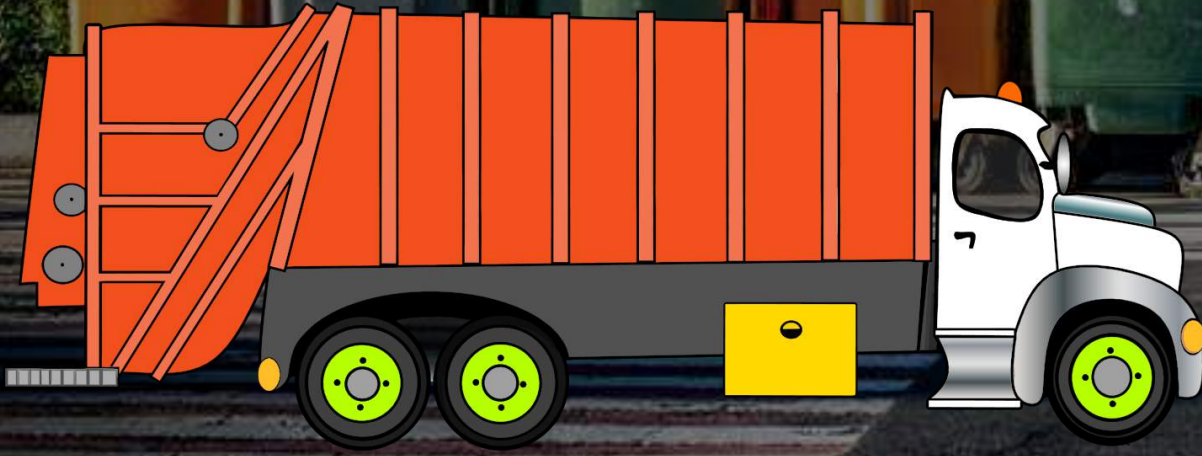


WHERE DOES THE TRASH GO?



Group 8:

Uppugunduri Pravali

Rehul Ghag

Nitesh Gupta

AFTER THE PPT YOU'LL KNOW

OVERVIEW

- WASTE GENERATED ALL OVER THE WORLD
- COMPARISON WITH THE US
- COMMON METHODS USED FOR DISPOSAL
- BRIEF ABOUT LANDFILLING

FOOD WASTE

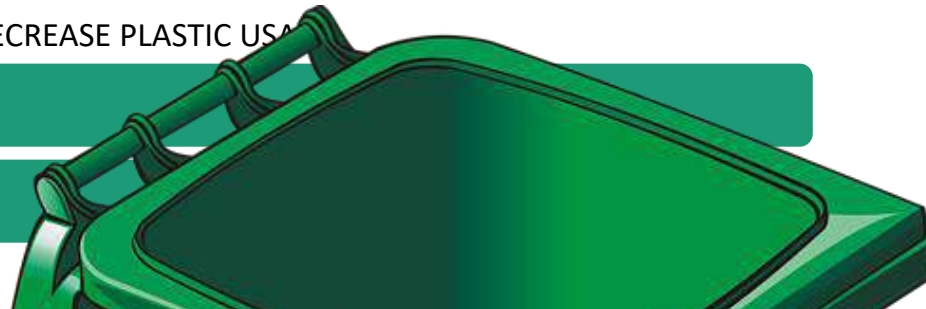
- FOOD WASTE ALL OVER THE WORLD
- COMPARISON WITH THE US
- COMMON WAYS FOOD WASTE IS GENERATED
- COMMON METHODS OF DISPOSAL
- ALTERNATIVE AND EFFICIENT WAYS OF DISPOSAL

PLASTIC POLLUTION

- PLASTIC WASTE ALL OVER THE WORLD
- COMPARISON WITH THE US
- COMMON WAYS PLASTIC WASTE IS GENERATED
- COMMON METHODS OF DISPOSAL
- MEASURES TAKEN BY COUNTRIES TO DECREASE PLASTIC USE

RESOURCES

SUMMARY AND LEARNINGS



Overview

Food Waste

Plastic Pollution

Resources



Solid Waste Generation all over the World

WE GENERATE MORE THAN **2.1 BILLION TONS** OF MUNICIPAL SOLID WASTE PER YEAR ALL OVER THE WORLD, ENOUGH TO **FILL 822,000 OLYMPIC-SIZE SWIMMING POOLS**.

WHILE THE US HAS JUST ABOUT **4% OF THE WORLD'S POPULATION**, IT MANUFACTURES **12% OF THE WORLD'S MUNICIPAL SOLID WASTE (MSW)**

AMERICANS MANUFACTURE MORE THAN **THREE TIMES AS MUCH WASTE AS THEIR CHINESE COUNTERPARTS**.

← → Countries such as USA, China and India collectively accounted for approximately 70 percent of the Total Waste Generation in 2018.

1 of 2

Municipal Solid Waste Generated per Country in tons

3989.49 | 258,000,000



Source: World Bank

Overview

Food Waste

Plastic Pollution

Resources



Nearly 1/3rd of the World's Food Produce goes Waste

AT **2.8 TRILLION POUNDS**, THAT IS SUFFICIENT FOOD TO TAKE CARE OF **THREE BILLION INDIVIDUALS**.

IN THE UNITED STATES, MORE THAN **30% OF OUR FOOD**, ESTIMATED AT **\$162 BILLION YEARLY**, **ISN'T EATEN**.

AN AMERICAN FAMILY OF FOUR TRASHES A **\$1,484 WORTH** OF CONSUMABLE FOOD A YEAR.

Annual Food Waste Per Capita (2018)

2.2 54.07 305.93 157.8 209.68



Overview

Food Waste

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Plastic generation across the world in 2010

ANNUAL GLOBAL PRODUCTION OF PLASTICS HAS INCREASED MORE THAN **200-FOLD** SINCE 1950

TOTAL OF **7.8-8.3 BILLION TONS** OF PLASTIC WERE PRODUCED SINCE THE EARLY 1950S. **60% OF THAT PLASTIC HAS ENDED UP IN LANDFILLS**

CHINA IS THE **BIGGEST GENERATOR** OF PLASTIC WASTE PRODUCING APPROXIMATELY **60 MILLION TONS** OF PLASTICS

RESIDENTS OF THE **U.S. PRODUCE MORE PLASTIC WASTE PER PERSON** THAN ANY OTHER NATION GENERATING AN AVERAGE OF **232 POUNDS** OF PLASTIC PER PERSON PER YEAR

Plastic Generation across the world
Total plastic generation by country in 2010, measured in tonnes per year.

0 34.77 59.06



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Food Waste

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As more and more of our cities, towns, and communities ban Styrofoam and plastic bags, Americans are realizing that it's not that hard to live without these environmentally harmful items. And our growing disenchantment with plastic is occurring simultaneously with an entrepreneurial wave of new businesses that eschew conventional packaging—or even any kind of packaging—for their products. While reducing their own waste streams, they're also showing consumers and competing businesses **A NEW WAY FORWARD**, growing the market for zero-waste lifestyles and (one hopes) spawning plenty of imitators.

TACKLING WASTE STARTS WITH PREVENTION. HERE ARE A FEW RESOURCES TO HELP US ACHIEVE MORE SUSTAINABLE LIFESTYLE.

[10 Simple waste free changes that don't cost any money](#)

[Less is more](#)

[EarthEasy](#)

[Shop Package Here](#)

[Zero Waste Lifestyle](#)

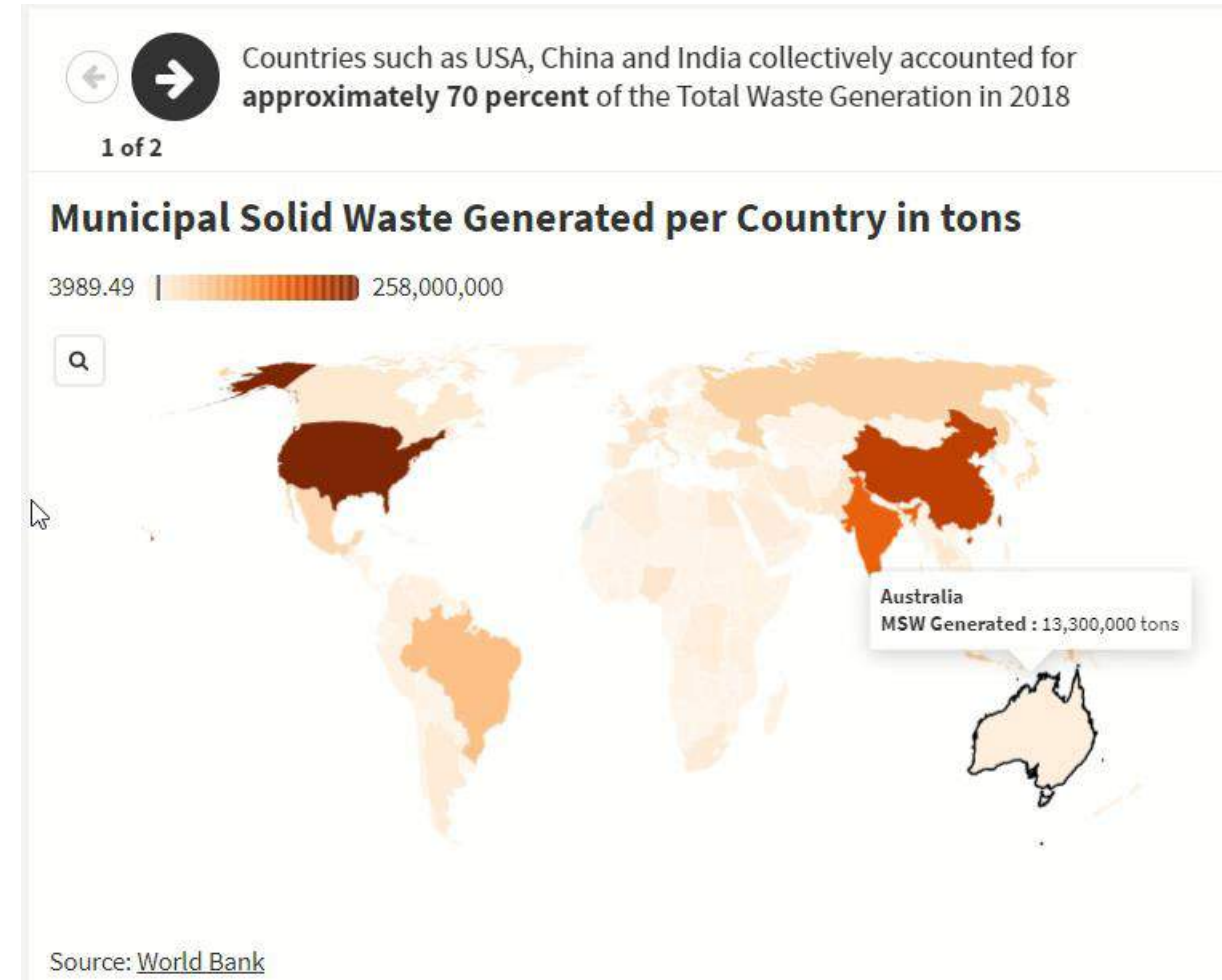


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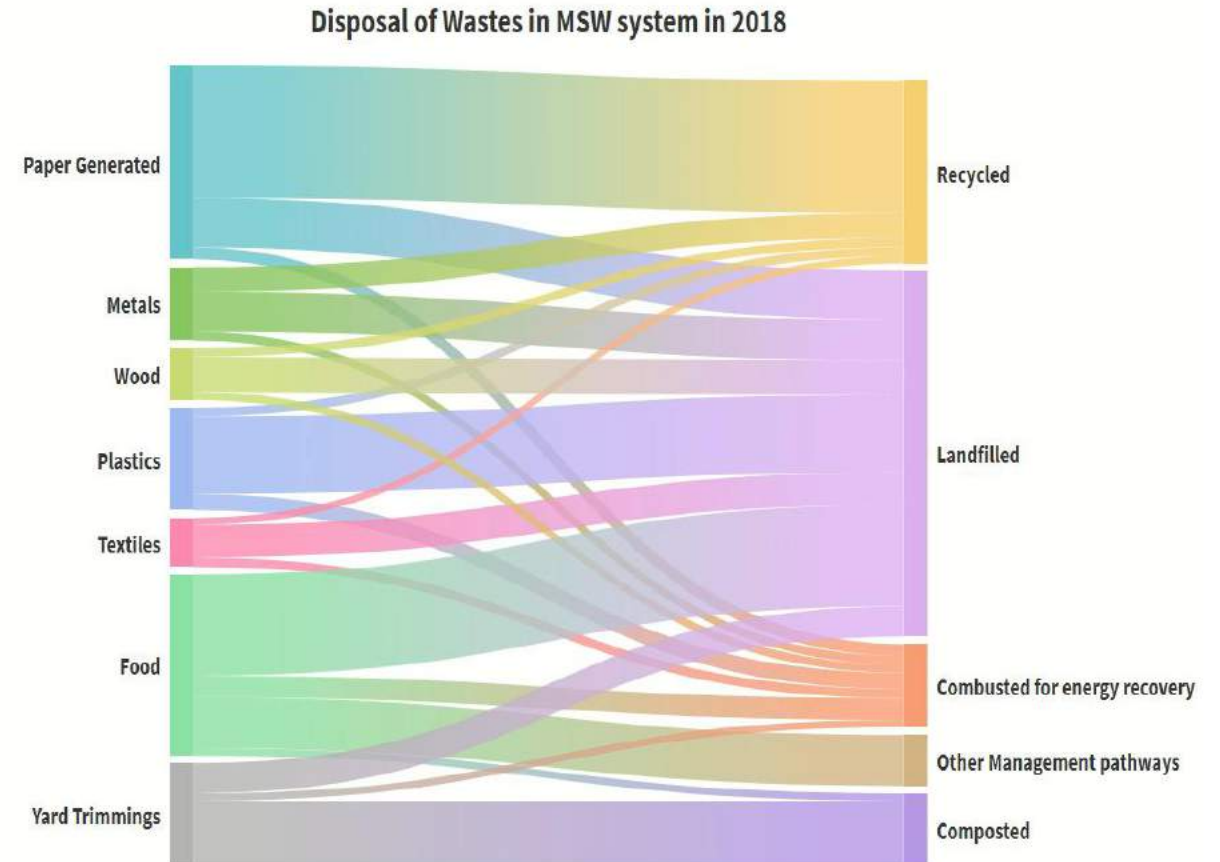


Where does the Trash go after being picked up?

ACCORDING TO EPA, **PAPER AND FOOD** ARE THE MOST FOUND ITEMS IN MSW SYSTEM AND THEY ARE DISPOSED AS SHOWN IN THE **SANKEY CHART** FOR THE YEAR 2018.

LANDFILLING IS THE **MOST COMMON** METHOD OF DISPOSAL.

THERE ARE MANY OTHER **ALTERNATIVE** WAYS OF DISPOSAL TO GAIN SOME VALUE OUT OF WASTE, SUCH AS **COMPOSTING, COMBUSTION FOR ENERGY RECOVERY**.





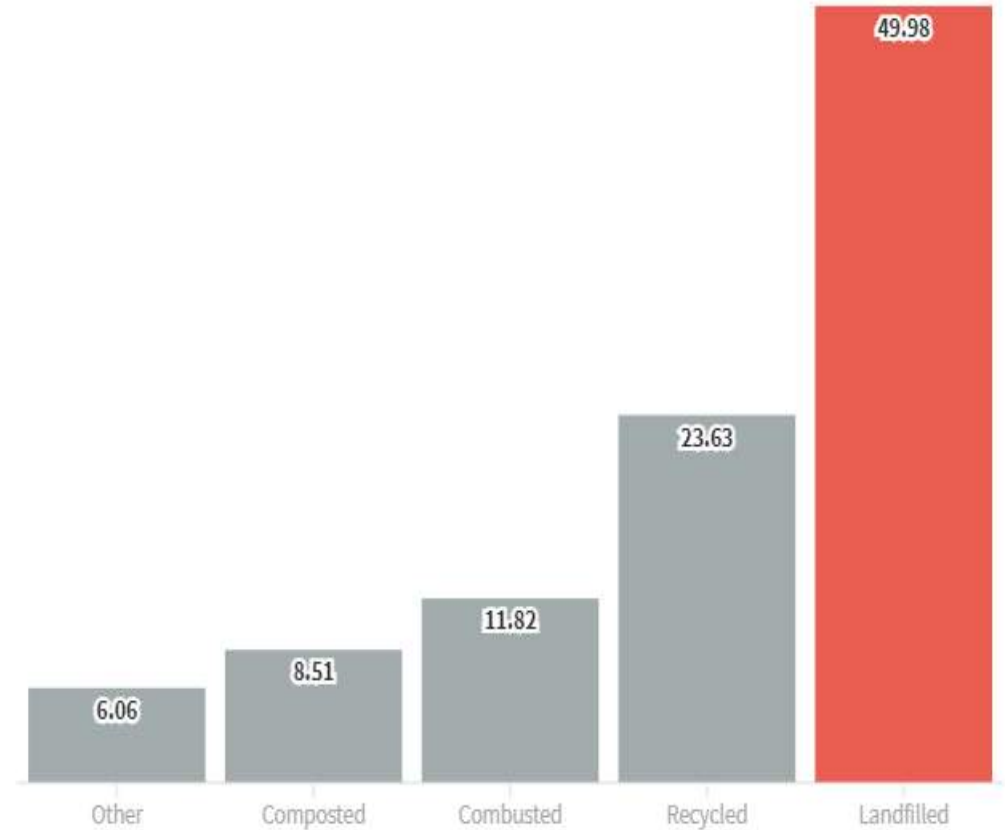
Landfilling

LANDFILLS ARE MAINTAINED AND REGULATED BY THE ENVIRONMENTAL PROTECTION AGENCY. LANDFILLS ACCEPT **MSW** AND OTHER MATERIALS **FOR A FEE**, LAYER IT IN AN EXCAVATED HOLE IN THE GROUND, COVER IT WITH SOIL, AND LEAVE THE WASTE TO DECOMPOSE.

TRAPPED WITHOUT AIR, ORGANIC MATERIALS RELEASE **METHANE, 34 TIMES MORE EFFECTIVE AT TRAPPING HEAT THAN CARBONDIOXIDE**. HENCE, A MAJOR CONTRIBUTOR TO **CLIMATE CHANGE**.

HOWEVER, ACCORDING TO THE EPA, IN 2018, **ALMOST HALF** OF THAT TRASH WENT TO LANDFILLS IN THE US.

50% of MSW is landfilled



Source: [US Environmental Protection Agency](#)



Nearly 1/3rd of the World's Food Produce goes Waste

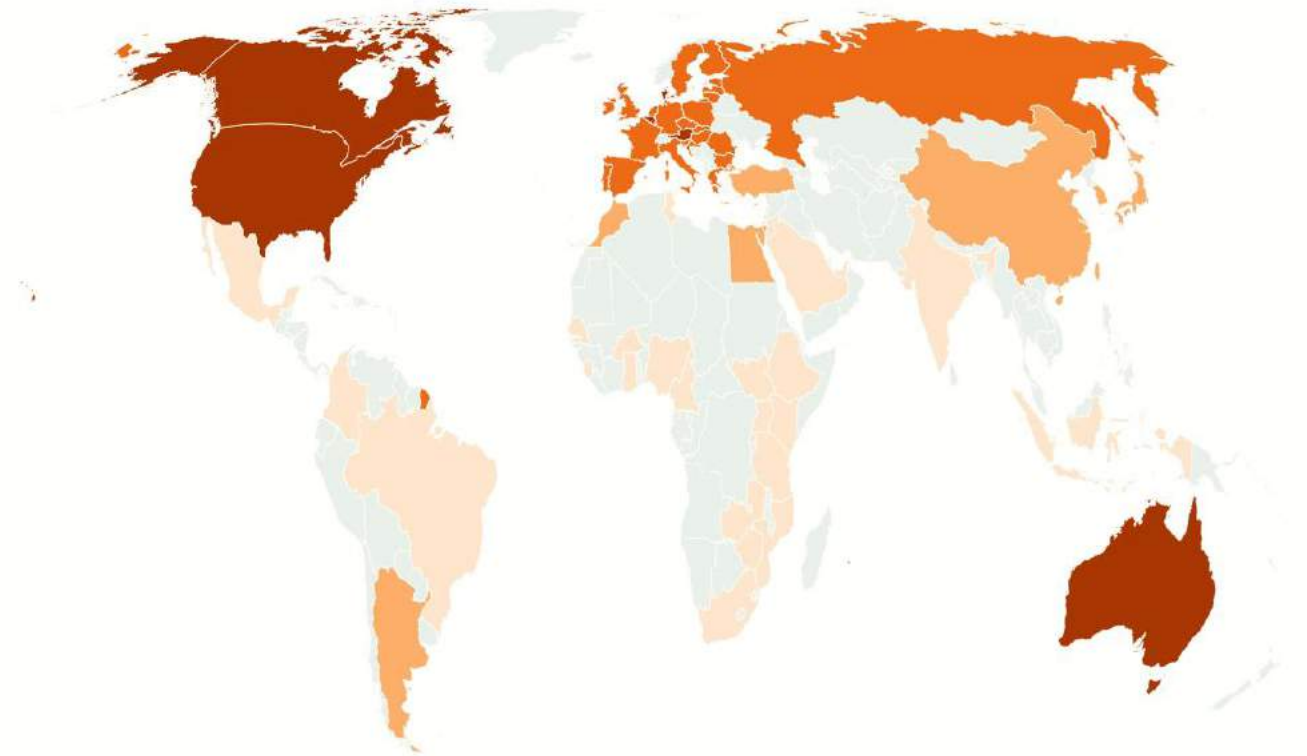
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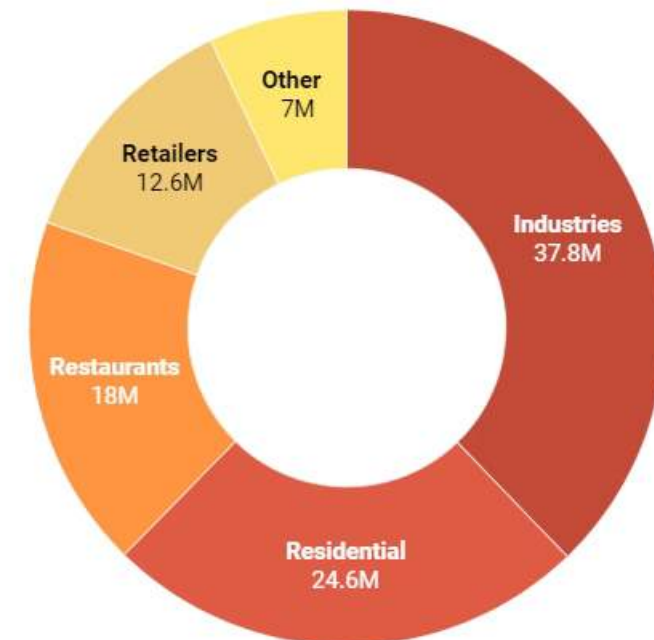
How is Food Waste Generated?

FOOD WASTE BEGINS ON THE FARM AND CAN BE DRIVEN BY A WHOLE HOST OF FACTORS BEYOND THE GROWER'S CONTROL. **WEATHER, PESTS, DISEASE, LOW MARKET PRICES OR HIGH LABOR COSTS** ALL LEAD TO FOOD LEFT IN THE FIELD.

RETAIL STORES ROUTINELY **OVERORDER**, FOR FEAR OF RUNNING OUT OF A PARTICULAR PRODUCT, LOSING CUSTOMERS. EVEN IF SOMETHING IS ONLY **SLIGHTLY BLEMISHED**, YOU'LL FIND THAT GROCERY STORES WILL TAKE IT OFF THE SHELVES BECAUSE THEY KNOW **IT WON'T SELL**.

CONSUMERS OVERBUY BECAUSE RELATIVELY CHEAP AND SEDUCTIVELY PACKAGED FOOD IS AVAILABLE AT NEARLY EVERY TURN. **MISINTERPRETING EXPIRATION LABELS** IS ALSO A CAUSE FOR WASTAGE.

Generation of Food Waste across Sectors in 2018 in tons



Source: United States Environmental Protection Agency • [Get the data](#) • Created with [Datawrapper](#)



Misinterpreting Food Labels

Spoiled or Stale Food is the Top Reason Foods end up in Garbage



MORE THAN 80 PERCENT OF AMERICANS DISCARD PERFECTLY GOOD, CONSUMABLE FOOD SIMPLY BECAUSE THEY MISUNDERSTAND EXPIRATION LABELS.

LABELS LIKE “**SELL BY**”, “**USE BY**”, “**EXPIRES ON**”, “**BEST BEFORE**” OR “**BEST BY**” ARE **CONFUSING** TO PEOPLE. IN AN EFFORT TO NOT RISK THE POTENTIAL OF A **FOODBORNE ILLNESS**, THEY’LL JUST TOSS IT IN THE GARBAGE



How is Food Waste Processed?

FOOD DONATION

ANIMAL FEED

LAND APPLICATION

ANAEROBIC DIGESTION

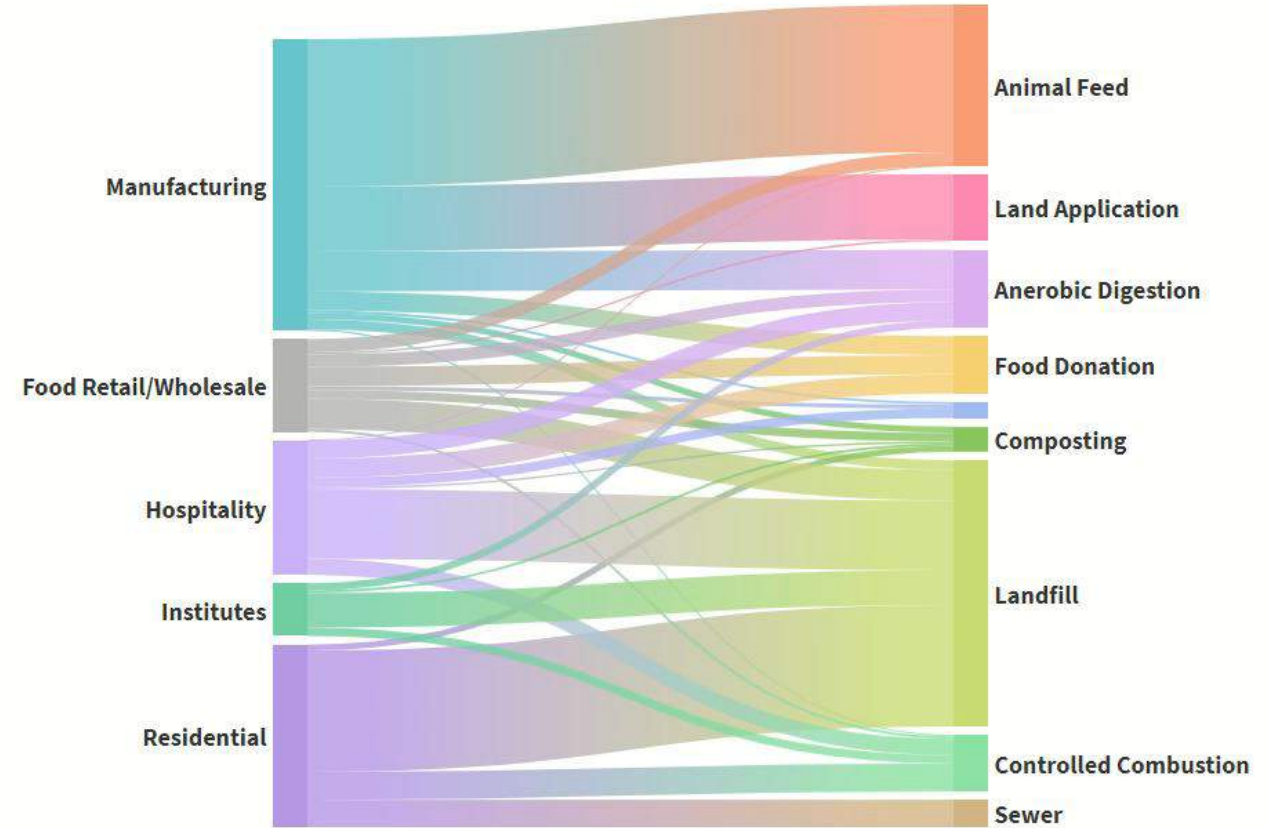
COMPOSTING

CONTROLLED COMBUSTION

SEWER

LANDFILLING

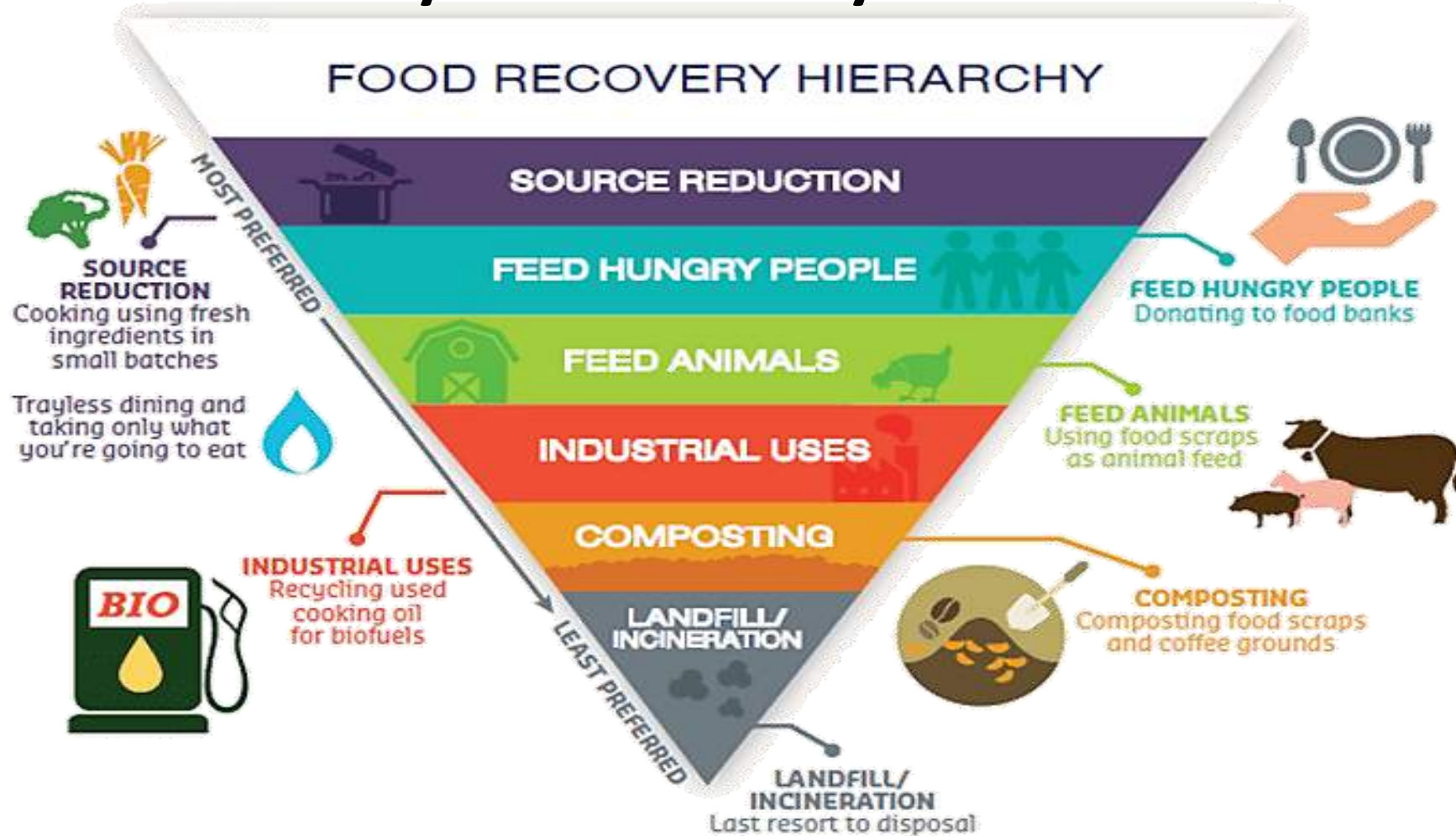
Management Estimates of Food Waste across Sectors (2018)



Source: [US Environmental Protection Agency](#)



Alternate ways to effectively Process Food Waste





Plastic generation across the world in 2010

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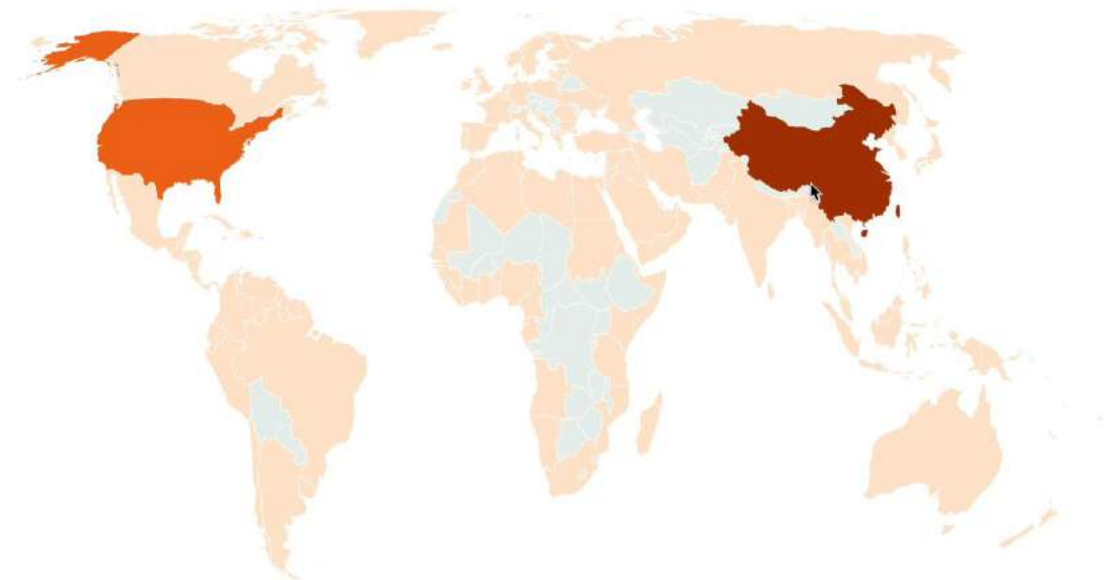
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Total plastic generation by country in 2010, measured in tonnes per year.

0 14.77 59.08

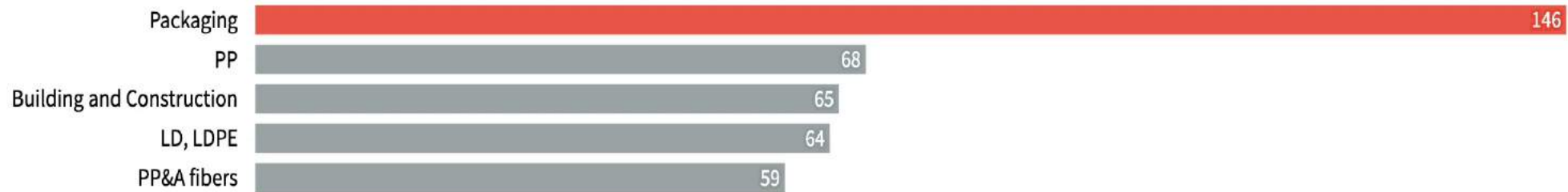




Plastic Waste Generation

Top 5 Industries generating plastic waste in the world, measured in tonnes per year (2015)

Primary plastic production (million tonnes)



Source: ourworldindata.org

THE CONTAINERS AND PACKAGING CATEGORY USED THE MOST PLASTIC AT OVER 146 MILLION TONS IN 2015

PACKAGING WAS THE DOMINANT USE OF PRIMARY PLASTICS, WITH 36% OF PLASTICS ENTERING THE USE PHASE

BUILDING AND CONSTRUCTION WAS THE THIRD LARGEST SECTOR UTILIZING 16% OF THE TOTAL PLASTIC

Plastic Statistics USA 1960-2018



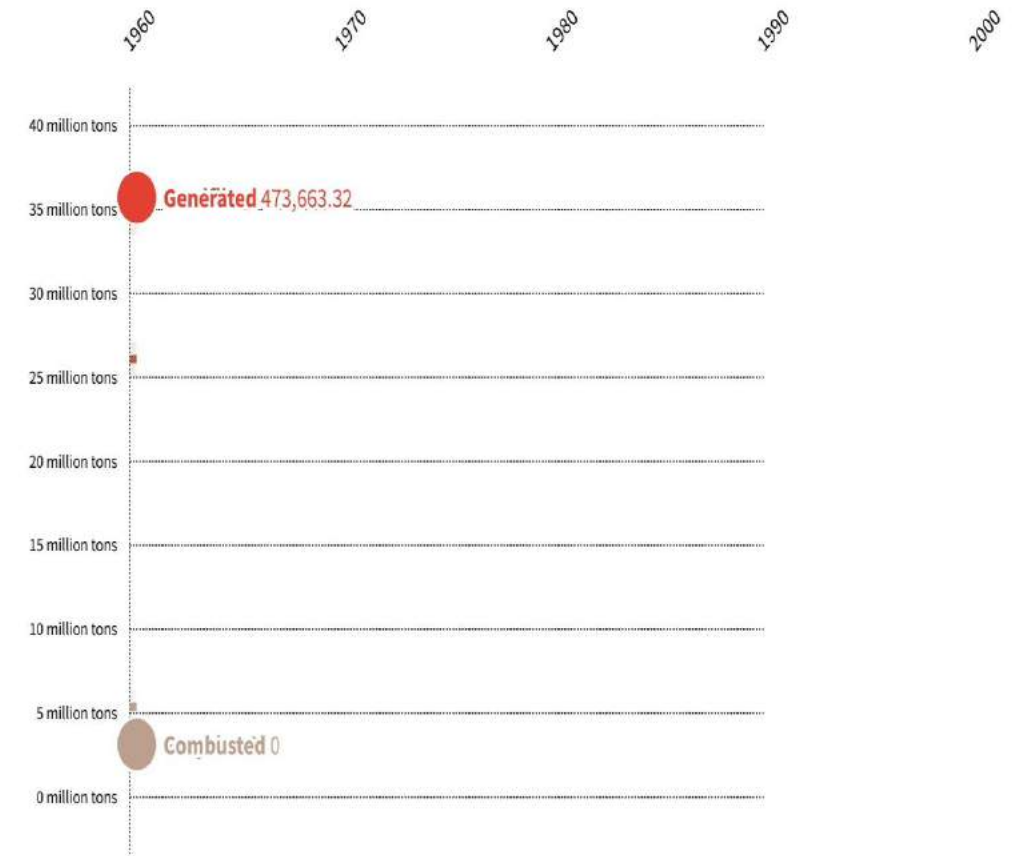
USA IS GENERATING APPROXIMATELY **35 MILLION TONS** OF WASTE FROM 2015 AND LESS THAN **10% OF PLASTICS WASTE GETTING RECYCLED**

APPROXIMATELY, 15% OF PLASTIC GETS COMBUSTED AND MORE THAN **75% OF THE PLASTIC WASTE IS LANDFILLED**

IN 1900, **41% OF THE MATERIALS USED IN THE U.S. WERE RENEWABLE** (E.G., AGRICULTURAL, FISHERY, AND FORESTRY PRODUCTS); BY 1995, **ONLY 6% OF MATERIALS CONSUMED WERE RENEWABLE.**

U.S CONSUMED **57% MORE** IN 2000 THAN 1975. WITH LESS THAN 5% OF THE WORLD'S POPULATION, THE U.S. WAS RESPONSIBLE FOR **ABOUT 1/3RD OF THE WORLD'S MATERIAL CONSUMPTION** IN 1970-1995.

Plastic Statistics USA 1960-2018



Source: [US Environmental Protection Agency](#)



Plastic packaging waste management

IN 2018, THE **RECYCLING RATE** OF GENERATED **PET BOTTLES AND JARS AND HDPE NATURAL BOTTLES** PACKAGING AND CONTAINERS **WAS 30%**

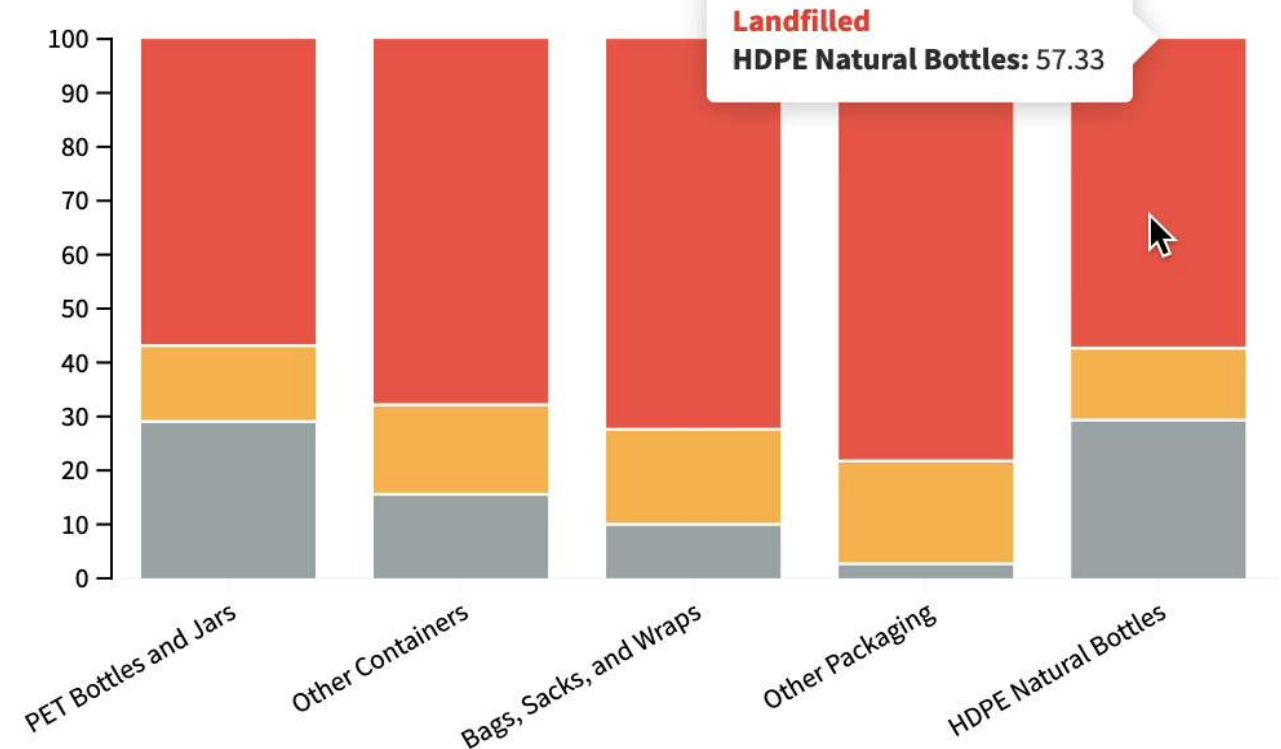
THE **COMBUSTION** OF CONTAINERS AND PACKAGING WAS 7.4 MILLION TONS I.E., **21.5% OF TOTAL COMBUSTION** IN 2018

LANDFILLS RECEIVED 30.5 MILLION TONS (20.9% OF TOTAL LANDFILLING) IN 2018

14.5 MILLION TONS OF PLASTIC CONTAINERS AND PACKAGING WERE GENERATED IN 2018 WHICH IS APPROXIMATELY 5% OF MSW GENERATION

Plastic Packaging USA 2018

■ Recycled ■ Combusted ■ Landfilled

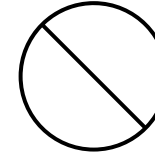


Source: [US Environmental Protection Agency](#)



Measures taken by various countries

BANNING OF SINGLE USE PLASTICS – CANADA, INDIA, CHILE



STRICT MEASURES – RWANDA, KENYA



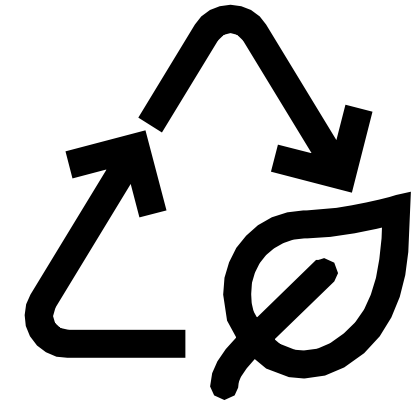
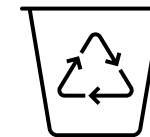
DEPOSIT RETURN SCHEME – GERMANY, NORWAY



OTHER BIO-SOURCED ALTERNATIVE – FRANCE, LUXEMBURG



IMPROVED THE RECYCLING PROCESS – SWEDEN





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Thank You

