

Attachment 3 – Miscellaneous Supporting Information

Proclamations, Education, Outreach, and Waste Characterization and Related Information from the CNMI and Other Places

2024 CNMI Recycles Week Proclamation

CNMI Governor Palacios' 2023 "Zero Waste Proclamation", said the following:

WHEREAS, the Zero Waste International Alliance defines "Zero Waste" as the conservation of all resources by means of responsible production, consumption, reuse, and recovery of products, packaging and materials without burning and with no discharges to land, water, or air that threaten the environment or human health; and

WHEREAS decisions about how goods such as food, packaging, and building materials are produced, transported, used, and disposed of can make a big difference in the amount of the resources used, greenhouse gases emitted, environmental impacts created, and waste produced; and

WHEREAS, the Commonwealth of the Northern Mariana Islands (CNMI) is committed to taking the necessary action and expanding our Commonwealth's efforts in ensuring wise resource use and combating climate change by reducing, reusing, and recycling waste, which will create more jobs for our people and unlock economic development opportunities here in our islands; and

WHEREAS, the CNMI's 2021-2030 Comprehensive Sustainable Development Plan (CSDP) supports the 10-year Sustainable Development Goal that by 2030, 50% of the recyclable waste stream will be diverted from CNMI's environmentally-compliant waste management facilities on Saipan, Tinian, Rota, and the Northern Islands with diverted waste composted, reused, or sold to support sustainable waste management systems; and

WHEREAS, the CNMI's Comprehensive Integrated Solid Waste Management Plan will solidify a clear and realistic path forward for the CNMI government to follow that will include strategies for the prevention, collection, and processing of residential and commercial waste, as well as benchmark metrics to track progress towards management goals; and

WHEREAS, the island of Tinian has been leading efforts to assess and implement Zero Waste management opportunities to protect people, the environment, and support economically diverse and sustainable growth; and

WHEREAS, the Tinian Zero Waste Study and Pilot Project will solidify a clear and realistic path forward for the Tinian leadership to follow that will include strategies for the prevention, collection, and processing of residential and commercial waste, as well as benchmark metrics to illustrate the progress towards management goals; and

WHEREAS, since 2020, the Inter-Island Solid Waste Management Taskforce, comprised of representatives from Department of Public Works, Office of Planning and Development, Bureau of Environmental and Coastal Quality, and the Offices of the Mayors of the Northern Islands, Saipan, Tinian, and Rota and supported by the United States Environmental Protection Agency aims to have a completed comprehensive integrated solid waste management plan that includes "Zero Waste" initiatives ready for incorporation into the next CSDP update by 2025; and

WHEREAS, all community members of the CNMI can play a part in envisioning improved resource management planning through upcoming visioning workshops, plan development,

and implementation efforts which will include increasing options for waste disposal that respond to community needs.

Other CNMI Sources of Information and Solid Waste Management Work with the Public

The Office of Planning and Development has developed a CNMI data library that is updated periodically. The library contains plans, reports, geospatial data, and other useful information of which can be utilized in the development of the planning process, research, and public interest. The CNMI data library can be accessed online by visiting the Office of Planning and Development website at opd.gov.mp.

The Bureau of Environmental and Coastal Quality's Division of Environmental Quality Solid Waste Management Program establishes the requirements and criteria for new and existing solid waste management facilities including the municipal solid waste landfills and other landfilling operations, incineration, solid waste collection and transfer, material processing, recycling, composting, and salvage. These requirements and criteria ensure the protection of human health and the environment.

The Mariana Islands Nature Alliance (MINA) is a community-based environmental conservation nonprofit organization that fosters community and science-based conservation programs to enhance and sustain the CNMI's environments and cultures. Dedicated programs to help mitigate waste include the Marine Debris Prevention, Tasi Watch Community Ranger Program, Schools for Environmental Conservation, Adopt-a-Bin program, and the Community Recycles Plastics pilot project. These initiatives help promote waste reduction, increase recycling and upcycling, community engagement, strengthen local capacity, and empower environmental stewardship.

Around the World

The report, **“What A Waste 2.0 – A Global Snapshot of Solid Waste Management to 2050”** published by the World Bank estimates that over 90% of waste in low-income countries is openly dumped or burned with poorly managed wastes clogging drains, waterways and creating various health hazards.

“Countries that advance from open dumping and other rudimentary waste management methods are more likely to succeed when they select locally appropriate solutions. Globally, most waste is currently dumped or disposed of in some form of a landfill. Some 37 percent of waste is disposed of in some form of a landfill, 8 percent of which is disposed of in sanitary landfills with landfill gas collection systems. Open dumping accounts for about 33 percent

of waste, 19 percent is recovered through recycling and composting, and 11 percent is incinerated for final disposal.”

“Waste management can be the single highest budget item for many local administrations in low-income countries, where it comprises nearly 20 percent of municipal budgets, on average. In middle-income countries, solid waste management typically accounts for more than 10 percent of municipal budgets, and it accounts for about 4 percent in high-income countries.”

“Based on the volume of waste generated, its composition, and how it is managed, it is estimated that 1.6 billion tonnes of carbon dioxide (CO₂) equivalent greenhouse gas emissions were generated from solid waste treatment and disposal in 2016, driven primarily by open dumping and disposal in landfills without landfill gas capture systems. This is about 5 percent of global emissions. Solid waste-related emissions are anticipated to increase to 2.6 billion tonnes of CO₂-equivalent per year by 2050 if no improvements are made in the sector.”

See <https://openknowledge.worldbank.org/entities/publication/d3f9d45e-115f-559b-b14f-28552410e90a>

Other Pacific Islands:

Pacific Islands with much smaller economies were calculated 18-20 years ago to generate about 0.4 to 2.4 lbs/person/day.

The research showed economic activity and urbanization positively correlated with higher waste generation rates; meaning, the more economic activity and/or urbanization the more garbage is produced.

Continental USA:

According to the EPA website, “Per capita MSW generation increased from 4.5 pounds per person per day in 2017 to 4.9 pounds per person per day in 2018.”

“Paper and paperboard products made up the largest percentage of all the materials in MSW, at 23.1 percent of total generation.”

E-waste

This data requires closer monitoring by the CNMI as the EU reports significantly higher e-waste generation rates.

In 2023 the EU stated that, “E-waste is one of the fastest growing waste streams in the EU...”.

E-waste (AKA Used Electronics) is a waste category not as much discussed as say scrap metal or tires. The growth of e-waste can be attributed in part to rapid changes in technology and

standards rendering some items obsolete. For example, 20 years ago, flat screens dropped in price enough to begin domination in the marketplace; this drop in price led to a swap from one technology (cathode ray tube screens [CRTs]) to another (flat screens). In 2023, flat screens are being swapped for “smart” televisions with Internet access and other connectivity. The wholesale exchange of older televisions and computer screens from cathode ray tube (CRT) technology continues today, especially in the hospitality industry. As prices drop and technology increases there is a steady stream of e-wastes generated in the CNMI. The lack of reuse stores also creates no donation/re-sale access for usable electronics.

In the EU, large household appliances, such as dryers, washing machines and stoves, are the most collected, making up more than half of all collected e-waste. This is followed by consumer equipment like video and music equipment and solar panels, then IT and telecommunications equipment (laptops, printers), and small household appliances (vacuum cleaners, toasters, and fans). This data is from the European Union see:

(https://www.europarl.europa.eu/resources/library/images/20201210PHT93524/20201210PHT93524_original.jpg).

EPA encourages all electronics recyclers to become certified by demonstrating to an accredited, independent third-party auditor that they meet specific standards to safely recycle and manage electronics. Currently two accredited certification standards exist: the Responsible Recycling (“R2”) Standard for Electronics Recyclers and the e-Stewards Standard for Responsible Recycling and Reuse of Electronic Equipment (“e-Stewards”).

Continental USA

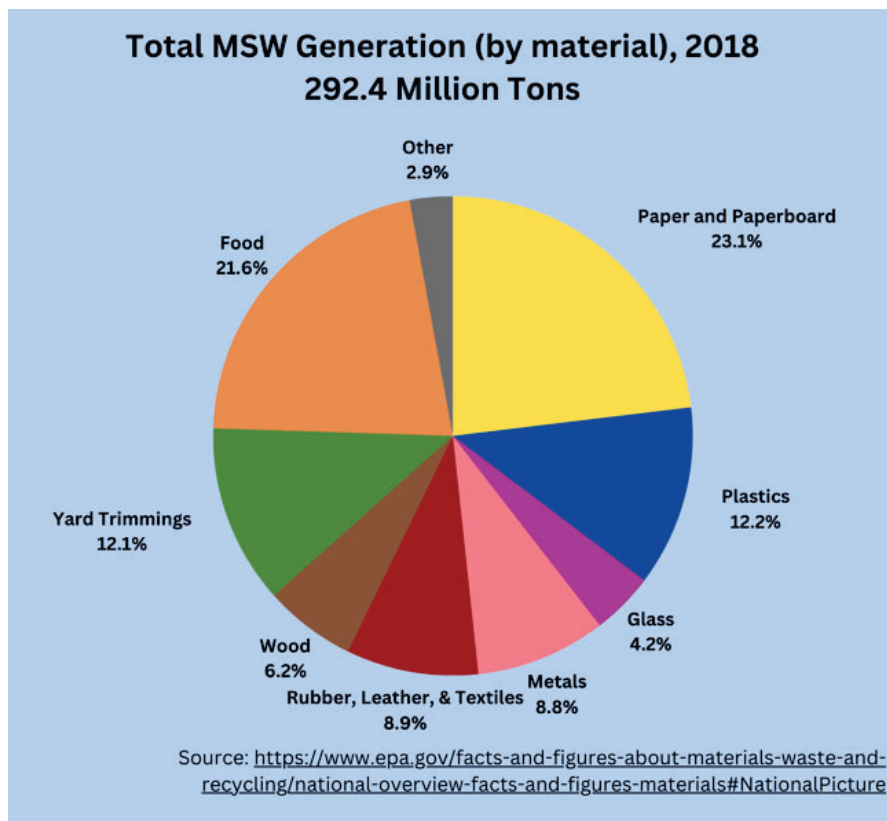
Paperboard in the USA was 23.1% and “Other Organics” including Food (21.6%), Wood (6.2%), Yard Trimmings (12.1%) was an additional 39.9% for a total organics percentage at 63%.

In comparison, the CNMI’s “Other Organics” was significantly lower at about 15%.

Please see the US EPA website at:

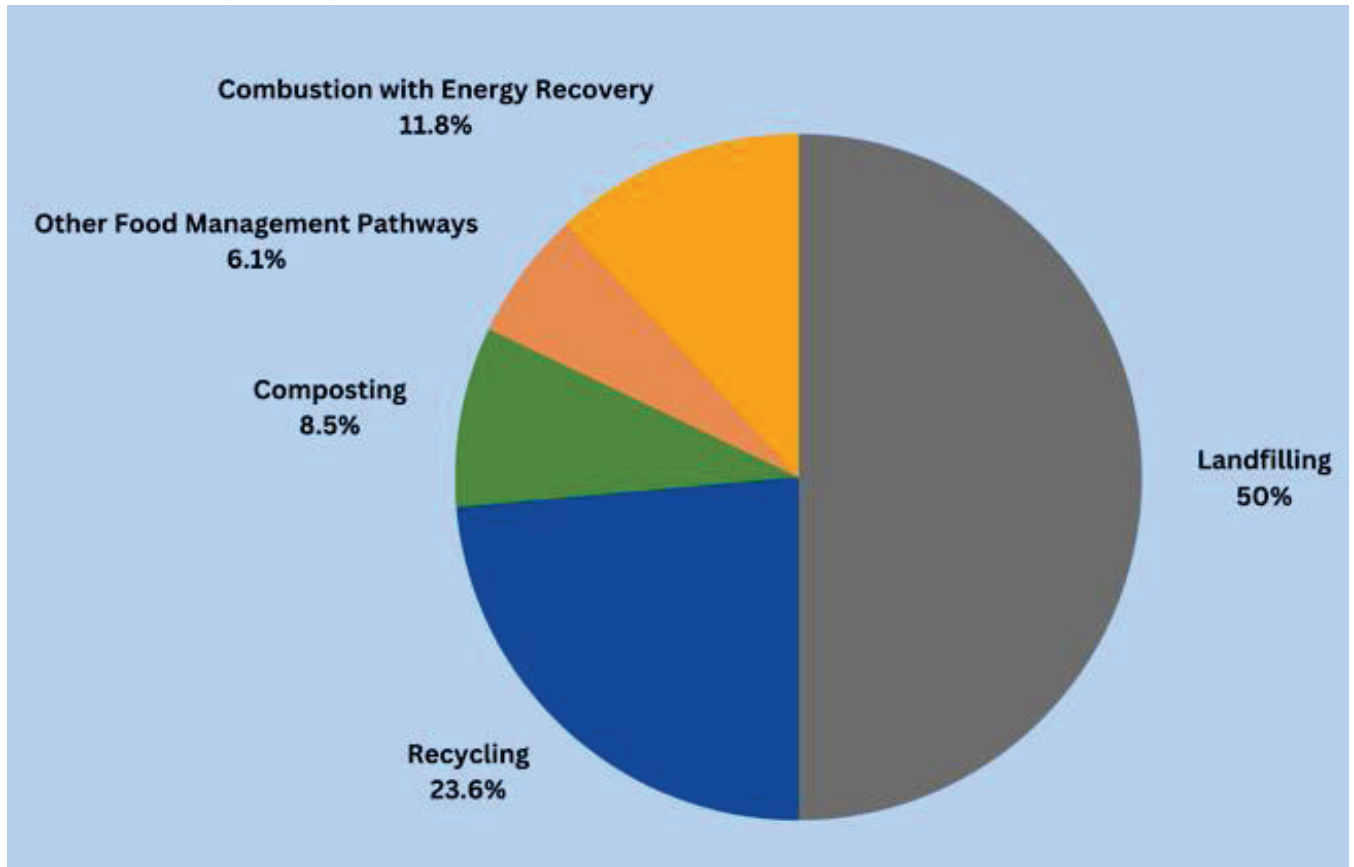
<https://www.epa.gov/facts-and-figures-about-materials-waste-and-recycling/us-state-and-local-waste-and-materials>

United States MSW Generation (Source USEPA)



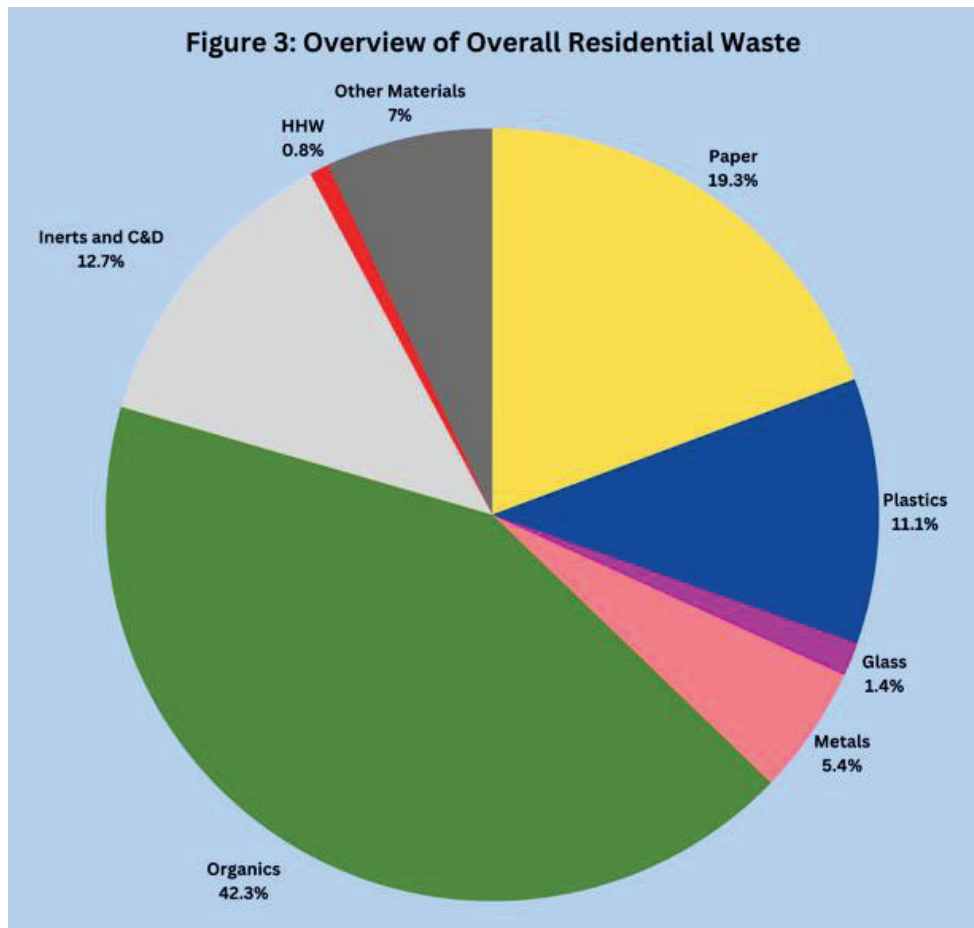
General Overview of Solid Waste Management Systems in the USA

The USA used landfilling and combustion for energy systems to manage approximately 61% of Municipal Solid Waste (derelict automobiles and heavy equipment, disaster debris, construction and demolition debris, biohazardous wastes, and hazardous waste, are not counted in this estimate) in 2018. See Chart 1 – “Solid Waste Management Systems in the Continental US - 2018” below.



Hawaii

The 2017 Hawaiian residential waste characterization study also showed an organics portion at 61.6% which is very close to the USA average for organics at 63%. Hawaii showed paper and paperboard at 19.3%. The USA paperboard amount was 23.1% and the CNMI paper and paperboard was 25-28%. The chart below is from Hawaii Residential Waste – 2017.



A Note on the Limitations of Data Represented by Charts Representing Waste by Weight

Regarding charts and their use: Pie charts are created during waste characterization studies based upon weight.

All weight-based data has an inherent weight bias; materials that are lighter by nature have lower figures even though the volume might be much higher, conversely heavier materials like metal and glass become elevated. It is possible that the overall composition of plastic in a modern landfill might be much higher based on a volume conversion.

Additionally, pie graphs are not intended to display progress over time – they show relative composition or proportions of a whole. For example, reducing cardboard at a landfill by 80% will reduce the cardboard pie slice, but other slices will increase so the pie equals 100%.

Since pie graphs may not represent/show specific changes in data related to reduced overall waste received, clustered bars might be better used to show values across categories using two sets of data collected over time (multiple series of data).