

Your Guide to the Types of Waste Management and their Effective Implementation

Across the globe our trash is piling up all around us, and despite growing sustainability movements calling for greater responsibility at all levels of society, the amount of waste we generate as a species is increasing year every year. By 2050, it is estimated that waste generation will grow from around 2.01 billion tons to a staggering 3.40 billion tons annually.

The scale of the problem cannot be underestimated, and no corner of the earth is left unaffected. From your local dump to the Great Pacific Garbage Patch, from the urban jungle to the most remote wilderness, cities and ecosystems alike are straining under the sheer weight of the waste we create, and the challenges we face today are likely to be compounded tomorrow as populations grow and urban centers expand.

Additionally, the mismanagement of waste is a real issue on both an individual and governmental level. Currently, the waste management industry is both unclear and struggling to adapt itself to a global consumerism; a system that manufactures products on one continent, purchases and uses them on another, and disposes of them on yet another. It is clear then, that a movement towards homogeneous waste management practices is not only desired but absolutely essential.

The Rise of Holistic Waste Management Practices



Waste management today is a complex topic, and the operational practices of transporting and processing waste differ widely between cities, nations, and across continents.

However, efforts have been made to dissect the problem and build a framework that divides the broad types of waste management into a hierarchical system. This system endeavors to cover the entire lifecycle of a product and extract the maximum potential benefits from any waste.

As a result, types of waste management are usually split into three categories based upon the now famous 3Rs—Reduce, Reuse, Recycle. Unfortunately, this concept only targets best practice waste management systems by offering guidance on the ideal ways in which waste can be repurposed for minimal impact on the environment. In reality, there are waste materials that cannot be processed using this program, and for certain waste products, an impasse is often reached. With these issues in mind, the waste management hierarchy can be extended to include the following concepts

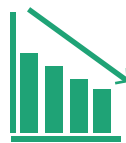
Prevention

At the very top of the chain, the prevention of waste should be the priority for any business or individual. Whether food waste in the home or reducing wasteful packaging when dispatching customer orders, preventing potential waste materials should always be the first action taken. The scope of waste prevention methods applicable to any individual or business is extremely broad ranging, however, three steps in particular are highlighted:



Assess Needs

By carefully identifying your needs, it is easier to avoid overbuying and to cut down on excessive materials.



Minimize Impact

Sourcing products locally means less resources are required. Additionally, lower impact alternatives should be considered as well as biodegradable or ecologically-friendly products.



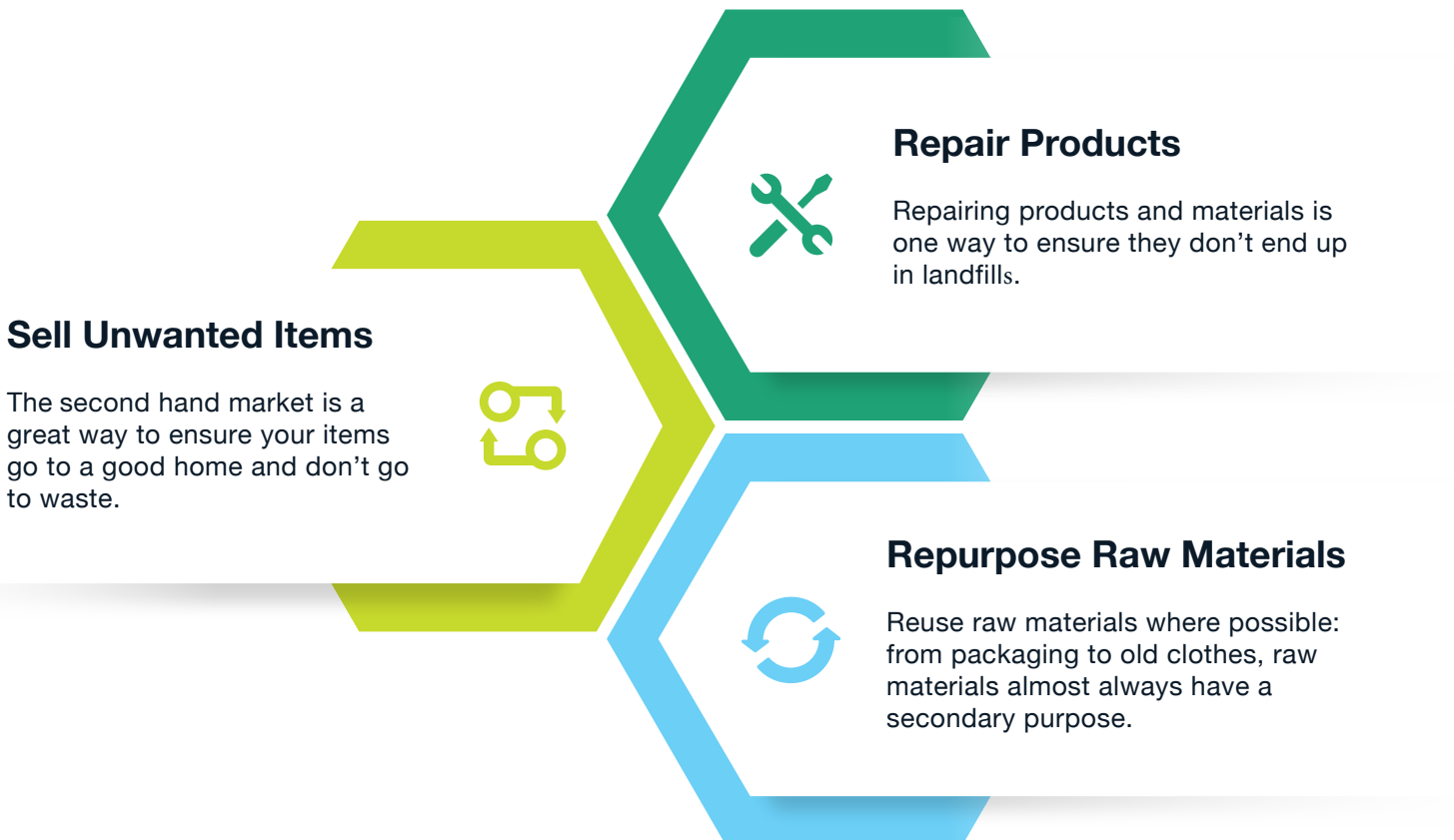
Order in Bulk

Ordering products in bulk ensures less packaging is required for any single product and fewer shipments are required.

Reuse

If prevention is impossible, then the next step of the waste management hierarchy involves the reuse of both products and materials. The conservation and repair of complex products, such as electronic and mechanical devices, both at home and in the workplace, is a priority due to the large amounts of resources that go into the manufacture and disposal of these items.

However, reuse can be applied to almost any type of waste, from raw materials in manufacturing to clothes, furniture, or other products in the home.

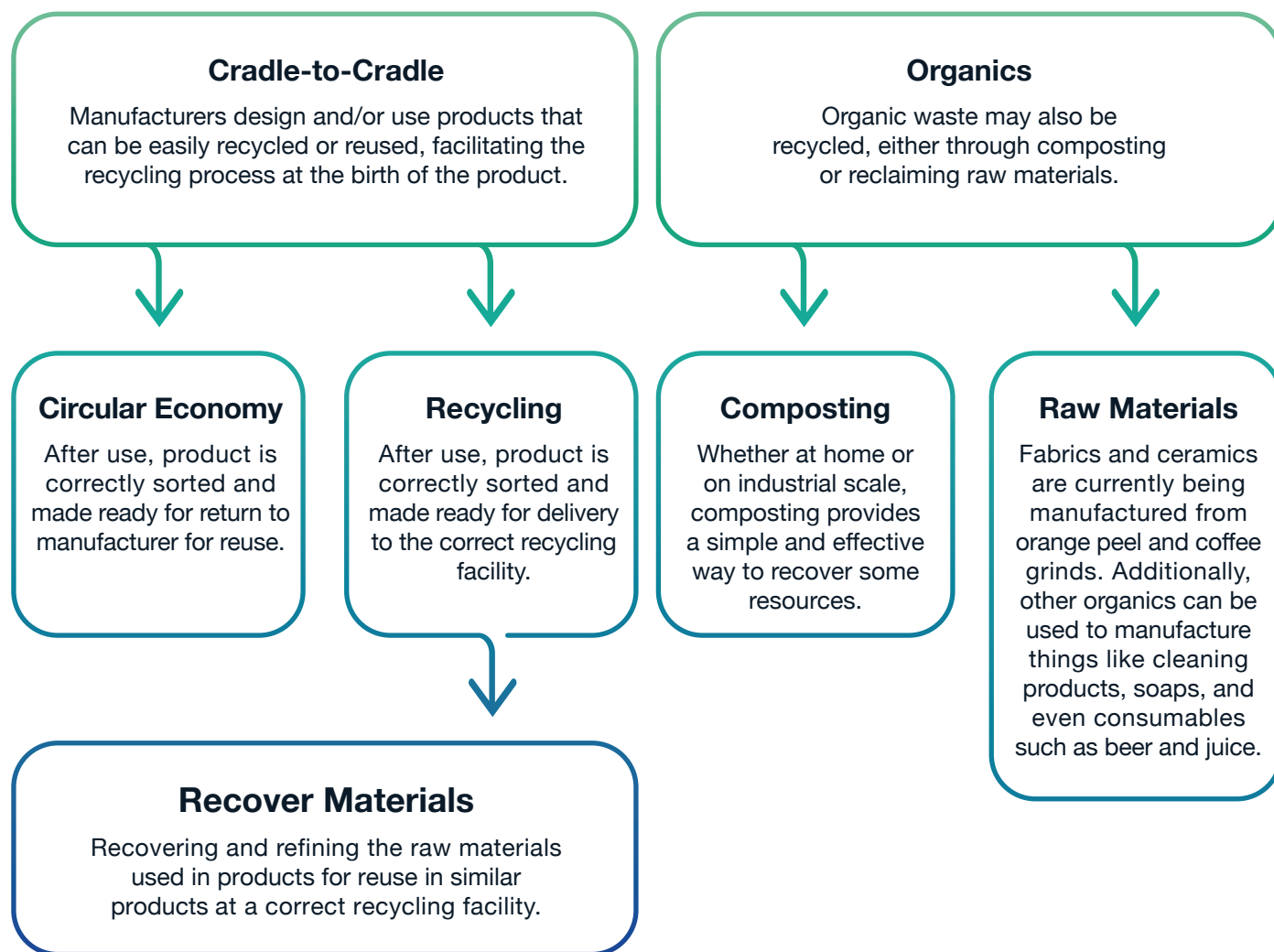


Recycling

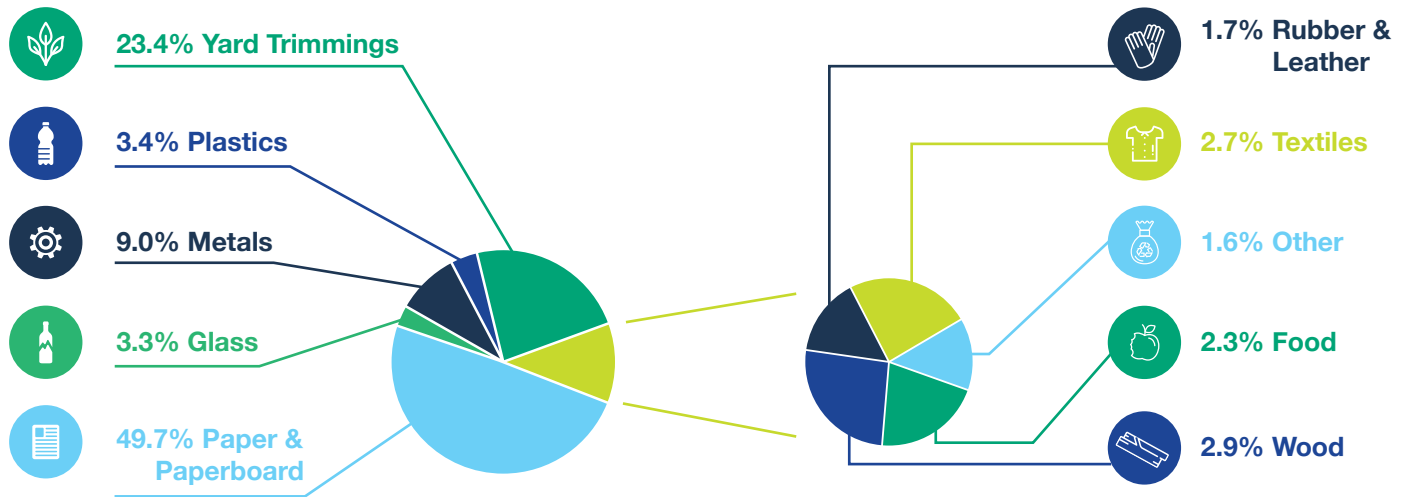
The recycling industry is growing fast, and for products and materials that would have previously been dumped, a more ecologically-friendly alternative is now on the table. Here, the concept of cradle-to-cradle—as opposed to cradle-to-grave—is increasingly applied to products to ensure that, after use, they can be more easily recycled. Cradle-to-cradle takes into account the entire lifecycle of a product—from design, through manufacture and distribution, to use and eventual return to the correct recycling facility.

Additionally, recycling as a method of waste management takes in concepts such as the [circular economy](#). The circular economy aims to move away from linear models where we manufacture, use, and dispose of items in favor of a program that keeps resources in use for as long as possible. The [Ellen Macarthur Foundation](#) is one of the organizations currently promoting circular economy concepts, and a number of case studies are available as real-world examples of how this system works.

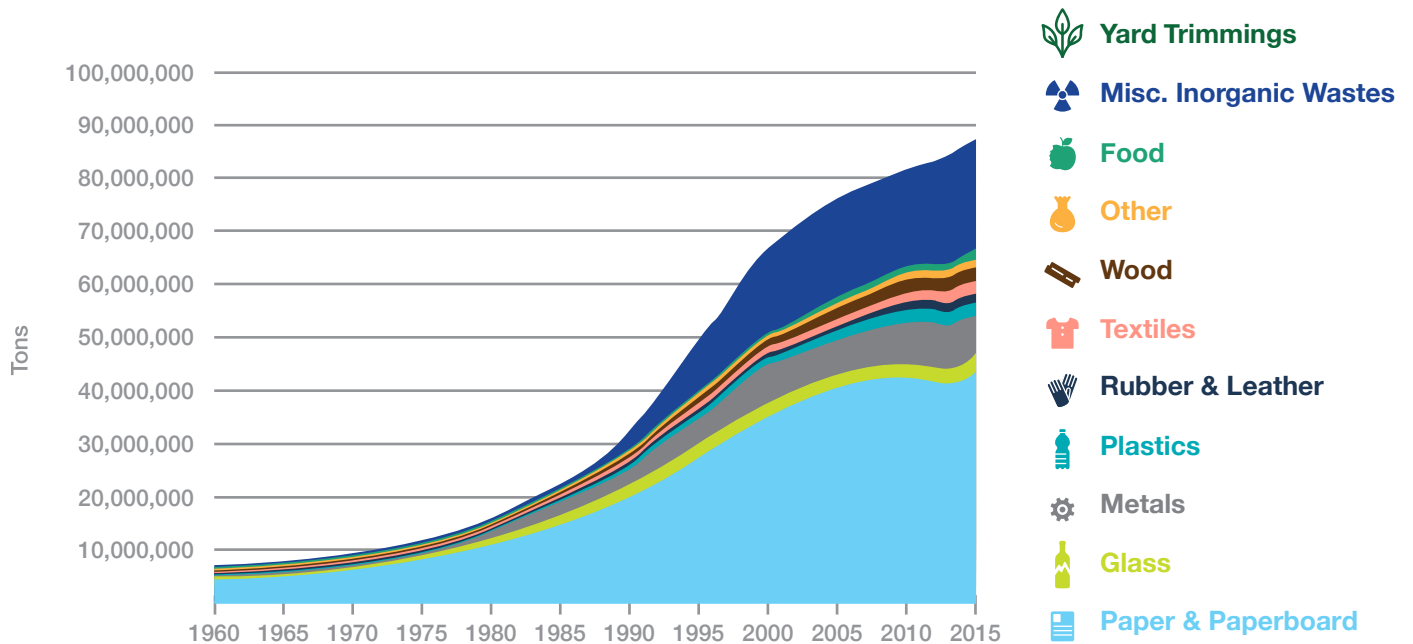
It is a sad fact that many items that can be recycled still end up in landfills, and among the many challenges faced by this type of waste management practice, the correct collection, sorting, and diversion of recyclables is perhaps the most pressing. The rise of less reputable recycling practices, such as shipping waste across oceans for processing, have led many to call for better diversion metrics and material tracking to ensure that products sent for recycling are, in fact, recycled.



Total MSW Recycling and Composting by Material, 2015 (91.16 million tons)



Recycling and Composting Tonnages: 1960-2015



[Learn More About National Overview:](#)

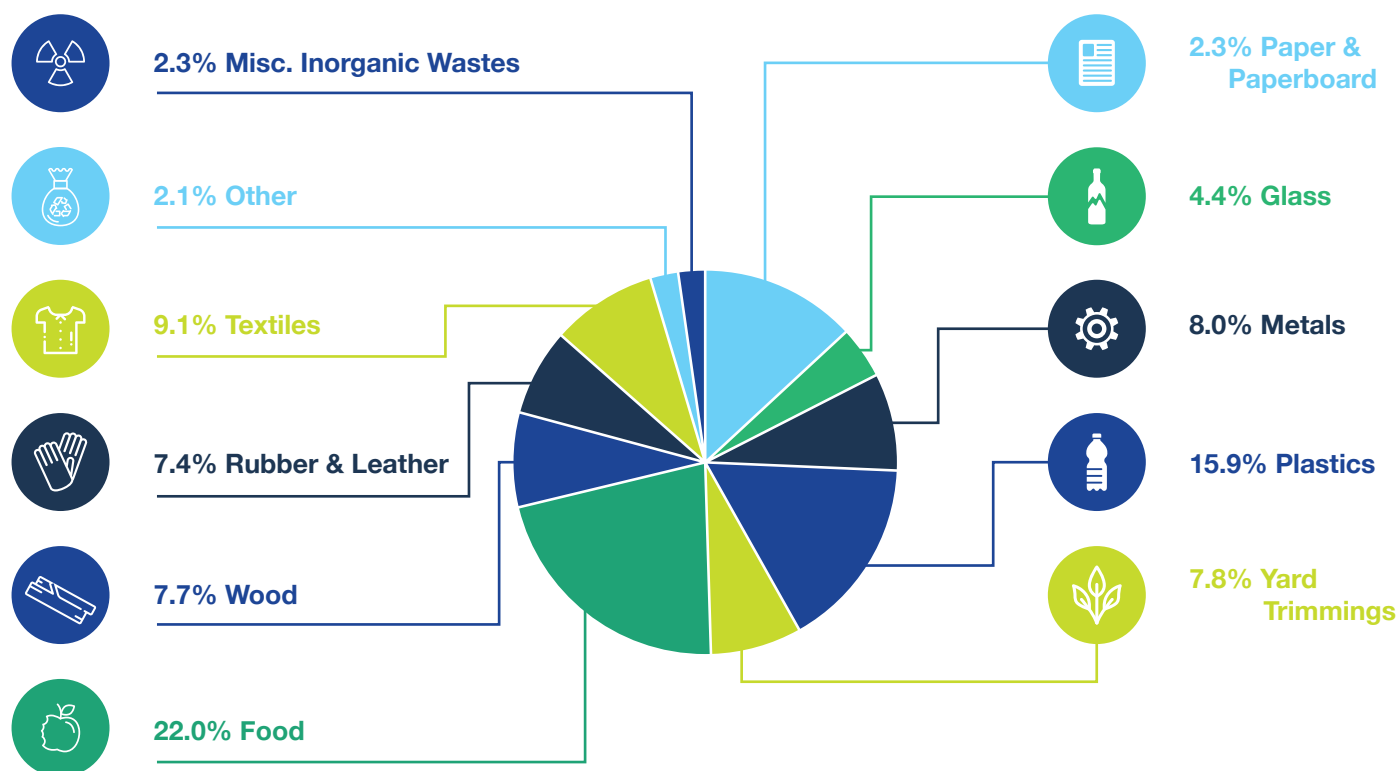
[Facts and Figures on Materials, Wastes & Recycling](#)

Energy Recovery

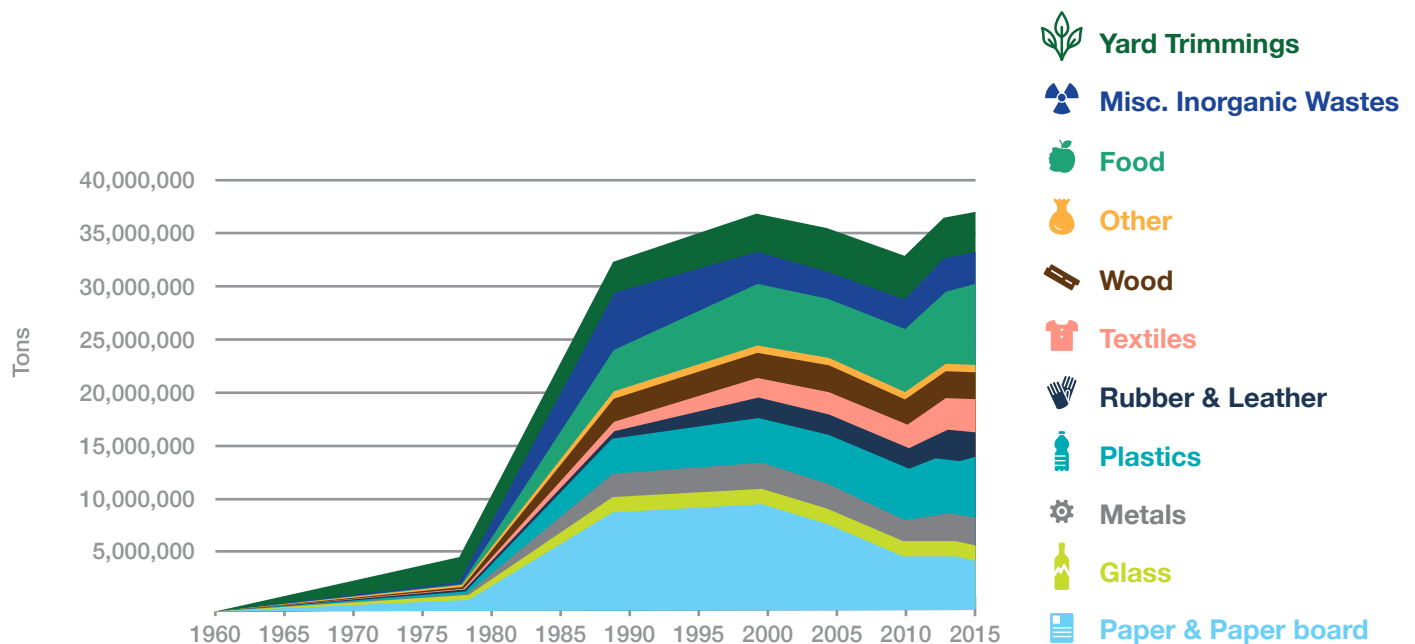
If there is no choice but to send waste materials for disposal, then energy recovery may be an option depending on the type of material in question. It is very rare that individuals, or even businesses, will have the option to implement this type of waste management solution themselves, and the responsibility usually falls to the specific municipality or government. Energy recovery takes in practices such as incineration—where materials are burned to provide energy at specially equipped power plants.

More complex and less common practices, such as gasification or anaerobic digestion, can produce non-recyclables into viable energy sources such as **syngas**. It is worth noting, however, that only a small proportion of waste materials can be processed in this way, and while energy recovery is preferable to landfill, it does also release byproducts such as CO₂ into the atmosphere.

Total MSW Combusted with Energy Recovery by Material, 2015 (33.57 million tons)



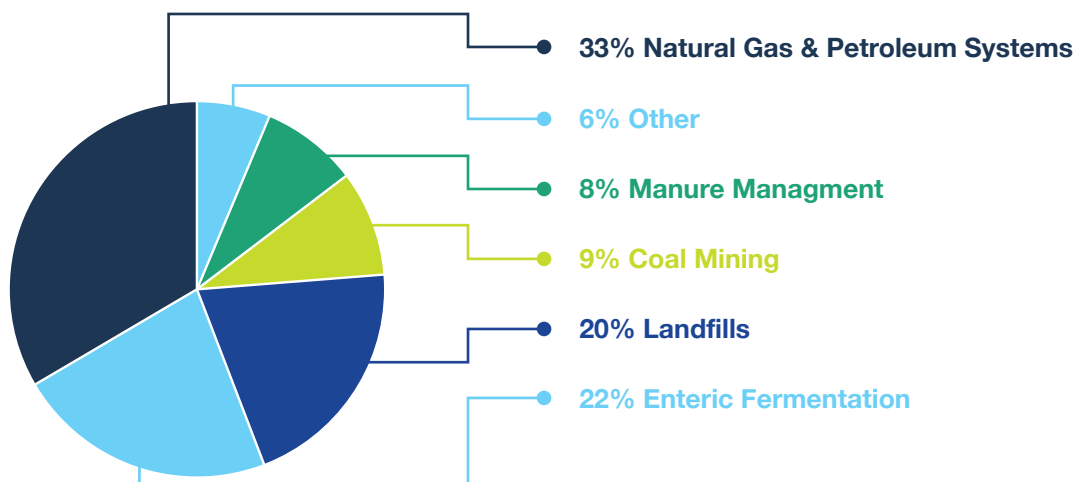
Combustion with Energy Recovery Tonnages: 1960-2015



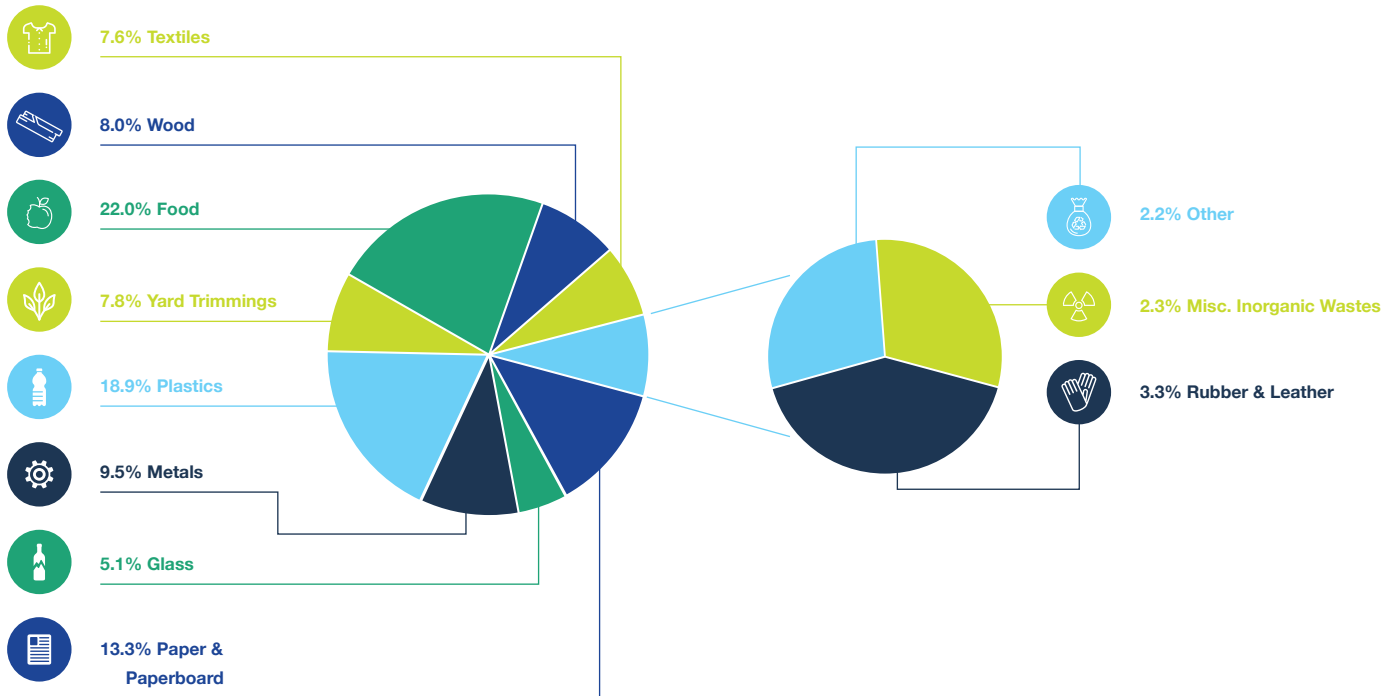
Disposal

Finally, at the very bottom of the waste management hierarchy, traditional disposal methods at landfill sites are the least desirable outcome for any material or product. Apart from the increasingly large sections of land that these sites command and the risks of vermin and insects which may spread disease, landfills release huge amounts of toxic byproducts as trash decomposes. Leachates—toxic liquids that pass through these waste masses—and decomposition gasses, such as methane, are particularly harmful substances that have a direct effect on global warming.

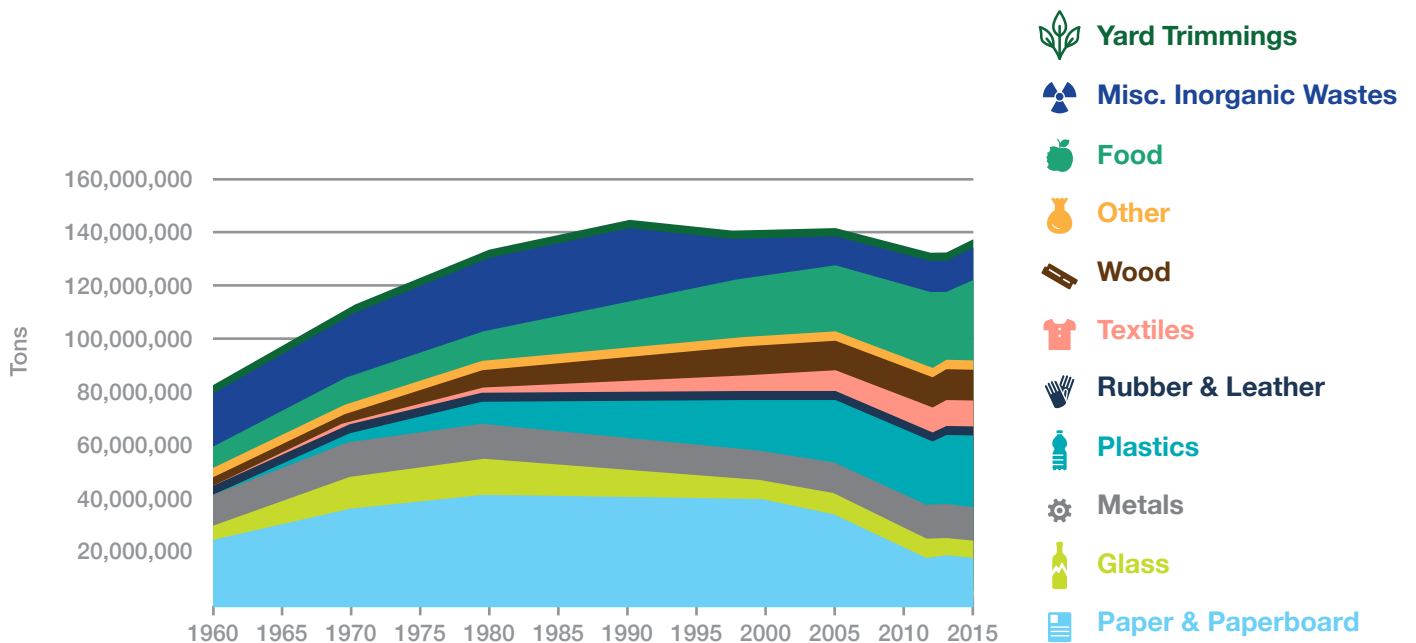
U.S. Methane Emissions, By Source



Total MSW Landfill by Material, 2015 (137.7 million tons)



Landfilling Tonnages: 1960-2015



[Learn More About National Overview:](#)

[Facts and Figures on Materials, Wastes & Recycling](#)

Implementing the Correct Types of Waste Management

The waste management hierarchy is intended as a guideline to help both individuals and businesses better understand the waste management process. Only parts of this methodology will apply to the real-world practices of waste management for you. As a general rule, the higher up the pyramid you travel, the more control you are likely to have. For example, the prevention and reuse of potential waste materials is a simple and low-cost way to reduce your overall environmental impact. Towards the bottom of the pyramid, it is more likely that local, national, and even international authorities will have the final say as to what happens to municipal waste.

Bisecting these two extremes, the recycling industry is something of an exception; requiring collaboration between almost all influencers of a product's lifecycle. Proper recycling begins with manufacturers designing and using packaging that is easily processed. After use, consumers must responsibly sort and dispose of materials and products in the correct way. For larger businesses and organizations, recycling responsibly requires more forethought, and the use of separate containers for specific materials, the correct labeling of recyclables, and detailed diversion metrics to ensure materials are delivered to the correct facilities. Finally, the efficient collection and distribution of recyclables are implemented by independent haulers or municipal waste management operations for delivery to recycling facilities.

Recycling holds vast potential for the reduction of waste and the minimization of our environmental impact. It does, however, require a rethink as to our current waste management habits—something which is slowly being recognized as a priority for nations across the globe.

Education and Awareness

The effective implementation of the different types of waste management is underpinned by education. Raising awareness of the realities surrounding this extremely broad issue is a crucial piece of the puzzle, designed to change both individual habits and longstanding business practices for the better. Education at all levels, from the local to the international, should allow us to identify our growing consumption and reduce the waste associated with it through the correct management of waste materials.

Here at RTS, we help businesses improve waste management operations through LEED accredited staff training that encourages more responsible practices. Additionally, our [True Advisors](#) are on hand to help businesses achieve Zero Waste Certification through the GBCI. These programs are designed to streamline the waste management process, allowing the more effective sorting and distribution of waste materials, pointing businesses towards the top of the waste management pyramid.

Ultimately, our aim is to provide a link between waste generated at a consumer level and waste management facilities through collection, confirmation, and verification to ensure specific materials are always handled at the appropriate facility. Additionally, through insightful diversion metrics, businesses can identify waste habits and implement improvements. To learn more about how RTS can help your business through education and training, read about [our commitment to sustainability here](#).



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