improper disposable of plastics. (UN 15) Despite its widespread application and usage, according to the Ellen MacArthur Foundation, less than 14 percent of the nearly 86 million tons of plastic packaging produced worldwide is recycled every year. The rest of the plastics end up being landfilled, incinerated, or cast adrift to pollute the waterways and oceans (Chua, EMF)

THERE ARE TWO WAYS OF UNDERSTANDING THE "BIODEGRADABILITY" OF PACKAGING. ONE OF THEM IS PACKAGING MADE FROM NATURALLY OCCURRING SUBSTANCES IN REPLACEMENT OF TRADITIONAL PLASTIC USAGE. CURRENT FINDINGS REGARDING NATURALLY DERIVED POLYMERS ARE FOCUSING ON LIGNIN AND CELLULOSE -- A NATURAL POLYESTER DERIVED FROM PLANTS -- AND CHITIN AND PROTEIN FIBERS IN ANIMAL-DERIVED MATERIALS (UN 47). BELOW ARE SOME EXAMPLES OF BIOPLASTICS.

Polythene UK is one of the UK's leading suppliers of plastic packaging. Established in 2007 in Witney, Oxfordshire, Polythene UK quickly made its name as the UK's leading independent supplier of polythene products. In early 2013, the company moved to new premises specifically designed to be carbon neutral and equipped with a high-tech renewable energy system. As a large polythene supplier, their products include 100% recyclable carbon-neutral polytene, biodegradable bags, and lightweight polythene that is comparably more sustainable than others in the plastic market. This company could serve as an exemplary of how the plastic industry can push companies to live by their own environmental standards and to push for their social responsibility.

Researchers in China have engineered a microbe that can efficiently break down polyethylene terephthalate (PET), a common plastic fiber used to manufacture clothing and disposable consumer products. If further refined and adopted globally, this microbe has the potential to save the PET recycling energy time and money, as well as divert a greater percentage of PET away from landfills and oceans.



Another way to increase the “biodegradability” of plastics is to find certain polymer-eating microbes that can help degrade plastic wastes that would otherwise end up in landfills or incinerators.

THE PACKAGING INDUSTRY NEEDS A DRAMATIC CHANGE IF WE WANT TO FIX OUR ENVIRONMENT, AND A SHIFT TOWARDS BIODEGRADABLES COULD BE THE START OF THAT MOVEMENT.

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