Stuff and The Pursuit of Happiness

How the pursuit of material satisfaction makes us unhappy and sustainable alternatives to conventional goods.

Lesson 5 Agenda

Stuff and The Pursuit of Happiness

Introduction

"Buyer's Remorse": Paralyzed by Choice

Ecological Footprint Calculator

Global Production Challenges

Plastics

Textiles and Other Materials

Greenwashing

Corporate, Federal and Individual Actions

Q&A Intermission

Sustainable Product Solutions

The 5 R's: Refuse, Reduce, Reuse, Recycle and Rethink

A True *Circular Economy*

Zero Waste

Debate and Q&A

Hello neighbor, here are some free paper straws. No, I am not being paid to do this- I think eliminating plastic waste is important. Items like plastic straws are too small to be recycled and take up to *200 years* to fully biodegrade. We owe it to our childen and all living beings opn this planet to be more responsible. This is a small but very important step we can make.

Thank you,

www.NatureWasHere.com

NATURE - WAS - HERE

Green Straw Club

A Green Alternative to Plastic Straws

www.greenstrawclub

Homemade Protein Bars

Reduce packaging waste by making your own health bars!

-dates

-almonds or walnuts

-protein powder (pea, rice or ?)

-add other ingredients like bits of fruit or chocolate!

More freedom grants us more choices in the market and this implies greater well-being, but the reality is that most of us are paralyzed by too many options and, even when a decision is made, experience “buyer's remorse”...

https://www.theguardian.com/lifeandstyle/2015/oct/21/choice-stressing-us-out-dating-partners-monopolies

THE JAM STUDY

A grocery store conducted 2 tasting sessions. In one session shoppers were allowed to sample 24 flavors of jams, and in the other session they were allowed to sample 6 flavors

24 Choices of Jam vs 6 Choices of Jam

24 Choices of Jam

Attracted **60%** of Shoppers

Shoppers sampled **2** flavours on average

3% of shoppers bought jam

6 Choices of Jam

Attracted **40%** of Shoppers

Shoppers sampled **2** flavours on average

30% of shoppers bought jam

When Choice is Demotivating: Can One Desire Too Much of a Good Thing?

Sheena S. Iyengar
Columbia University

Mark R. Lepper
Stanford University

Current psychological theory and research affirm the positive affective and motivational consequences of having personal choice. These findings have led to the popular notion that the more choice, the better—that the human ability to manage, and the human desire for, choice is unlimited. Findings from 3 experimental studies starkly challenge this implicit assumption that having more choices is necessarily more intrinsically motivating than having fewer. These experiments, which were conducted in both field and laboratory settings, show that people are more likely to purchase gourmet jams or chocolates or to undertake optional class essay assignments when offered a limited array of 6 choices rather than a more extensive array of 24 or 30 choices. Moreover, participants actually reported greater subsequent satisfaction with their selections and wrote better essays when their original set of options had been limited. Implications for future research are discussed.

Ne quid nimis. (In all things moderation.)
—Publius Terentius Afer (Terence), c. 171 B.C.

It is a common supposition in modern society that the more choices, the better—that the human ability to manage, and the human desire for, choice is infinite. From classic economic theories of free enterprise, to mundane marketing practices that provide customers with entire aisles devoted to potato chips or soft drinks, to important life decisions in which people contemplate alternative career options or multiple investment opportunities, this belief pervades our institutions, norms, and customs. Ice cream parlors compete to offer the most flavors; major fast-food chains urge us to "Have it *our* way."

Sheena S. Iyengar, Graduate School of Business, Columbia University; Mark R. Lepper, Department of Psychology, Stanford University.

We gratefully acknowledge the cooperation and assistance of Draeger's Grocery Store located in Menlo Park, California, for generously offering their store as a field site for conducting Study 1. Similarly, Study 2 could not have occurred without the cooperation and support of Claude Steele at Stanford University who generously allowed his introductory social psychology course to be used as a forum for conducting this field experiment. Further, we would like to thank the numerous graduate students in the Department of Psychology at Stanford University and undergraduate research assistants who generously dedicated their time and effort to help conduct these studies.

Correspondence concerning this article should be addressed to Sheena S. Iyengar, Columbia University, Graduate School of Business, Uris Hall–Room 714, 3022 Broadway, New York, New York 10027-6902, or to Mark R. Lepper, Department of Psychology, Jordan Hall–Building 420, Stanford University, Stanford, California 94305-2130. Electronic mail may be sent to ss957@columbia.edu or lepper@psych.stanford.edu.

On the face of it, this supposition seems well supported by decades of psychological theory and research that has repeatedly demonstrated, across many domains, a link between the provision of choice and increases in intrinsic motivation, perceived control, task performance, and life satisfaction (Deci, 1975, 1981; Deci & Ryan, 1985; Glass & Singer, 1972a, 1972b; Langer & Rodin, 1976; Rotter, 1966; Schulz & Hanusa, 1978; Taylor, 1989; Taylor & Brown, 1988). In a typical laboratory study, the intrinsic motivation of participants is compared across two conditions: one in which participants are given a choice among half a dozen possible activities, and a second in which participants are told by an experimenter which specific activity to undertake (Zuckerman, Porac, Lathin, Smith & Deci, 1978). The recurring empirical finding from these studies is that the provision of choice increases intrinsic motivation and enhances performance on a variety of tasks.

Moreover, the positive consequences of choice are often apparent even in contexts where the choice itself is trivial or incidental (Cordova & Lepper, 1996; Dember, Galinsky, & Warm, 1992; Swann & Pittman, 1977). Indeed, many important theories in social psychology, including attribution theory (e.g., Kelley, 1967, 1973), dissonance theory (e.g., Collins & Hoyt, 1972; Cooper & Fazio, 1984; Linder, Cooper, & Jones, 1967), and reactance theory (e.g., Brehm, 1966), all presume that even purely illusory perceptions of choice will have powerful effects (Langer, 1975; Lefcourt, 1973; Lewin, 1952).

Although prior research has made a compelling case for the psychological benefits of the provision of choice, there remain some potential limitations to this literature. Consider one seemingly trivial, yet potentially important, methodological characteristic of prior studies: that the number of options presented in

Journal of Personality and Social Psychology, 2000, Vol. 79, No. 6, 995–1006.
 DOI: 10.1037/0022-3514.79.6.995

https://faculty.washington.edu/jdb/345/345%20Articles/Iyengar%20%26%20Lepper%20(2000).pdf

Login and Take The Quiz!

Related to Earth Overshoot Day, or how many Earths would be needed if everyone adopted your lifestyle, including infrastructure required. So, individual and governmental actions are needed.

Global Consumer Challenges

The History of Plastic

1736 – RUBBER

French naturalists accidentally discover rubber plants in the Amazon Basin..

1870 – CELLULOID

The Hyatt brothers invent celluloid, the first artificial plastic, which is used in ping-pong balls.

1907 – SYNTHETIC POLYMER

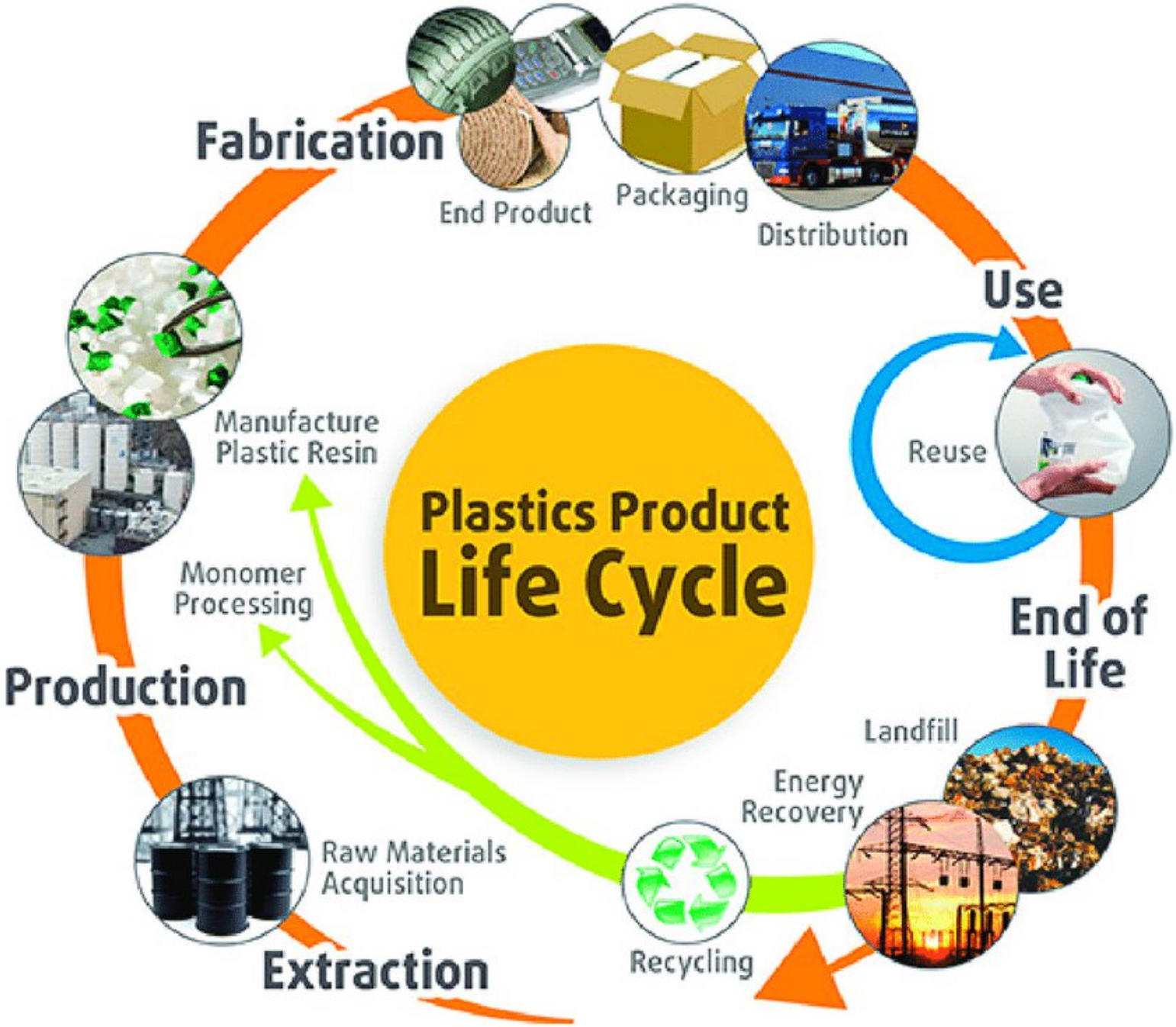
Leo Baekeland discovers phenol formaldehyde resins, the oldest synthetic industrial polymer. The material will be used for telephone casings, pot handles, etc.

1935 – SYNTHETIC FIBRES

Polyamides are invented. The discovery of synthetic fibres, which are as strong as steel and have a reliable friction coefficient, is announced. Two years later, Otto Bayer synthesizes the first polyurethanes.

Single-Use Plastic and Oil

	Polyethylene (mass = 6 kg)	Paper (52 kg)	Reusable nonwoven polypropylene (42 kg)		Reusable polyethylene with 40% recycled content (44 kg)	
	1 use	*1 use*	*1 use*	*8 uses*	*1 use*	*8 uses*
Nonrenewable energy, GJ	763	2,620	3,736	467	2,945	368
Greenhouse gas emissions metric tons of CO_2 equivalent ● = 0.010	0.040	0.080	0.262	0.033	0.182	0.023
Freshwater consumption, gal 💧 = 10	58	1,000	426	85	250	40



...ideal scenario, highly dependent upon the efficiency of individuals, local municipalities and national governments ...many plastics are single-use.

PLASTIC DOES NOT GO AWAY

BOOMERANG ALLIANCE

THIS YEAR OVER

9 MILLION TONNES

OF PLASTIC[1]

WILL ENTER THE WORLD'S OCEANS

9 MILLION TONNES

x2

18 MILLION TONNES

BY 2026 ??

THE RATE WE ARE POLLUTING THE OUR OCEAN DOUBLES EVERY 11 YEARS[2]

AUSTRALIANS CONSUME

2.93 MILLION TONNES

of plastic each year of which

<9%

is recycled

"Plastic is so permanent and so indestructible that when you've tossed it, in the ocean or even into a dustbin... it does not go away"

Sir David Attenborough

192 BILLION PIECES OF PLASTIC

in Australia's marine environment[2]

including (every year):

180 MILLION PLASTIC BAGS

420 MILLION PLASTIC BOTTLES

200 MILLION OTHER PIECES OF PLASTIC PACKAGING

TRILLIONS OF MICROPLASTIC BEADS & FIBRES

WE MUST ACT NOW

4

THE FIRST 4 STEPS WILL ELIMINATE OVER

70%

of marine plastic pollution **BEFORE** it enters our oceans:

1. Introduce a container deposit system to eliminate beverage rubbish
2. Ban all single-use plastic bags
3. Remove microbeads from personal care & laundry products
4. Ensure plastic producers & recyclers capture microplastics on their premises

PLASTIC DOESN'T DECOMPOSE

IT JUST **GETS SMALLER**

Over time a single plastic bottle can break up into over **10,000 PIECES OF MICROPLASTIC**

Microplastics act as a toxic sponge. Studies show that it can be **1 MILLION TIMES MORE TOXIC** than the water around it[3]

This creates serious concerns regarding the potential contamination of our seafood.

96% OF ALL BIODIVERSITY

potentially ingests plastics[6] including

52% of all **SEA TURTLES**[4]

100% of all **CORAL REEFS**[5]

90% of all **SEA BIRDS**[7]

The animals most vulnerable to the toxic effects of plastic contamination are those at the very top of the food chain – **US!**[8]

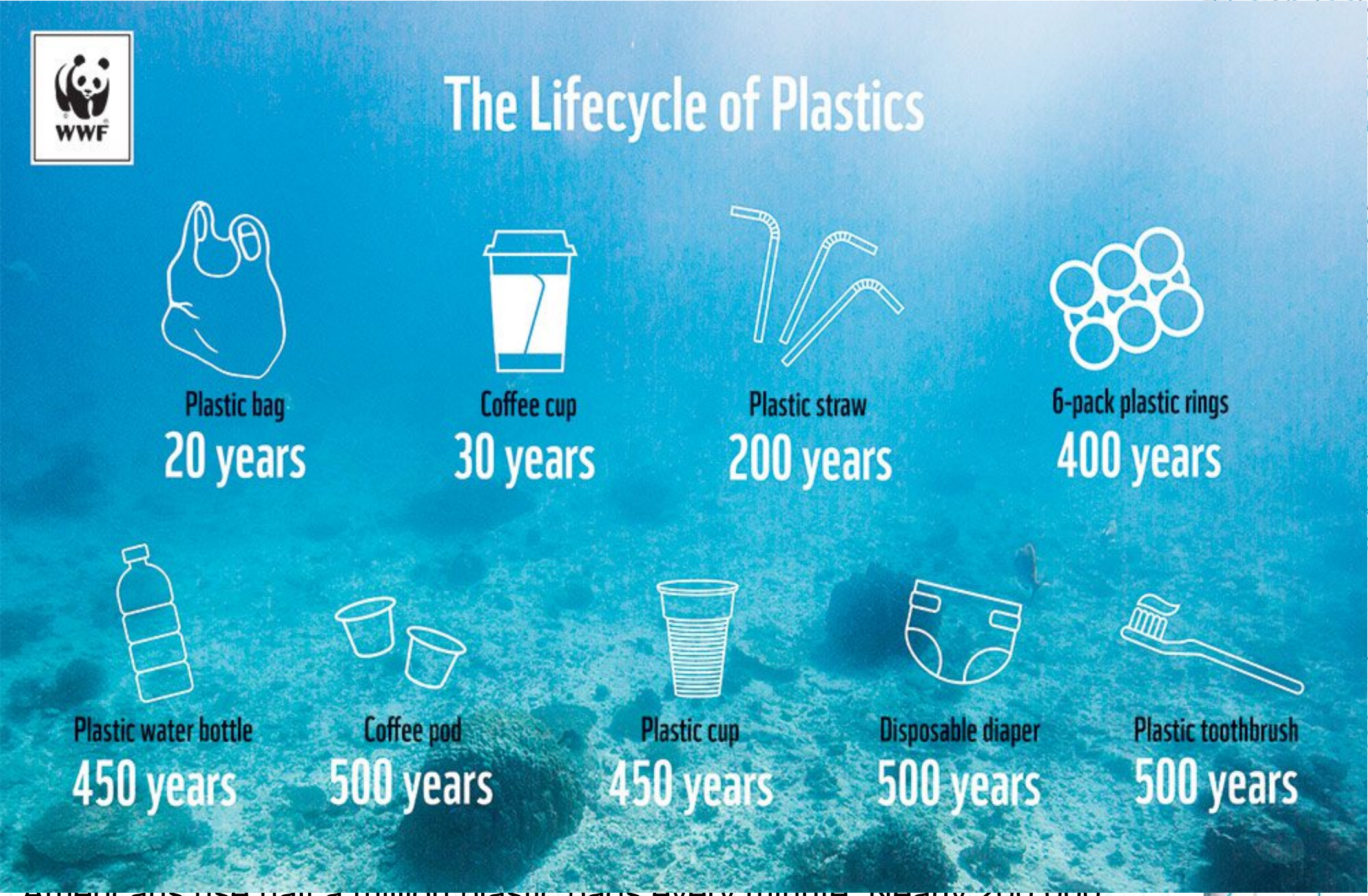
Join the campaign to STOP MARINE PLASTIC POLLUTION

www.boomerangalliance.org.au/plastic_pollution

INFORMATION SOURCES

1 University of Georgia
2 CSIRO
3 Algalita Marine Research Foundation
4 University of Queensland
5 ARC Centre of Excellence for Coral Reef Studies
6 Sydney Institute of Marine Science
7 Australian Marine Conservation Society
8 Catalyst, ABC TV

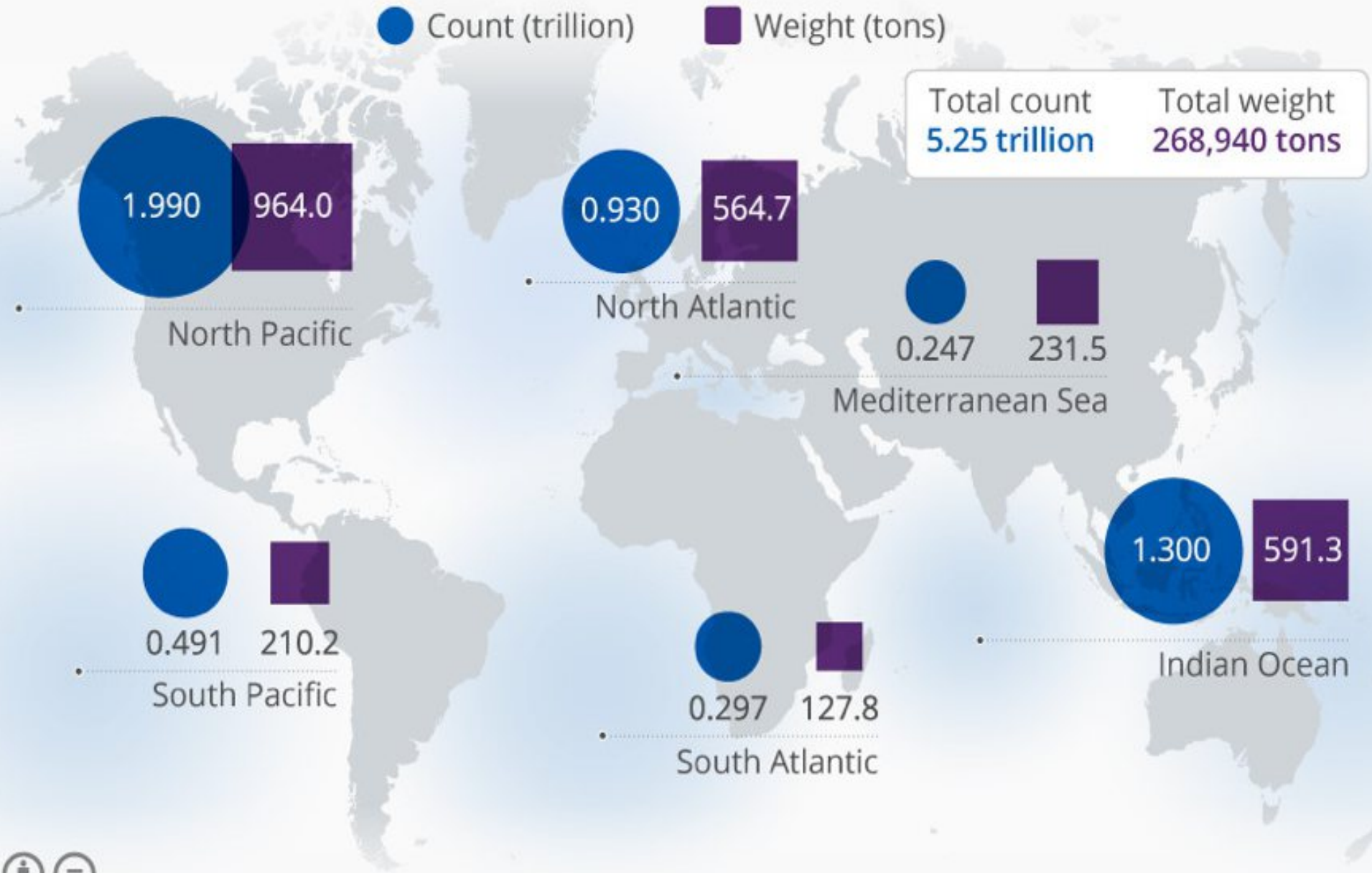
For more information see our slideshow about marine plastic pollution and/or our submission to the Senate Inquiry into the Threat of marine plastic pollution in Australia: http://www.boomerangalliance.org.au/plastic_pollution_resources



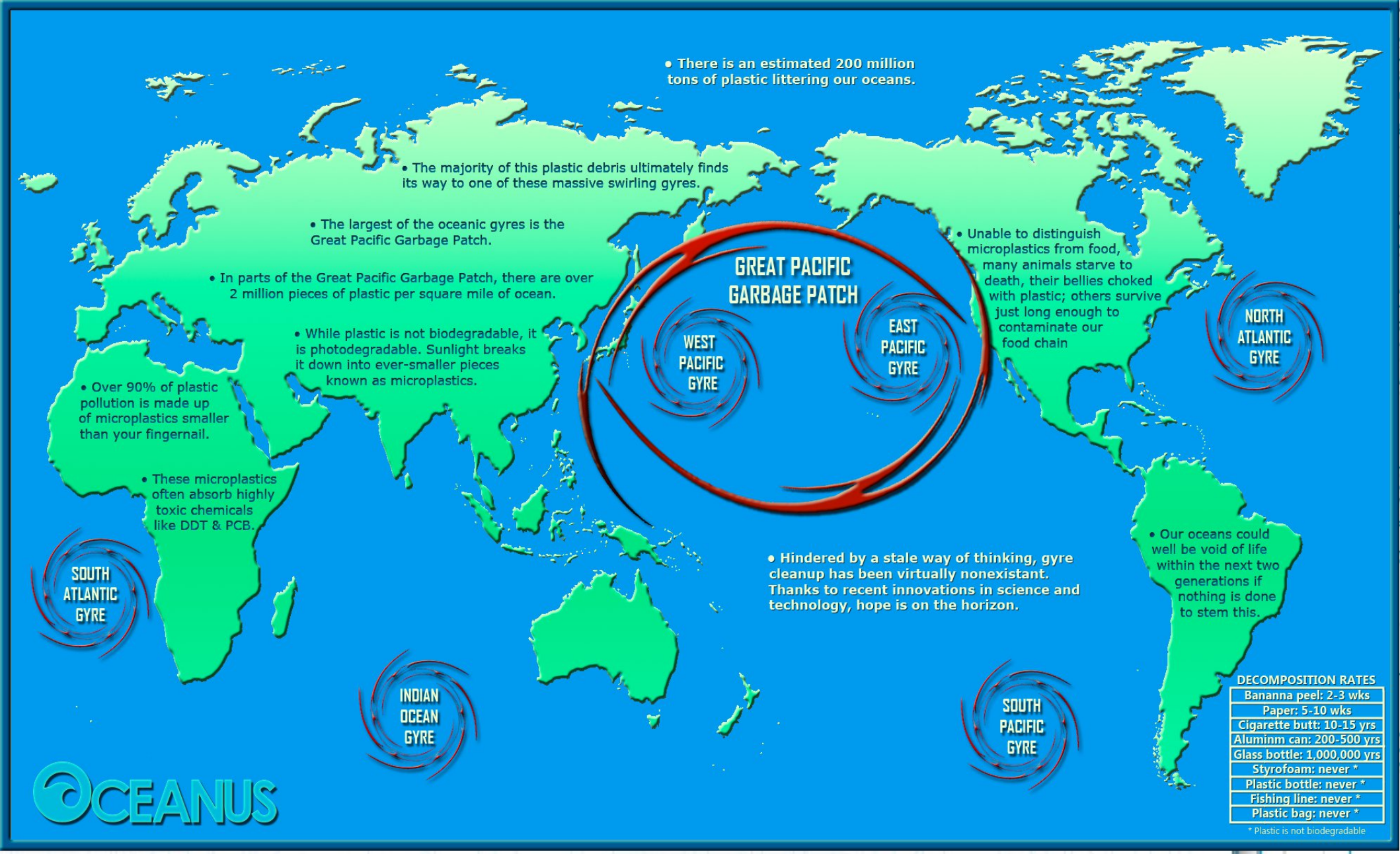
Americans use half a million plastic bags every minute. Nearly 200,000 plastic bags are land filled every hour, while many are blown and washed into the ocean

The World's Oceans Are Infested With Plastic

Number and weight of plastic pieces afloat at sea



Source: Plos One

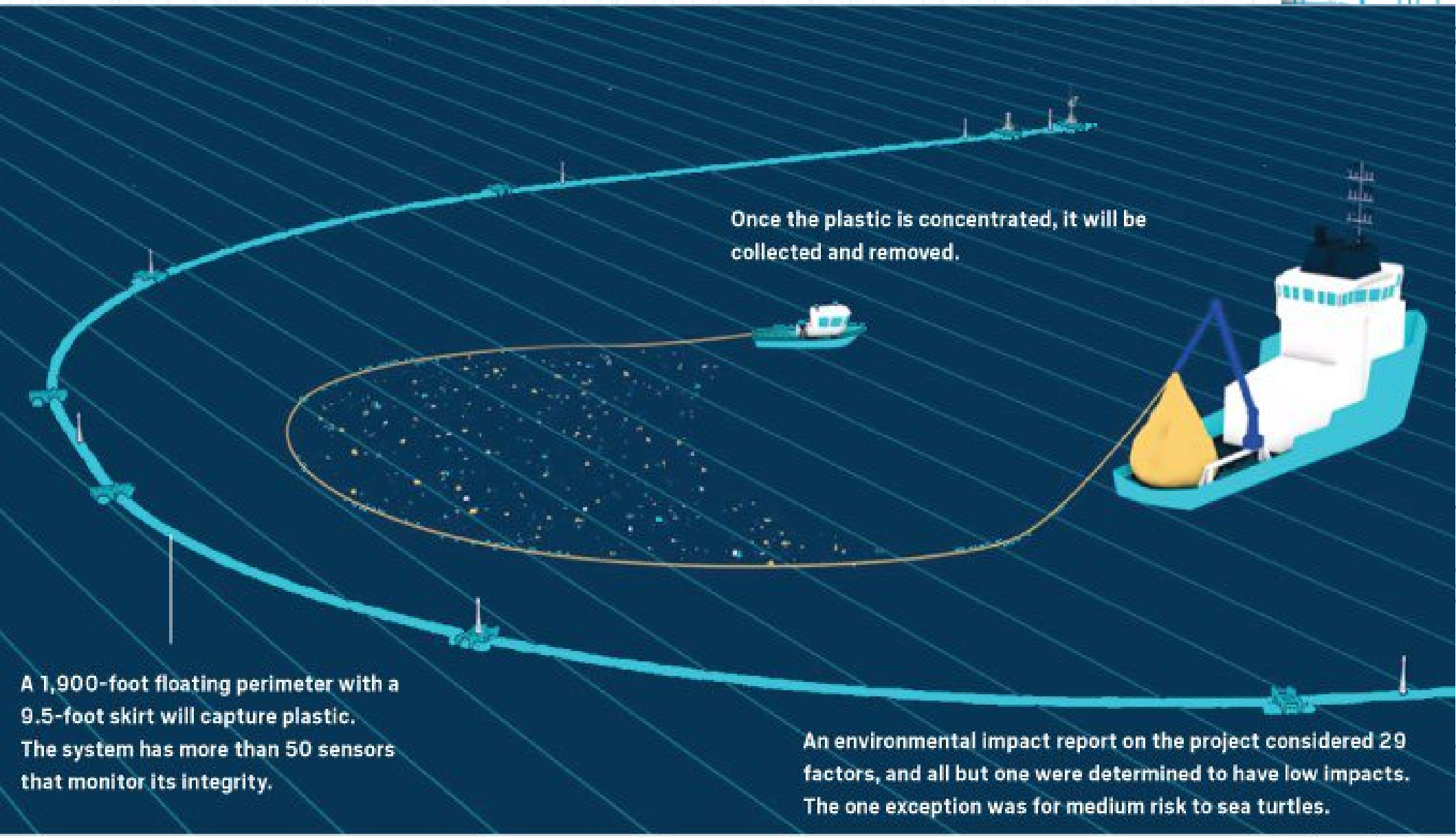


DECOMPOSITION RATES

Bananna peel: 2-3 wks
Paper: 5-10 wks
Cigarette butt: 10-15 yrs
Aluminm can: 200-500 yrs
Glass bottle: 1,000,000 yrs
Styrofoam: never *
Plastic bottle: never *
Fishing line: never *
Plastic bag: never *

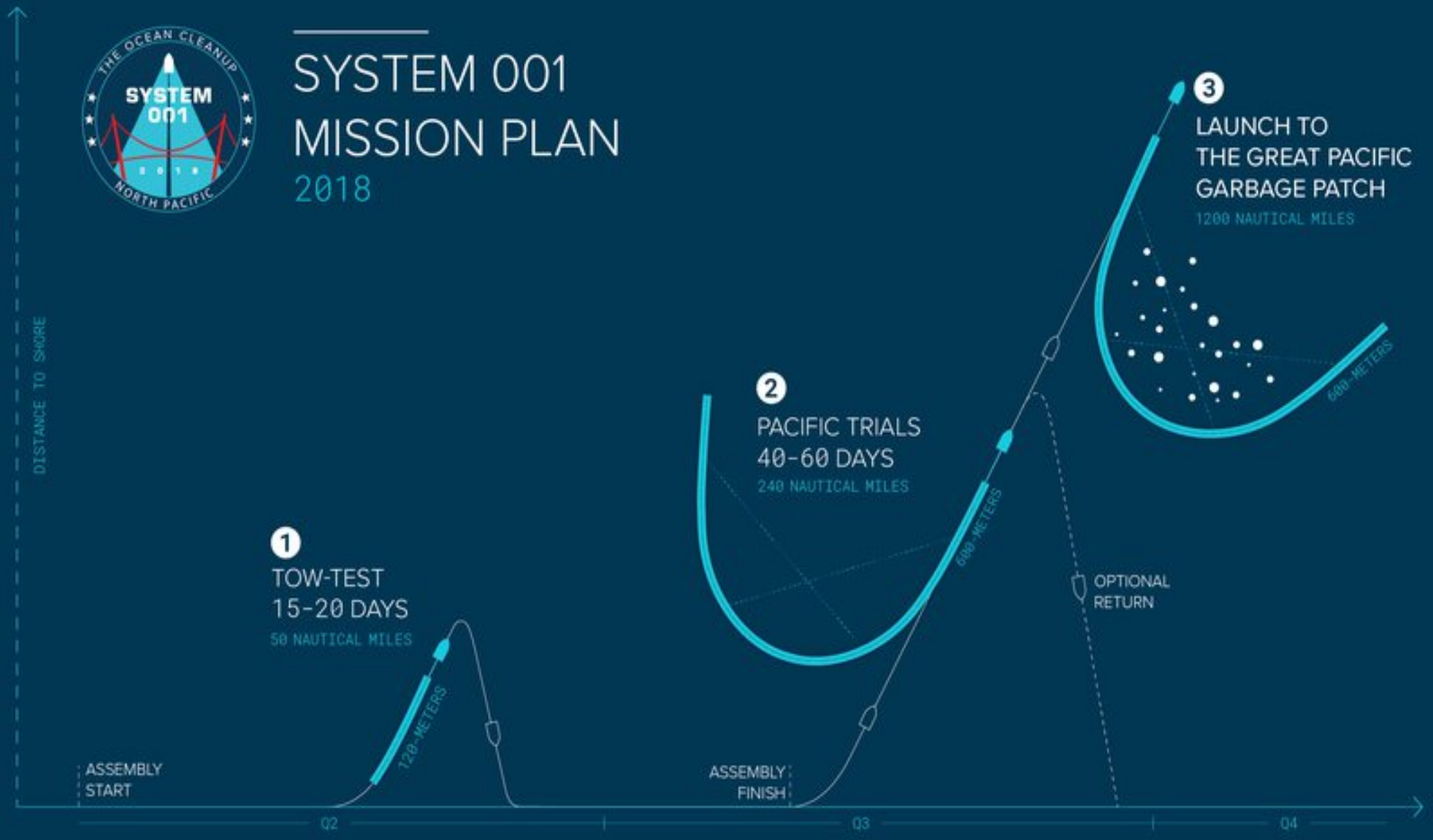
* Plastic is not biodegradable

The Ocean Cleanup Project



Source: theoceancleanup.com

SYSTEM 001 MISSION PLAN 2018



1. A 120-meter segment will be towed approximately 50 nautical miles offshore of San Francisco to a designated test pattern. A vessel will tow the unit in a multitude of directions to test the hydrodynamic behavior of the system.

2. The final 600-meter system will be towed approximately 240 nautical miles off the coast, where it will be launched in operational configuration for the first time. The system's behavior will be extensively monitored during this final rehearsal.

3. After the trials, System 001 will be towed out to the Great Pacific Garbage Patch, approximately 1200 nautical miles offshore, where it will be launched in operational configuration and start the cleanup.

This timeline is subject to changes.
Visit www.theoceancleanup.com to get the latest updates.

THE OCEAN CLEANUP

SYSTEM 001/B
MISSION PLAN
2019

Many key functions were confirmed during the deployment of System 001, but to reach proof of technology, we still need a system that moves through the water at one consistent speed and retains its integrity against the forces of the ocean. Just five months after System 001 returned to shore, System 001/B set sail on our mission to deliver a working concept. This variation of System 001 is designed as a modular platform, allowing us to test multiple solutions addressing the issue of plastic retention.

DEPLOYMENT
33°45'0N / 142°30'0W
JUNE 28TH

LAUNCH
50°04'7N / 125°17'5W
JUNE 18TH

1 SLOW-DOWN
TOW-TEST / EARTH-FIXED

During this test, the operating vessel will maintain the system in a fixed geographic by means of dynamic positioning. This will mimic the status of being anchored to the seabed, and presents the situation of ultimate slow-down as a base case for further tests.

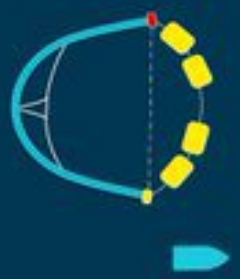
2 SLOW-DOWN
TOW-TEST / CURRENT-FIXED

To trial the slow-down option, the operating vessel will maintain the speed of the current by means of dynamic positioning (speed through water equals zero). This will enable us to study the feasibility of slowing down the system, thus preparing us to test the parachute anchor.

3 SLOW-DOWN
PARACHUTE

With a parachute anchor, and the vessel on stand-by, we will study the option of slowing down the system, while letting the plastic catch up with it and concentrate against the screen. Our main interest is finding a viable option that will maintain a consistent speed difference.

4 SPEED-UP
INFLATABLE BAGS



During this test, our aim is to see if the system can move faster than the plastic. We will do this by allowing the system to float freely with attached lift-bags (starting with two and up to six in total) pulling it forward.

5 SPEED-UP
TOW-TEST

For a final confirmation of the option to collect and retain plastic, with the system moving faster than the plastic, we will tow System 001/B behind the operating vessel at a low, but consistent speed.

6 SPEED-UP
FENDERS

In the event that the lift bags are ineffective, we will trial fenders (starting with two working up to six), which will drag the system forward and, in theory, faster than the plastic. The fenders are larger and heavier than the lift bag.

This Mission Plan is weather dependent and subject to changes.
Visit www.theoceancleanup.com to get the latest updates.

THE OCEAN CLEANUP

Follow

The Ocean Cleanup
@TheOceanCleanup

The Largest Cleanup in History. Follow the latest updates on The Ocean Cleanup project. #TheOceanCleanup

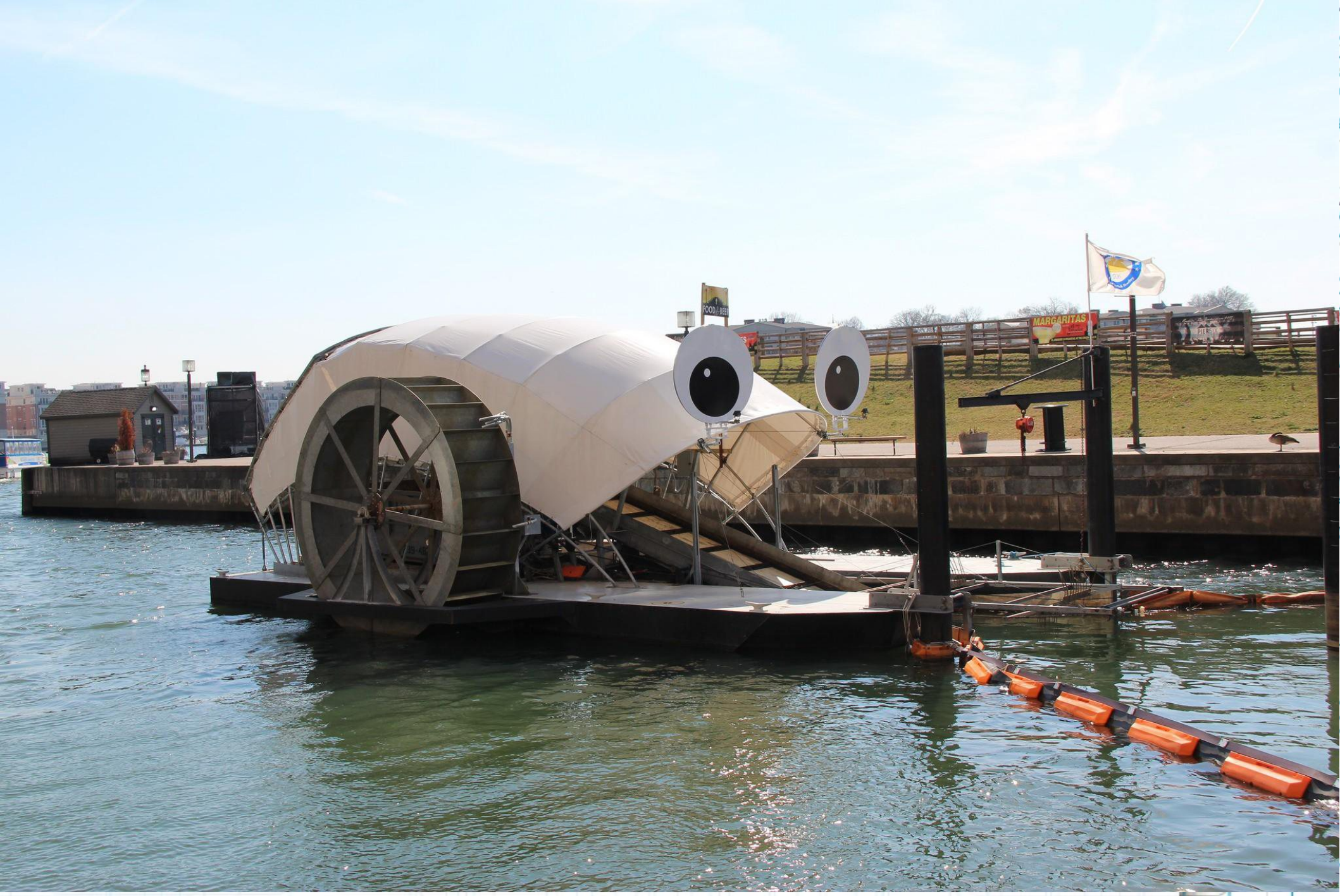
Rotterdam, The Netherlands theoceancleanup.com
Joined December 2012

123 Following **144.2K** Followers

The Ocean Cleanup @TheOceanCleanup · 2019. dec. 24.
Who needs a Christmas tree when you have an interceptor to bring some light? We hope to see them cleaning 1000 rivers by 2025.

70 888 3,5 E

Follow The Ocean Cleanup online for the latest updates, including recent progress cleaning river systems, with aims to begin cleaning 1,000 rivers by 2025.



Honorable Mention: Mr. Trashwheel in Baltimore, MD

Simple and effective: garbage nets attached to municipal storm drains.

#trashtag Manila Bay has been considered one of the dirtiest bays across the world. After 11 years, the Supreme Court finally issued a cleanup order which thousands of volunteers joined last January 27, 2019.

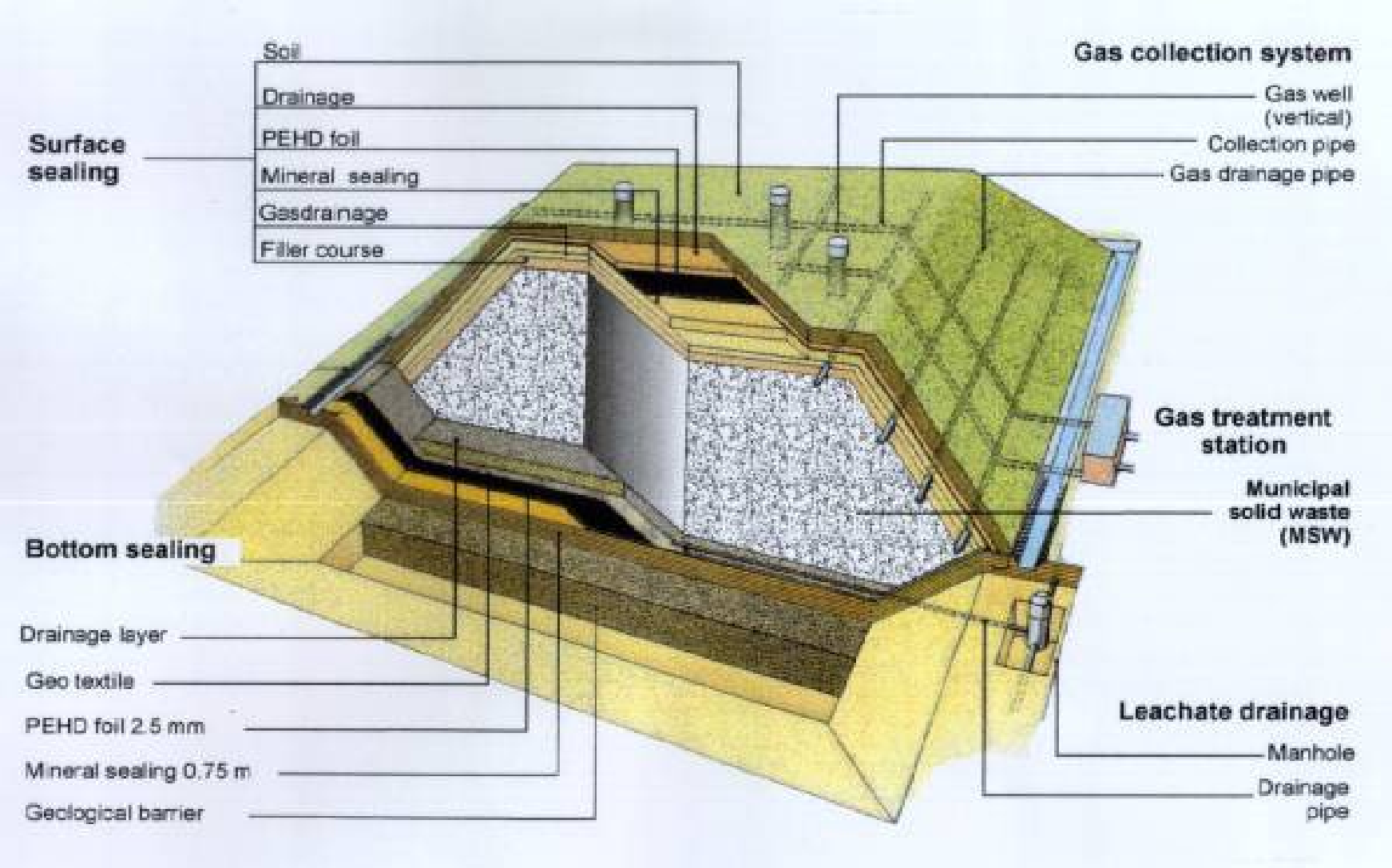
#trashtag

3 women cleaned up this area together.

Assignment

Do your own #trashtag!

Conventional Landfill



Decomposing waste in these landfills produce landfill gas, which is a mixture of about half methane and half carbon dioxide. Landfills are the **third largest source of methane emissions** in the US, with municipal solid waste landfills representing 95% of this fraction

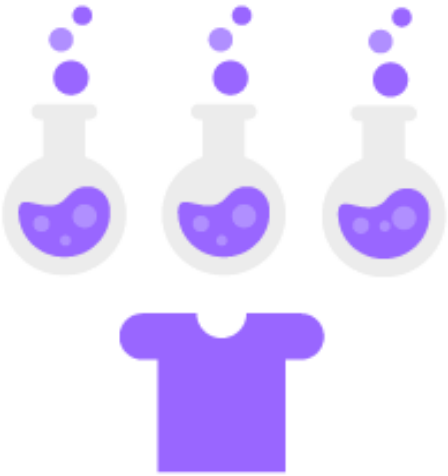
Poverty and Plastic

We should all be able to eat and enjoy life. Not everyone can afford sustainable products and that is ok!

Further, it is not our fault we were born into a world where plastic exists, or any other harmful products or infrastructure. We did not ask for this, but we are now demanding better for the future of everyone around the world and all the animals with which we share this world.

Consumer Challenges, continued: Textiles

The textiles industry uses significant amounts of resources



The production of 1 kilogram of cotton garments uses up to 3 kilograms of chemicals.

The equivalent of more than 3 trillion plastic bottles is needed to produce plastic-based clothes every year.[1]

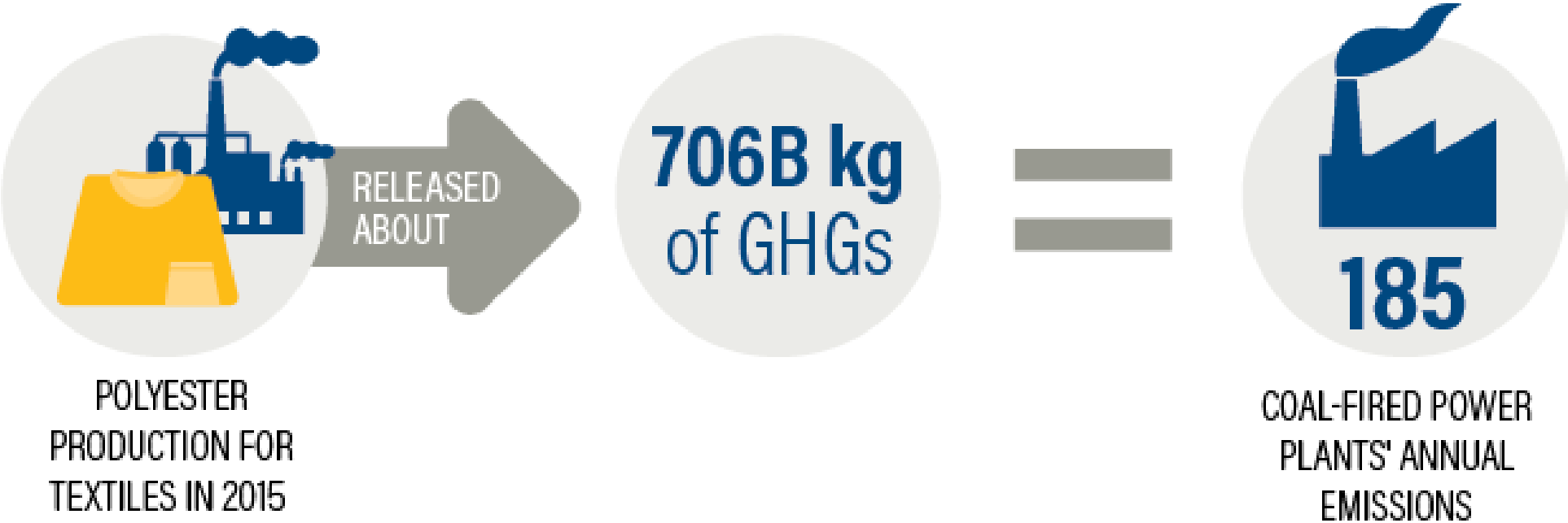
Textiles production (including cotton farming) uses almost 100 billion cubic metres of water annually, representing 4% of global freshwater withdrawal.

1 Based on an average weight of 10 gram of a 0.5 litres PET bottle
Source: KEMI, Chemicals in textiles: Risks to human health and the environment (2014), p.33; World Bank, AQUASTAT, and FAO, Dataset: Annual freshwater withdrawals, total (2014); Circular Fibres Initiative analysis

tiny.cc/fibres

Fabrics and Climate Change

Polyester Production is Carbon Intensive

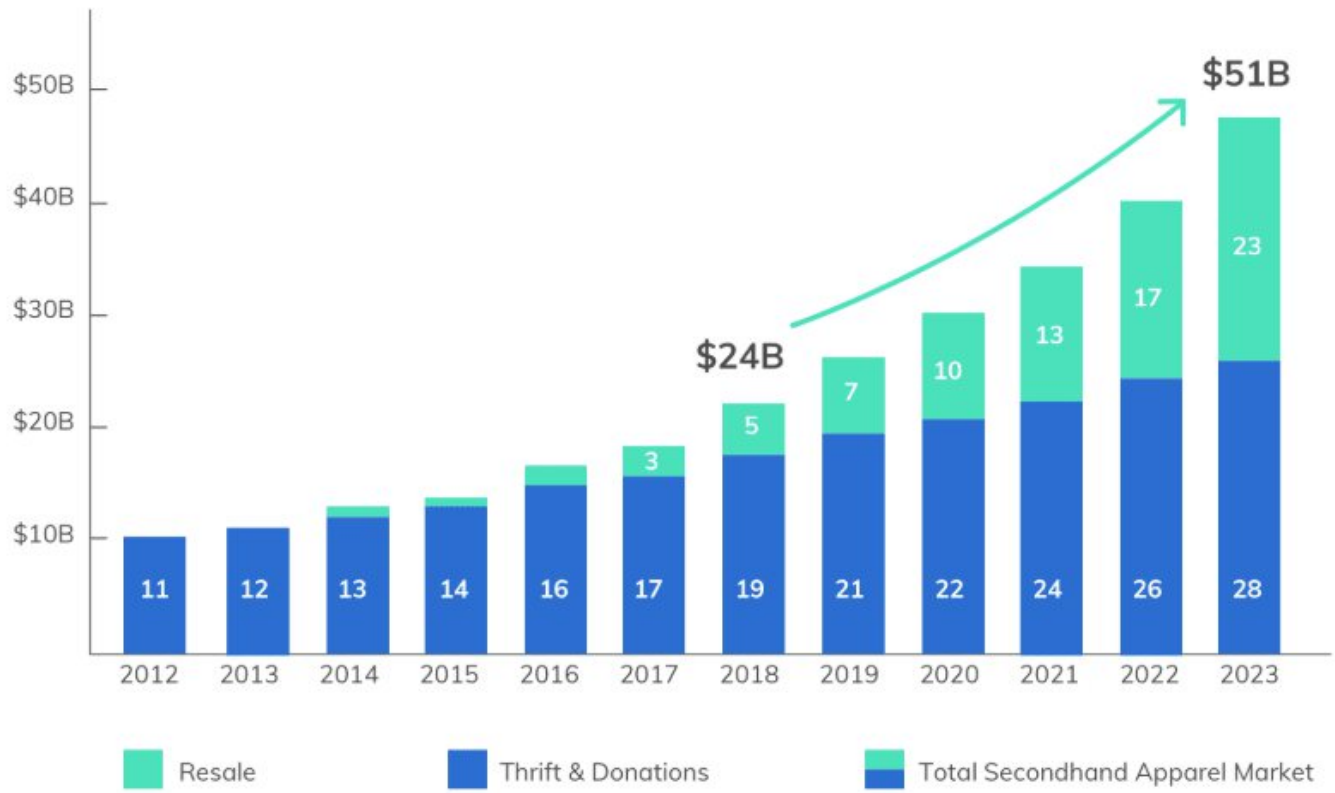


Source: MIT

WORLD RESOURCES INSTITUTE

Fast Fashion vs Second-Hand Clothing

Total Secondhand Apparel Market to Double in 5 Years With Resale Sector Driving the Growth[1]



Resale has grown

21X

faster than the retail apparel market over the past three years.[1]

Leading Resale Sector Players

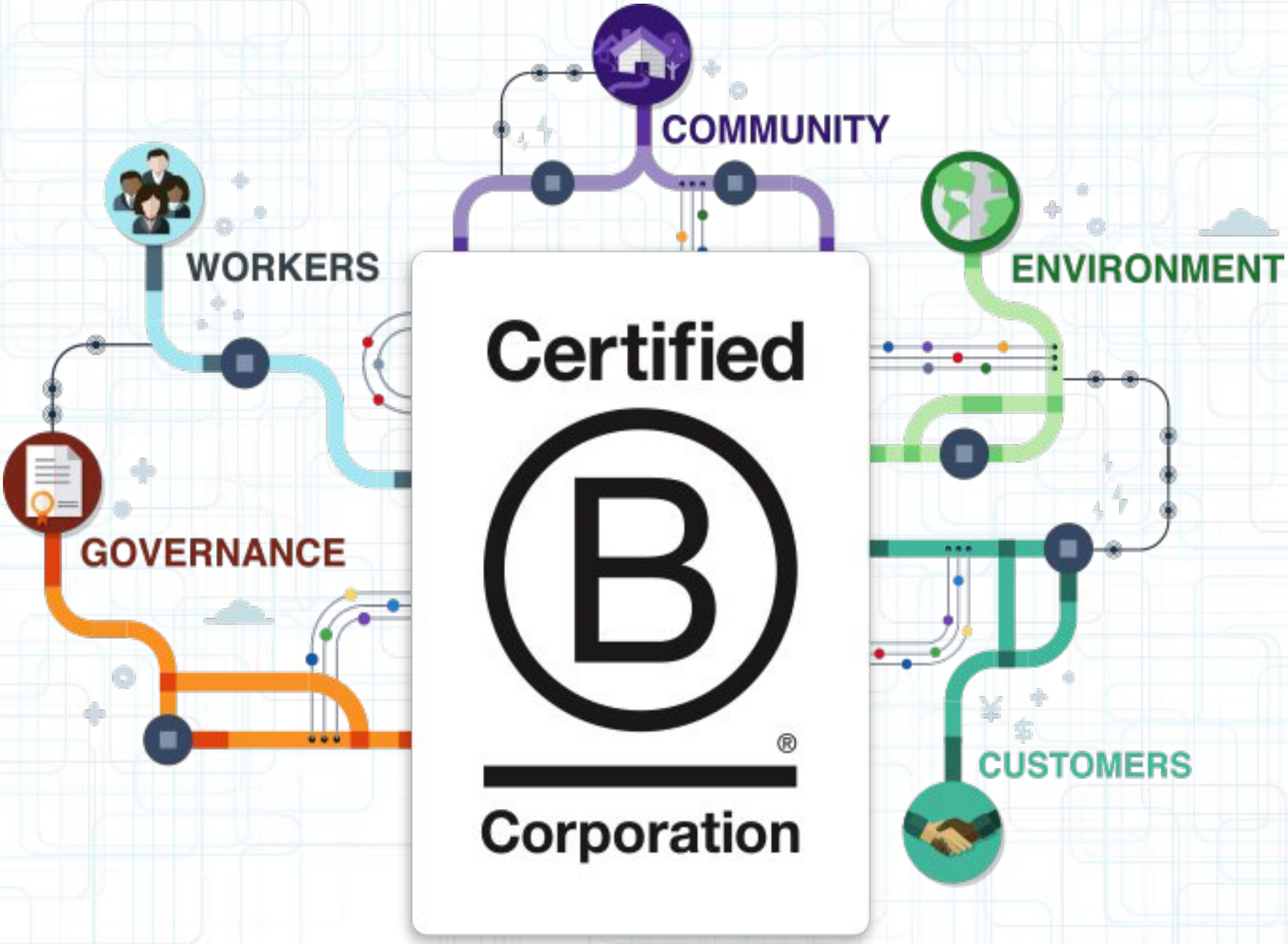
THREDUP
Managed marketplace for all brands—from GAP to Gucci.

The RealReal
Managed marketplace for luxury and designer brands.

POSHMARK
Peer-to-peer marketplace focused on social commerce.

Sustainability and "Going Green" has become very popular and companies have taken notice. The most sustainable action you can take is by not buying anything in the first place, but we all must eat and enjoy life so when we do shop it is important to be vigilant of "Greenwashing".

Holding Corporations Accountable



SUSTAINABLE SHOPPING

The choices we make at the checkout can have a considerable impact on our sustainable future. Showing retailers and manufacturers that we want sustainable options will create more demand for them!

When shopping for food and groceries, electrical appliances or household furniture, there are environmentally friendly choices. Whether it's an impulse buy or a once-in-a-decade purchase, your choice makes a difference.

OPT FOR ENERGY EFFICIENCY

If you're buying a TV, washing machine, refrigerator, dishwasher or oven, buy the most energy and water efficient model you can afford. Look for the Energy Efficient Rating – **more stars means more energy efficient and potentially more savings.**

BUY RECYCLED

Consider recycled, pre-loved furniture and wooden products. If you can't, then choose sustainably sourced wood. Look for the Forest Stewardship Council (FSC) label.

SHOP LOCAL

Wherever possible, buy local, seasonal produce that hasn't crossed the globe to get to you – so there is less of a carbon footprint.

GO NATURAL

Choose biodegradable products that have less negative impacts on the soil and water system after you've finished using them. Or try natural alternatives!

LESS MEAT

Start with at least one meat-free day a week we can reduce our environmental impact exponentially with this simple switch.

HELP OUR ORANGUTANS

Up to half of all products in our supermarket baskets - like baked goods, cosmetics, confectionery and chocolate - contain palm oil. Look for products that use certified sustainable palm oil. Go to our scorecard to learn which companies buy and use certified sustainable palm oil in their products.

AVOID LANDFILL

Landfills release large amounts of methane, which contributes to climate change. Buy products with minimal packaging and look for the recycle trademark on any packaging.

BYO BAG!

REDUCE WASTE

Use your own bag, instead of the plastic or paper ones given away by stores.

BE INFORMED

Look for the logos!
When buying seafood, look for the Marine Stewardship Council (MSC) or the Aquaculture Stewardship Council (ASC) logos so you know your seafood comes from well managed sources. Check out the Sustainable Seafood App.

If eco-labelled goods are not available from your local shops, ask for them. Good businesses listen to their customers.

For more information on how to shop sustainably and ethically get hold of Australia's Ethical Shopping Guide

Sustainability: Re-thinking Waste

1

REFUSE

Single-use plastic

2

REDUCE

The amount of plastic you use

3

REUSE

Containers and plastic bottles

4

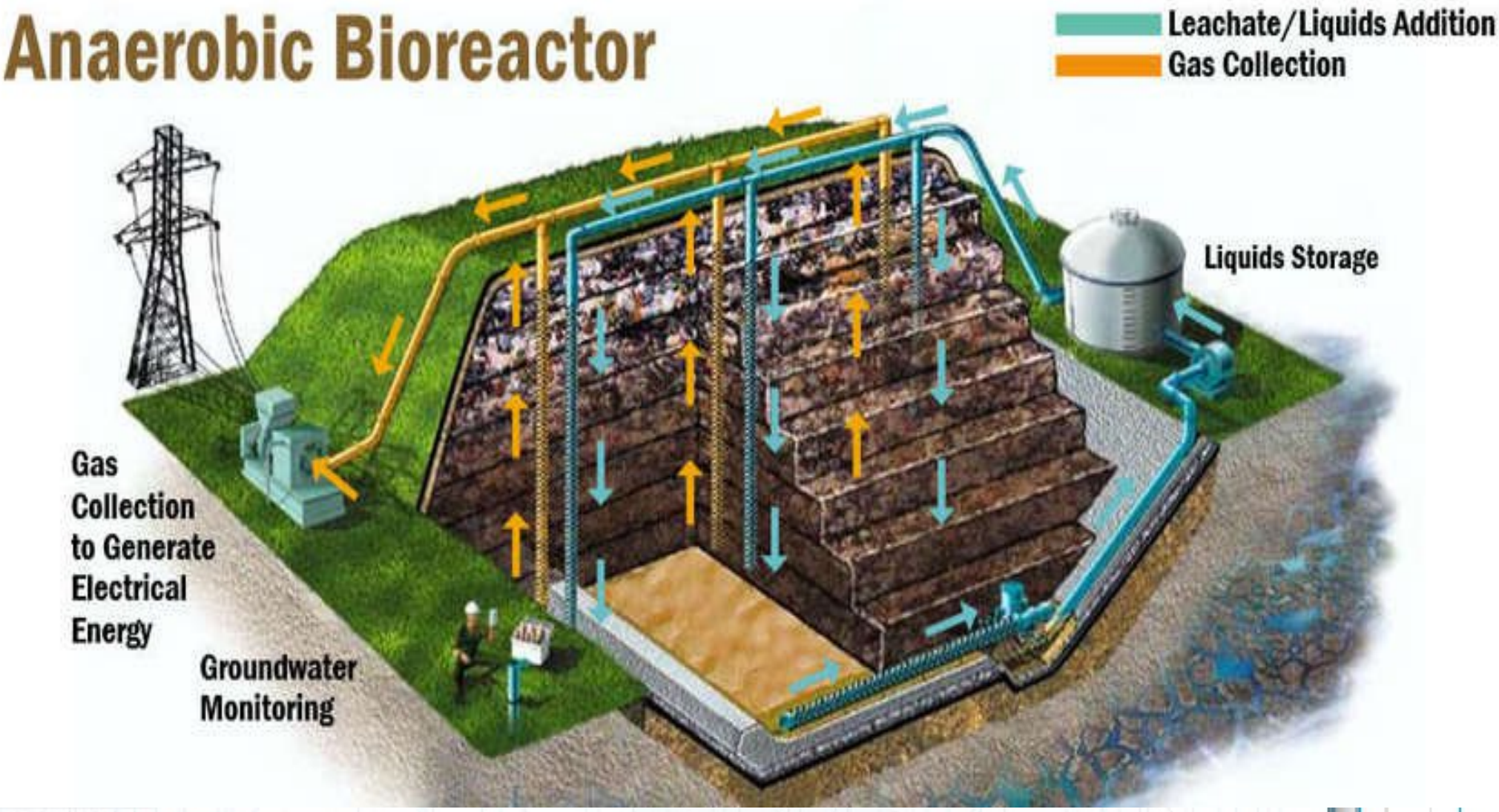
RECYCLE

Plastic you cannot reuse

5

RE-THINK

The products you buy

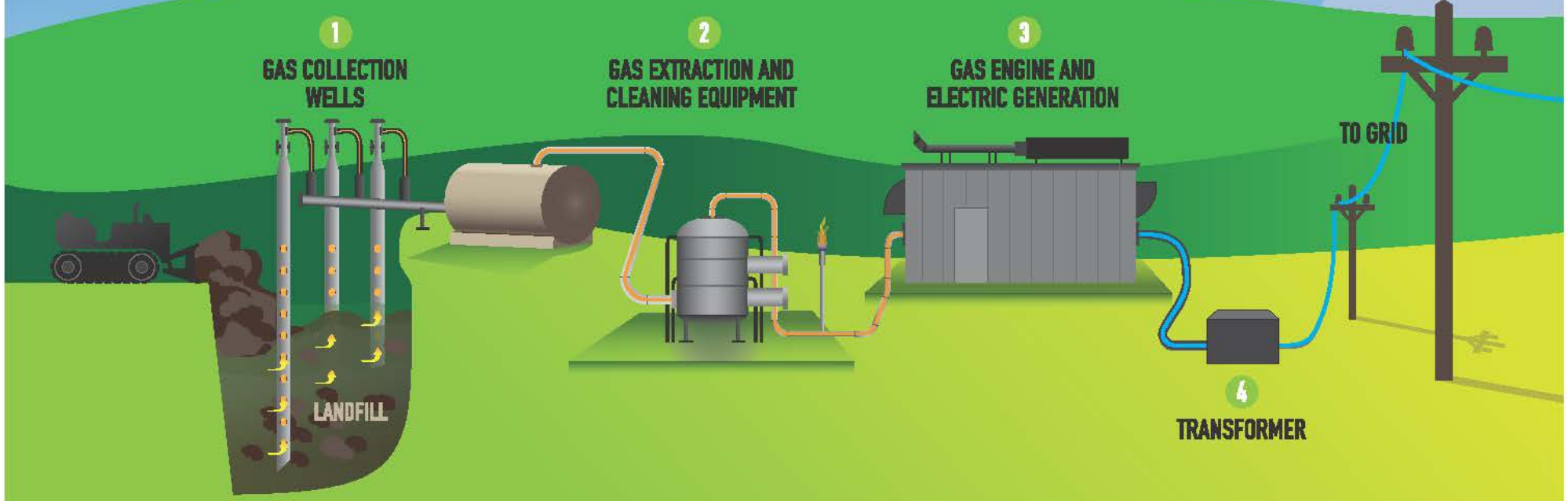


Landfills re-imagined as sources of fuel and as a site for mining operations to recovery precious metals and more...

https://drawdown.org/solutions/landfill-methane-capture

How methane from landfills becomes clean power.

As solid waste decomposes, landfill gas is released consisting of approximately 50% methane gas. Here's how the methane is turned into electricity.



1. A series of wells are drilled into the trash where landfill methane gas is generated.

2. The gas is then piped into a series of chambers where it is "cleaned"—dehumidified, filtered and compressed.

3. High-intensity engines burn almost all of the gas, turning it into electricity. A flare safely eliminates any trace amounts of excess gas.

4. A transformer steps up the voltage of the gas-produced energy for transmission onto the power grid for eventual distribution to cooperative member distribution systems.

Recycling: A Last Resort

PLASTICS AND U.S. RECYCLING RATES

KEY: MASS PRODUCED PERCENTAGE RECYCLED

Figures for 2012; Source: U.S. EPA 2014

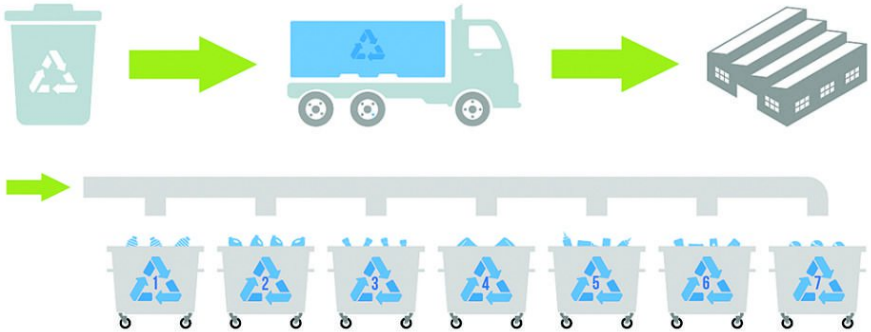
1 PETE	POLYETHYLENE TEREPHTHALATE	4.5 BILLION KG	19.5%
2 HDPE	HIGH-DENSITY POLYETHYLENE	5.5 BILLION KG	10.3%
3 PVC	POLYVINYL CHLORIDE	0.9 BILLION KG	0.0%
4 LDPE	LOW-DENSITY POLYETHYLENE	7.4 BILLION KG	5.3%
5 PP	POLYPROPYLENE	7.2 BILLION KG	0.6%
6 PS	POLYSTYRENE	2.2 BILLION KG	0.9%
7 OTHER	OTHER PLASTICS	DATA UNAVAILABLE	0.0%

THE RECYCLING PROCESS

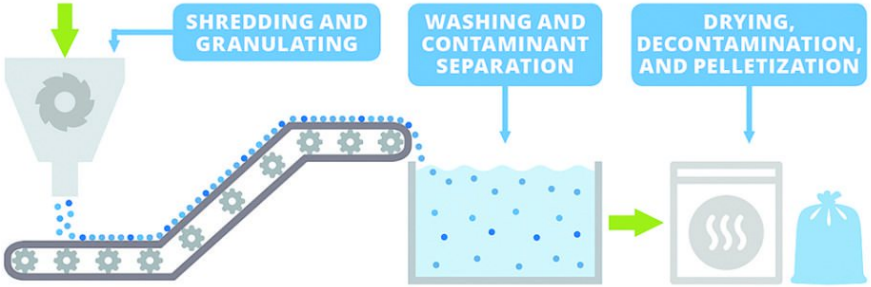
6,300 BILLION KG PLASTIC WASTE GENERATED

567 BILLION KG PLASTIC WASTE RECYCLED

Worldwide 1950–2015; Source: *Sci. Adv.* 2017, DOI: 10.1126/sciadv.1700782



Plastic must be sorted by type before it can be recycled. This is done by hand, by selectively dissolving mixtures, or with techniques such as near-infrared spectroscopy and electrostatic separation.



Washing removes dirt and labels, and density separation removes contaminants. During drying, recyclers separate plastics by color using fluorescent or UV light. The pellets produced at the end of the process can be redistributed to make new plastic products.

PERIODIC GRAPHICS

WHAT GOES IN THE GREEN CART?

PAPER

CARDBOARD OK
CLEAN PIZZA BOXES OK

METAL CANS

LABELS OK

GLASS
BOTTLES AND JARS

METAL LIDS OK - PLACE IN BIN SEPARATELY
LABELS OK

CARTONS

DISCARD STRAWS AND CAPS

PLASTIC BOTTLES/JUGS

EMPTY, CRUSH AND REATTACH CAP/LID
LABELS OK

NO
BATTERIES
PLASTIC BAGS
CLOTHING

https://drawdown.org/solutions/recycling

city of CINCINNATI RECYCLES


RAW MATERIALS
DESIGN
PRODUCTION, REMANUFACTURING
DISTRIBUTION
CONSUMPTION, USE, REUSE, REPAIR
COLLECTION
RECYCLING
CIRCULAR ECONOMY
RESIDUAL WASTE

Repurposing / “Upcycling”

FINALIST #5

Lea Mose Svendsen
Denmark

Upcycled materials used:
Fringe trousers made from reconstructed secondhand shirts, knitted jumper made from cut-and-sew waste.

Alternatives to “Fast Fashion”

KRITI TULA,
designer of upcycled-only brand Doodlage

Tula designs using industrial waste generated from post-production waste, dead stock and rejected shipments

“Many fast-fashion brands will be propelle to start small sustainable lines and luxury brands will be convinced to change their ways of productio and fabric choices”

What do these styles all have in common? Hint: They were once something else.

DAVID ABRAHAM,
designer, Abraham & Thakore

A&T has designed upcycled lines using fabric cut-offs, antique brocade and ribbons from discarded hospital X-rays and films

“Upcycling is a creative challenge that can bring interesting results. Wasting should not ever be an option”

Mats can be woven with plastic bags!

Creative Reuse, continued...

Exploring Sounds Kids can Make With Shakers

Repurposed jars make excellent planters, wind chimes and more!

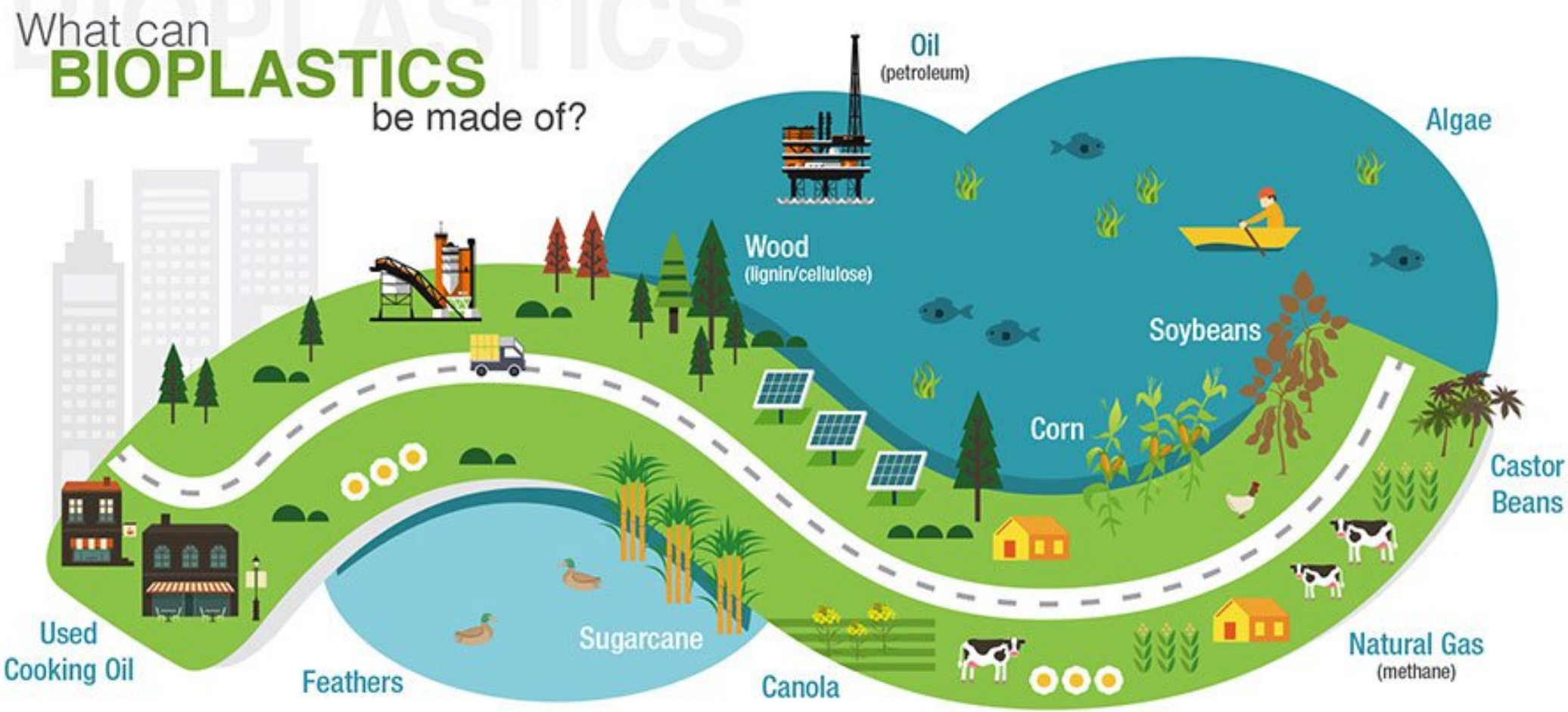
REPAIR FAIR

Reducing Waste with Plastic Alternatives

Biodegradable bioplastics...

Bioplastics

Vegetable and Bacteria Based



0.96–3.8
GIGATONS
CO2 EQUIVALENT
REDUCED / SEQUESTERED
(2020–2050)

$25.47–88.15
BILLION $US
NET FIRST COST
(TO IMPLEMENT SOLUTION)

$0
BILLION $US
LIFETIME NET
OPERATIONAL SAVINGS

https://drawdown.org/solutions/bioplastics

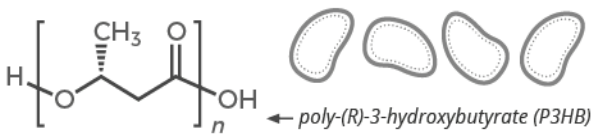
THE CHEMISTRY OF BIODEGRADABLE PLASTICS

COMMON BIOPOLYMERS & SOURCES

POLYLACTIC ACID (PLA)

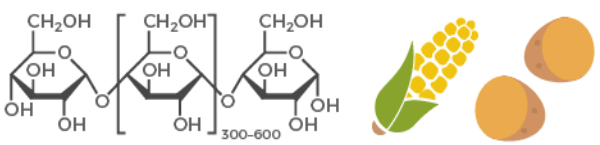
Obtained from fermented plant starch from corn, cassava, sugar cane or sugar beet.

POLYHYDROXYALKANOATES (PHAs)



Extracted from bacteria, which produce it via the fermentation of sugar or lipids.

THERMOPLASTIC STARCHES (TPS)



Starches from plant materials are heated with water, then mixed with plasticisers or other polymers.

EVERYDAY USES OF BIOPOLYMERS

Biodegradable coffee cups are paper cups with a PLA lining to make the paper waterproof.

PLA has the second largest production volume of any biopolymer (behind TPS). It is also used in plastic films, bottles, and food containers.

PLA and TPS both find use in the manufacture of plastic cutlery that's biodegradable.

TPS is also used in food waste bags and some magazine wrappers. PHAs have fewer uses, but have medical uses such as in surgical sutures.

ADVANTAGES AND DISADVANTAGES

GLOBAL PLASTIC PRODUCTION

Use of bioplastics is increasing, but they still account for less than 1% of the global plastics market (as of 2018).

CONDITIONS FOR BIODEGRADING

Compostable plastics need specific conditions to break down – and take much longer to do so completely if they go to landfill instead of being recycled. However, they still break down faster than conventional plastics.

Biodegradable plastics are more expensive than plastics derived from fossil fuels on weight basis, and require land to grow raw materials. However, the greenhouse gas emissions associated with their production are lower.


BAMBOO
PAPER STRAWS
KIKKERLAND
Biodegradable and compostable


PLANET POOP®
Because Plastic Stinks
120
Pet Waste
BAGS
100% Compostable
This box is made of recycled material
Lab tested and certified in the USA
COMPOSTABLE
IN INDUSTRIAL FACILITIES
BPI
2 Months' Supply
2 bags per day
GREAT for BIG dogs, too
Cornstarch Earth-Friendly


TO GO WARE
REUSABLE BAMBOO
BAMBOO
TO GO WARE
REUSABLE BAMBOO
UTENSIL SET
TO GO WARE

Hemp in Today's Economy:

Paper, composites, rope and much, much more!

Loss of Foreign Rope Supply Partly Met by State Industry

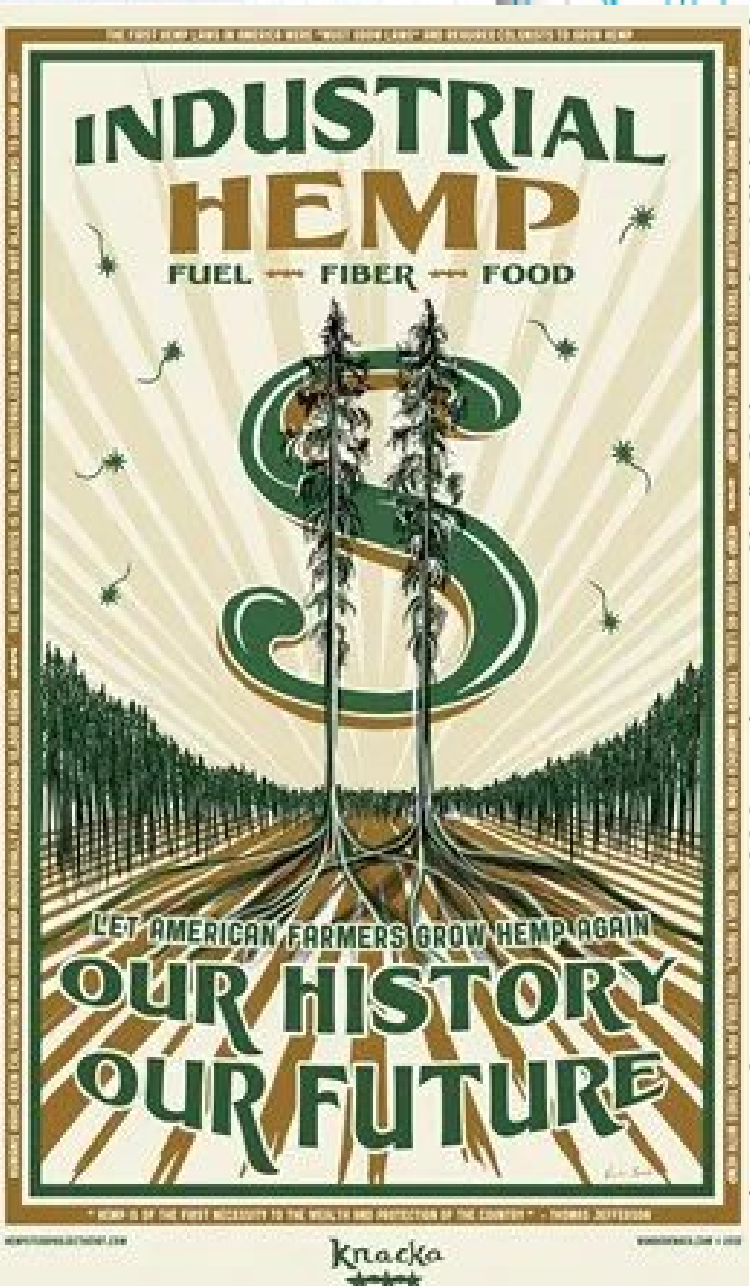
By JOHN NEWHOUSE
(State Journal Staff Writer)

When the Japanese captured the Dutch East Indies, the Philippines, and threatened to take India—the three mate
fibers for
faced a
sup

WINONA'S HEMP & HERITAGE FARM
WWW.WINONASHEMP.COM

8' to 18' tall in 90 days!

Bring back hemp mills!



THE MANY USES OF HEMP

HEMP PLANT HAS UP TO 50,000 USES

STALK

FIBER
- TEXTILES
- INSULATION
- ROPE

HURDS
- PAPER
- ORGANIC COMPOST
- ANIMAL BEDDING
- FIBER BOARD

SEEDS

OIL
- COOKING/SEASONING OIL
- DIETARY SUPPLEMENT
- BODY CARE PRODUCTS
- FUEL
- PAINT

SEED CAKE
- FLOUR
- BEER
- ANIMAL FEED

HEMP NUT
- MILK/DAIRY
- BAKERY
- GRANOLA
- PROTEIN POWDER

ROOTS

- MEDICINE
- ORGANIC COMPOST

LEAVES/FLOWERS

- ANIMAL BEDDING
- MULCH/COMPOST
- MEDICINE/RECREATION

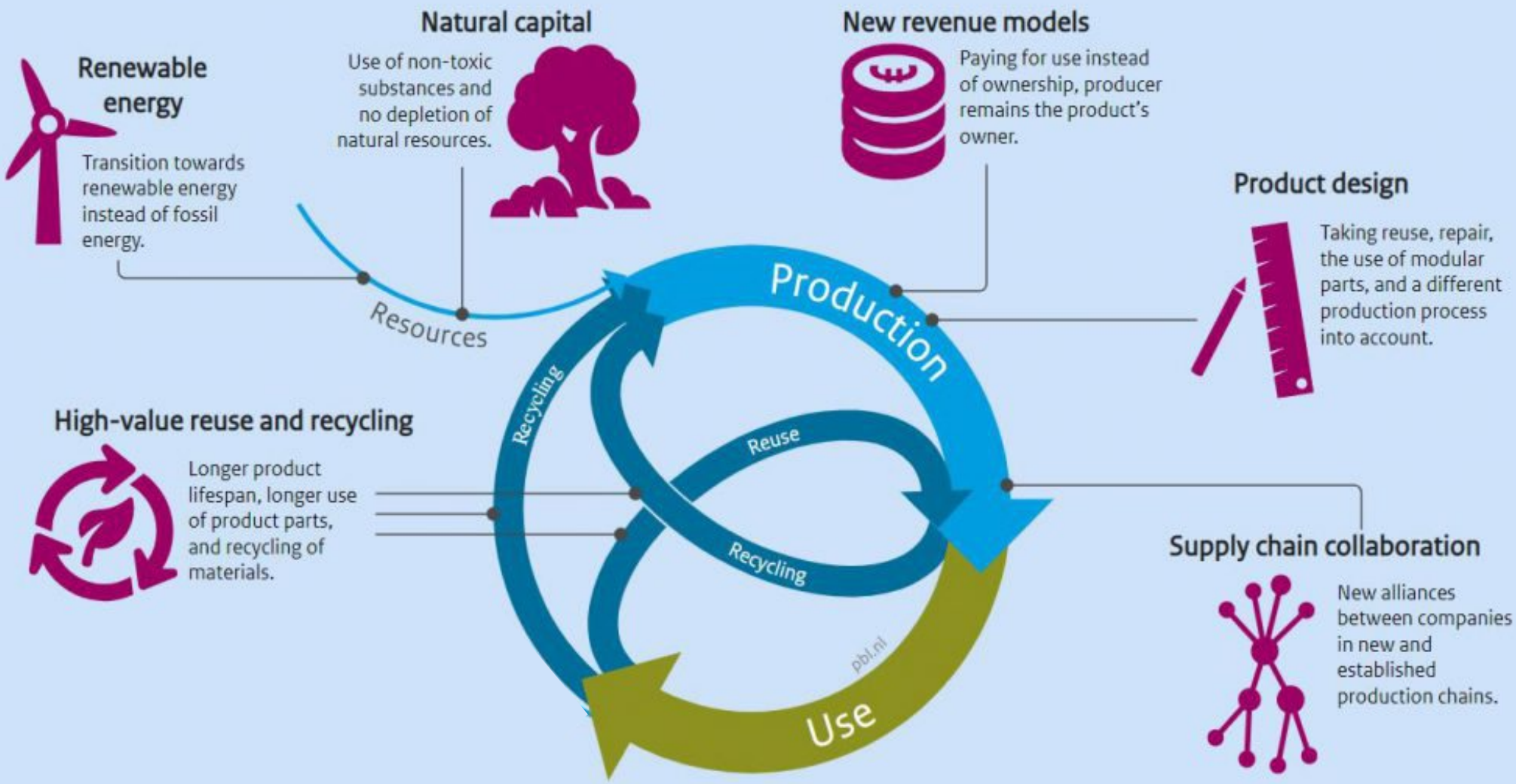
The Most Important Step in Reducing Waste: Refuse!

3/9/20 Cincinnati has finally proposed a Plastic Bag Ban!

https://www.wlwt.com/article/new-proposal-would-ban-single-use-plastic-bags-in-cincinnati/31327158

and, https://www.plasticbaglaws.org/

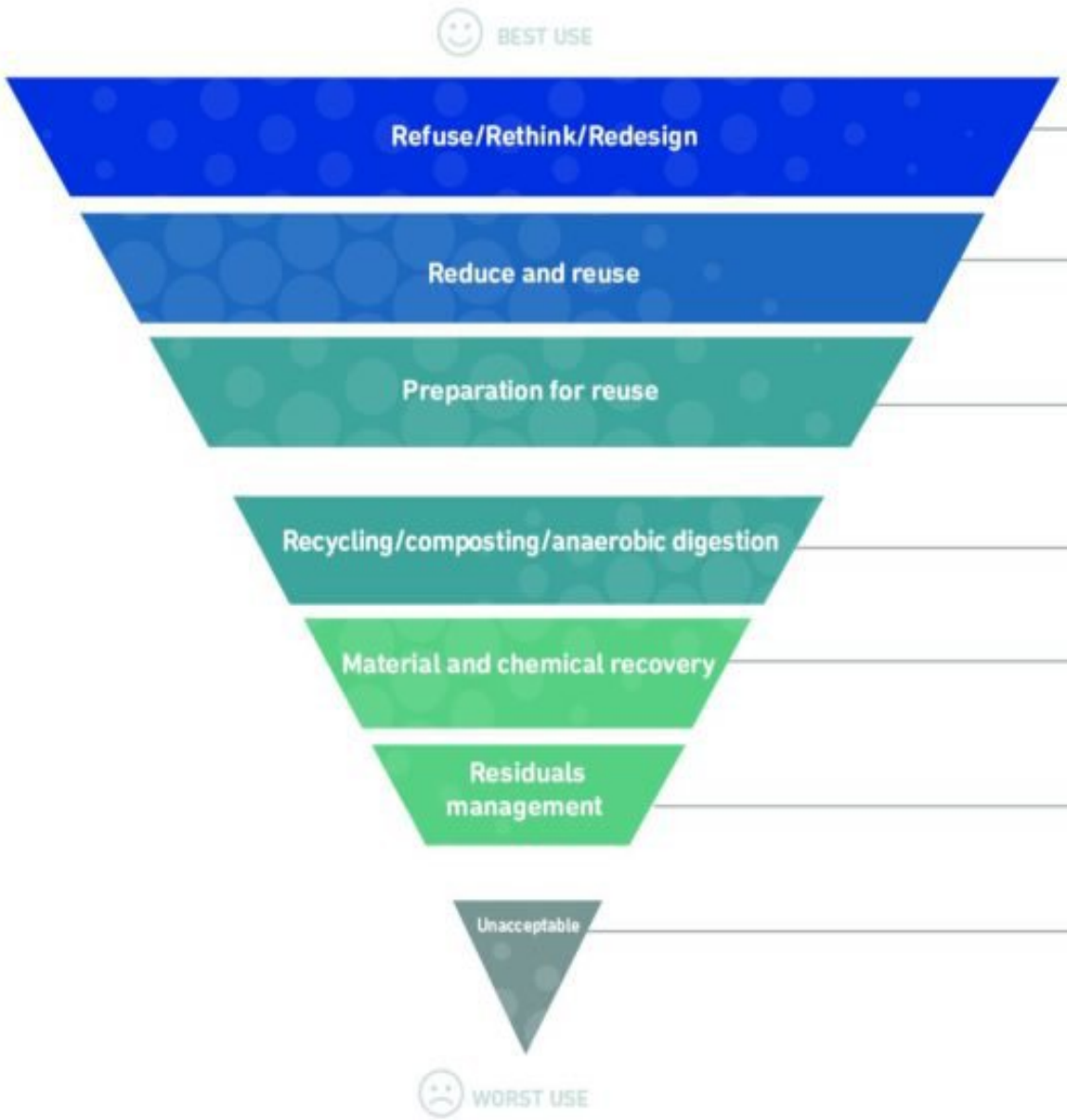
Elements of A Circular Economy



And, remember, to save money, help save the planet and, ultimately, be happier, we must first refuse to buy products before we reduce or recycle...

Zero Waste Hierarchy

ZERO WASTE EUROPE



- Refuse what we don't need and change the way we produce and consume by redesigning business models, goods and packaging in order to reduce resource-use and waste
- Minimise the quantity, toxicity and ecological footprint of consumption. Use products or components, that are not waste, for the same purpose for which they were conceived or repurpose them for another use that doesn't reduce their value
- Check, clean or repair products or components of products that have become waste so that they can be re-used without any other pre-processing
- High quality material recovery from separately collected waste streams
- Technologies to recover materials from mixed waste and discards from sorting processes into new building blocks for high quality applications
- What cannot be recovered from mixed waste is biologically stabilised prior to landfilling
- Options that don't allow for material recovery, have high environmental impact and create lock in effects that threaten the transition to Zero Waste: waste to energy incineration, co-incineration, plastic to fuel, landfilling of non-stabilised waste, gasification, pyrolysis, illegal dumping, open burning and littering