



Consumer Demand and Climate Change

Rethinking Consumer Demand for a Zero Waste World

Consumer demand drives greenhouse gas (GHG) emissions to our atmosphere

The accumulation of greenhouse gas emissions in our atmosphere causes global temperature to rise.

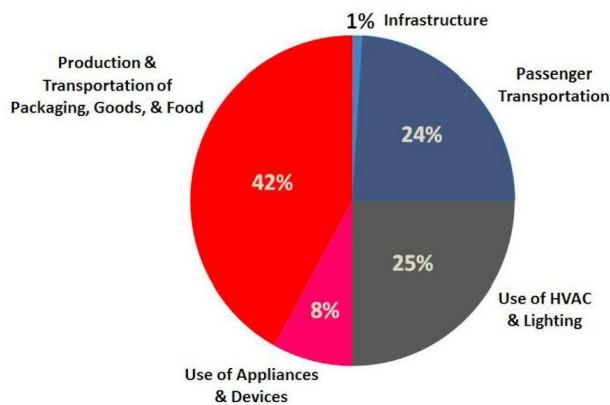
Even small increases in global temperatures cause sea levels to rise, crops to fail and excessive rain or drought.

By 2030, these climate changes will cause Manhattan and other parts of NYC to flood every five years rather than every 500 years.



Manhattan flooded by rising sea levels

System-Based View of Greenhouse Gas Emissions ¹



“For every pound a consumer throws away, there’s 70 pounds of upstream waste. We’ve got to reduce consumption and produce our products better” ² Upstream is defined as the mining, logging, refining, manufacturing and transportation that occurs between these steps before consumption.

How consumer demand adds greenhouse gas emissions to our atmosphere

The pie chart on the left is important because it shows that the production, transportation and use of consumer goods, packaging and food are responsible for approximately 50% of all global greenhouse gas emissions to our atmosphere.

The 50% of this carbon emitted to the atmosphere can be reduced by programs, legislation and incentives that reduce generation of goods, packaging and food and increase reuse, recycling and composting rates. These are known collectively as zero waste systems.

¹ Opportunities to Reduce Greenhouse Gas Emissions through Materials & Land Management Practices, U.S. Environmental Protection Agency Office of Solid Waste & Emergency Response, September, 2009 as Re-expressed by Maggie Clarke, PhD, 2019

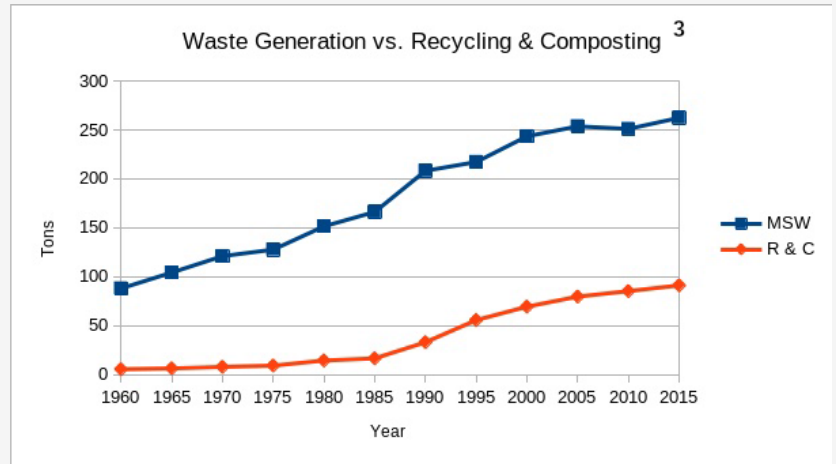
² The Next Efficiency Revolution: Creating a Sustainable Materials Economy by John Young and Aron Sachs, Worldwatch Institute(1994). p. 13.

Municipal solid waste generation has tripled in the US since 1960.

The line graph on the right shows clearly how recycling and composting efforts in the U.S. are not keeping up with the municipal solid waste generation.

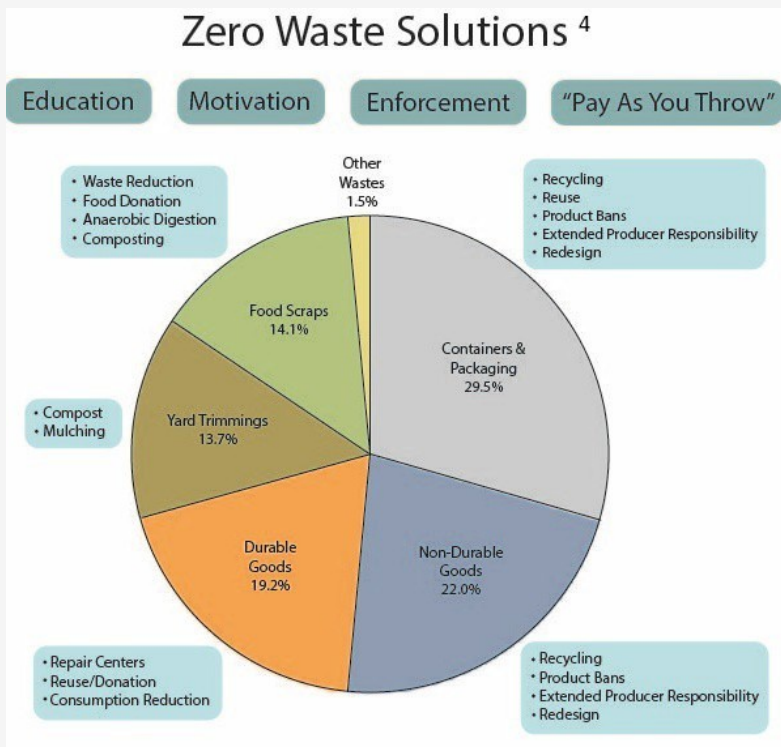
Of the 250 million tons of municipal solid waste generated in the year 2015 only 40%, 100 million tons, was recycled or composted. The remaining 60% was landfilled or incinerated.

To address climate change, we need to decrease the consumer demand for goods, packaging, and food, in addition to increasing our reuse, repair, recycling and the composting efforts.



Recycling and composting efforts are not closing the gap with solid waste generation

The best path to Zero Waste requires reducing consumer demand combined with increasing reuse, repair, recycling, and composting with maximum participation



US Municipal Solid Waste Characterization, EPA 2009

The graph to the left illustrates some of the most important programs that will reduce consumption and increase recycling and composting.

Consider, for example, the 29.5% of the total waste generated by the consumption of containers and packaging. Traditional recycling and reuse combined with product bans, extended producer responsibility and packaging redesign can reduce carbon emissions. Thus, policy measures are combined to reduce pre-consumer and post-consumer waste and curb emissions.

Any Green New Deal or climate change mitigation legislation must include funding for Zero Waste programs that reduce the totality of carbon impacts from consumer demand for products, food and the associated packaging, because half of carbon emissions can be reduced by Zero Waste solutions.

³ Advancing Sustainable Materials Management 2016 & 2017 Tables and Figures. U.S. Environmental Protection Agency Office of Solid Waste Nov. 2019

⁴ Municipal Solid Waste in the United States, 2009 Facts and Figures. U.S. Environmental Protection Agency Office of Solid Waste. Dec. 2010 Re-expressed by Maggie Clarke, PhD and Deneile Cooper, 2019



Written Testimony Prepared by the Manhattan Waste Solid Advisory Board to the NY State Assembly Environmental Conservation Committee regarding Climate Change

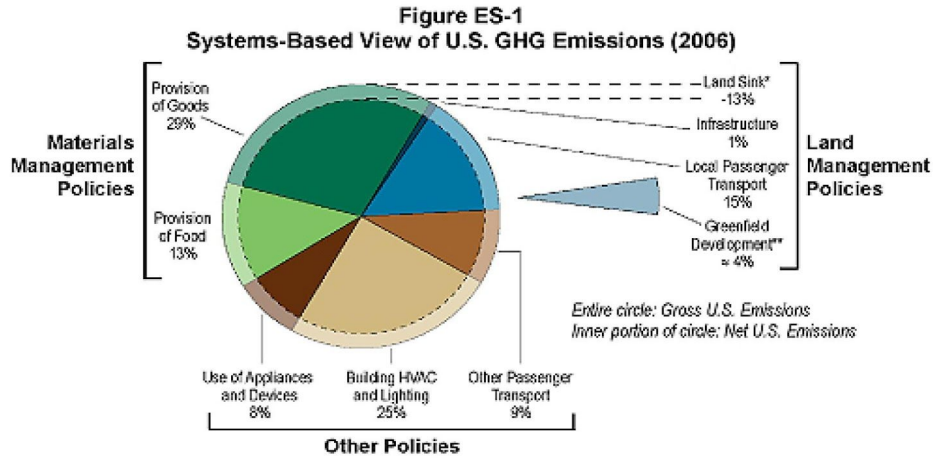
May 17, 2019

Thank you for giving us the opportunity to comment on your New York State Solid Waste Management Plan presented at the Stakeholders' Meeting in 2019. We are the Manhattan Solid Waste Advisory Board, created by Local Law 19 of 1989 and appointed by the Manhattan Borough President. We advise the Manhattan Borough President, City Council, City Administration, State of New York and others on legislation, policies, plans, and programs regarding the development, promotion and operation of the City's waste prevention, reuse and recycling initiatives.

Solutions to climate change are usually limited to alternative energy, alternative transportation, energy conservation, and related topics. This is based on contribution of carbon to the atmosphere by electrical generation, buildings, and transportation sectors. But in 2009 USEPA presented a paper at a zero waste conference showing an alternative view of carbon emissions to the atmosphere. In this systems view, EPA showed that materials management, specifically, production of consumer goods, packaging and food accounted for well over 40% of carbon emissions to the atmosphere. Looked at this way, it becomes clear to those of us who have been working in the fields of waste prevention, reuse, recycling and composting, that these methods, aka Zero Waste solutions, together are a long-neglected way to combat climate change. And yet, this information, this EPA pie chart, is not known by those who have been devising Green New Deals or other programs to combat climate change.

The Most Important Graph

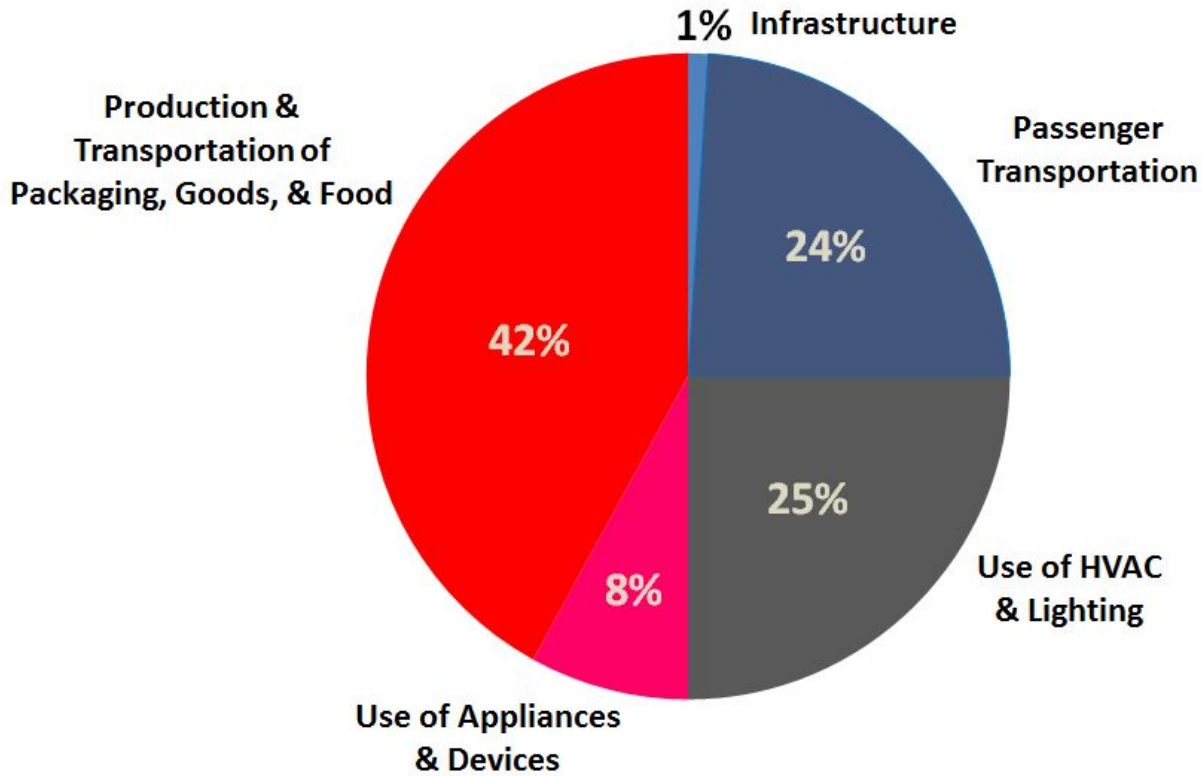
The 2006 report from the USEPA suggests that way Americans procure, produce, deliver and dispose of goods and services — what the agency refers to as “materials and land management” — accounts for 42 percent of the nation’s greenhouse gas emissions.



Opportunities to Reduce Greenhouse Gas Emissions through Materials and Land Management Practices, U.S. Environmental Protection Agency Office of Solid Waste and Emergency Response, September, 2009

The Most Important Graph Re-Expressed

Systems-Based View of Greenhouse Gas Emissions (EPA, 2006)



Opportunities to Reduce Greenhouse Gas Emissions through Materials & Land Management Practices, U.S. Environmental Protection Agency Office of Solid Waste & Emergency Response, September, 2009

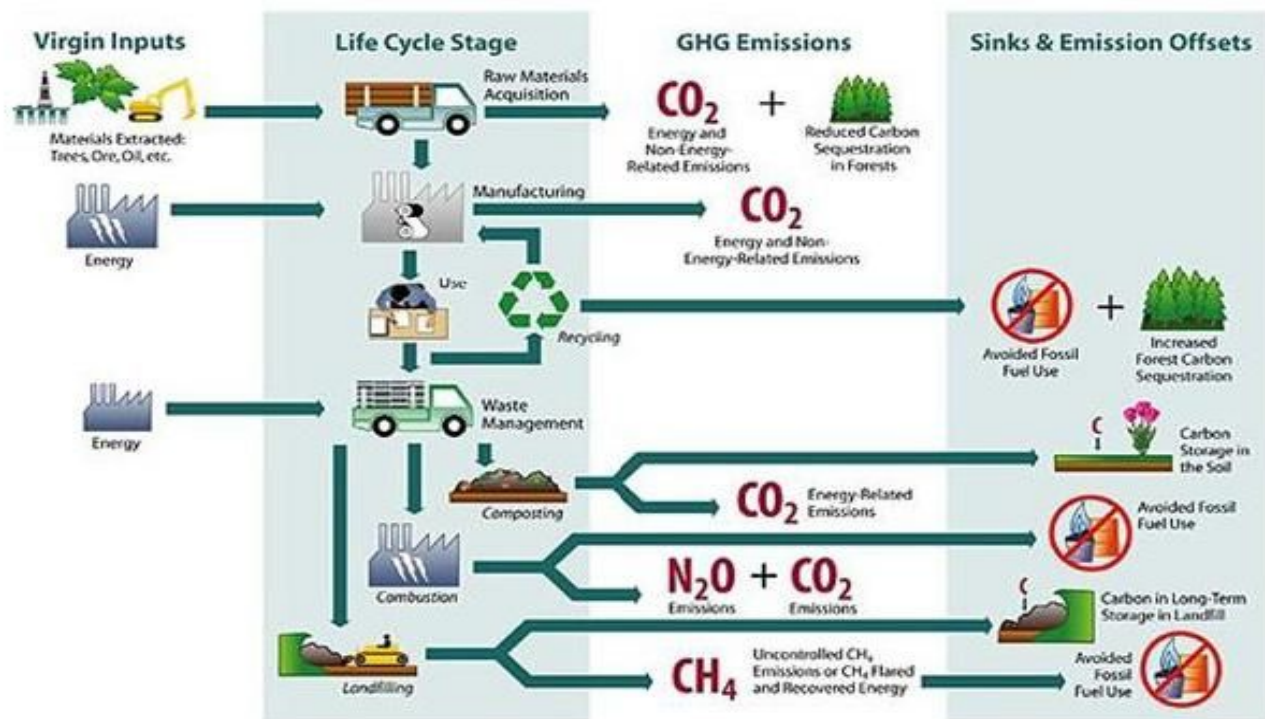
Re-expressed by Maggie Clarke, Ph.D., 2019

MATERIALS PRODUCTION IS A SIGNIFICANT PART OF THE CARBON FOOTPRINT

As far back as 1990, EPA recognized that the much larger impact of waste is in materials production as compared with disposal in the life-cycle of waste. EPA realized that reducing the demand for consumer goods, packaging and food would reduce emissions generated in the extraction of materials (e.g., logging and mining), refining and manufacturing processes, and transportation of materials between these steps.

Reducing landfilling and incineration by using zero waste methods further reduces carbon emissions to the atmosphere. Reducing the use of paper and wood products allows the trees to remain as carbon sinks in the forests.

EPA's Lifecycle of Waste Schematic Diagram (most of the impacts of waste are in generation - Upstream – Extraction, Refining, Manufacturing, Transport)



ZERO WASTE IS AN ESSENTIAL COMPONENT OF CLIMATE ACTION PLANS

As far back as 2004, cities like San Francisco have included zero waste programs as part of their citywide Climate Action Plans, which also include alternative energy projects like wind energy and solar energy, and energy conservation.

- EPA advises state & local jurisdictions on writing Climate Action Plans & has plan listing on website
- “A climate change action plan lays out a strategy, including specific policy recommendations, that a local government will use to address climate change & reduce its greenhouse gas emissions” San Francisco’s 2004 Climate Action Plan includes sections detailing zero waste measures accomplished & planned.
- These represent 302K tons of CO₂ reduced from a total of 2,614,000 for all categories of actions (also including transportation, energy efficiency, & renewable energy).

Solid Waste Action Categories	Estimated CO ₂ Reduction in Tons
A. Increase Residential Recycling & Composting	70,000
B. Increase Commercial Recycling & Composting	109,000
C. Expand Construction & Demolition Debris Recycling	57,000
D. Support Alternate Collection Methods for Recyclable Materials	66,000
E. Promote Source Reduction, Reuse, & Other Waste Reduction	-
F. Expand Municipal Programs	-
Total	302,000

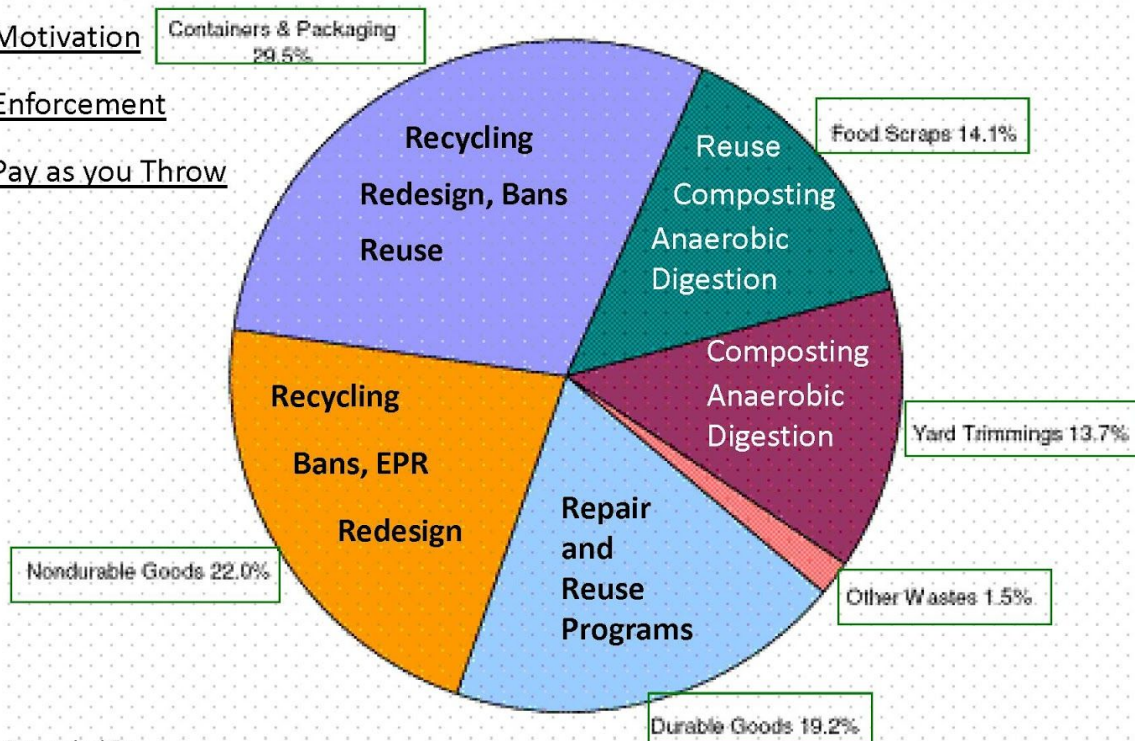
Zero Waste Solutions

Education

Motivation

Enforcement

Pay as you Throw



Amended By
Maggie Clarke, Ph.D.

Source: Municipal Solid Waste in the United States, 2009 Facts and Figures, USEPA Office of Solid Waste, EPA530-R-10-012, December 2010

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Since sustainable materials management addresses 42% of the carbon emissions problem, zero waste solutions and the circular economy should become high priority solutions for any Green New Deal legislation, program budgets and statewide plans with the purpose of reducing climate change. As it stands now, the New York State budget for zero waste solutions has been starved for many years. The Environmental Protection Fund goes primarily for purchase of upstate lands, and very little is allocated for recycling and other zero waste programs. The number of NYSDEC staff working on zero waste is very small, and dwarfed by the number working on disposal. It is a mistake that Zero Waste solutions are not emphasized in Green New Deal legislation. This all must change to take advantage of the serious reductions to climate change that would occur if zero waste programs, legislation, billing systems like Pay as you throw, improved education and enforcement were to be adequately funded and prioritized in the state. Above is a pie chart showing a goods-, packaging-, and food-based view of our "waste" stream, in fact just our discard stream, along with the zero waste solutions that each slice of the pie can utilize. Despite the fact that much of these materials are disposed in incinerators and landfills, most can be prevented, reused, recycled or composted with proper programs and legislative support.

Job benefits of Zero Waste

Table 7: Job creation in the U.S. from reuse and recycling versus disposal

Type of Operation	Jobs per 10,000 TPY
Product Reuse	
Computer Reuse	233
Textile Reclamation	93
Misc. Durables Reuse	69
Wooden Pallet Repair	31
Recycling-based Manufacturers	
Paper Mills	19
Glass Product Manufacturers	29
Plastic Product Manufacturers	102
Conventional Materials Recovery Facilities	
Composting	4
Landfill and Incineration	1

TPY = tonnes per year
 Note: Figures are based on interviews with selected facilities around the U.S.
 Source: Brenda Platt and Neil Seldman, *Wasting and Recycling in the United States 2000* (GrassRoots Recycling Network, Athens, Georgia, U.S.: 2000), p. 27.

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The Green New Deal legislation also refers back to the original New Deal, which prioritized job creation. It's shown in studies that more jobs are created at the top of sustainability hierarchies than at the bottom. In the study referenced above, which studies the materials (solid waste) hierarchy, repair and reuse of products creates orders of magnitude more local jobs than landfilling and incineration do on a per ton basis.

Conclusion and Recommendations

It's clear that achievement of zero waste in New York State would contribute greatly to reducing carbon emissions and climate change. We recognize that the Environmental Conservation committee has passed bills over the years that are helpful to achieving zero waste. But we believe is in the best interest of the State to give an even bigger priority to enacting zero waste solutions considering their importance to combating climate change. Zero waste solutions must be a big part of any Green New Deal, and a significant proportion of the climate change budget needs to be allocated to zero waste initiatives. Any future legislation to combat climate change must incorporate zero waste policies in order to reflect this need.

The NYS goal per the NYS Solid Waste Management Plan had a progressive reduction in the amount of waste managed in combustors or landfills from 4.1 lbs to .6 lbs (85%) per person per day by 2030. The Manhattan Solid Waste Advisory Board fully agrees with and supports this goal. To help achieve this important reduction of New York State's waste to landfill and incineration the Manhattan Solid Waste Advisory board requests that the State of New York implement the appropriate policies, regulations and enforcement to align the City of New York's actions

with NYS's Solid Waste Management Plan's progressive reduction goal of .6 lbs per NYS resident per day by 2030. This alignment would significantly contribute to the State's waste reduction targets.

In early 2015 The City of New York announced a target of reaching zero waste to landfill by 2030. The New York City's waste represents approximately 50 percent of the State's waste. If NYC achieves zero waste by 2030, the State's waste level would be dramatically reduced by 2030. It is in our shared best interest to have the City's actions align with that of the State. As of Earth Day 2019, there is a 20-year misalignment between New York State's and New York City's goals with the City's announcement of 2050 as the new goal. This will damage the ability of the State to reach its goals.

We have identified specific legislation and policy efforts at a state level we believe with appropriate enforcement would significantly help the City reach its target of zero waste to landfill by 2030. More importantly, many of these initiatives eliminate several deficiencies in the City's plan to achieve its stated goal of zero waste by 2030.

We therefore request that NYS support the following statewide initiatives, identified below, to help NYC achieve zero waste by 2030 and by doing so reduce NYS's overall waste footprint by an amount that would approach a 50 percent reduction.

1. Statewide legislative initiatives that will help the City achieve its goal of zero waste by 2030.

a. You point out in the 2008 Beyond Waste plan that 400 New York State communities employ some form of volume-based pricing. We would like New York City to be one of those. We would ask that you implement the 2008 NYS Beyond Waste plan on page 4 which states, "Pay as You Throw/Save Money and Reduce Trash (PAYT/SMART) programs create a financial incentive for consumers to waste less and recycle more." A statewide implementation of PAYT/SMART will reduce the NYS overall waste footprint by helping NYC achieve its goal of Zero Waste by 2030.

b. Right to Repair (electronics). Senate bill S618C, currently in S710, Consumer Protection Committee as of 1/9/19. We urge that this bill be passed.

c. Ban on non-recyclable packaging and single-use disposable plastics. The recent Amendment to New York State's Environmental Protection Law, Title 28 "Bag Waste Reduction" allowed the City to "opt-in" on April 2019 to the 5 cent paper bag deposit that augments the State ban on plastic carryout bags. New York City represents 10 billion plastic carry out bags out of the State's total 20 billion. Title 28 can serve as a blueprint for future legislation to ban non-recyclable packaging and single-use disposable plastics.

d. Expand Bottle Bill S2129, in Environmental Conservation Committee as of

1/9/19, to include wine and liquor glass, increase to at least \$0.10 fee, include stakeholders such as municipal recyclers and canners. We encourage NYS legislature to reconcile A5028 with S2129.

2. Support for Organics Processing Initiatives

a. We encourage legislation that addresses beneficial use of organic material using anaerobic digestion with focus on biogas, composting for in-state farming and soil remediation applications deemed necessary after evaluation.

b. We also encourage a review of any current state regulations on application of biosolids for agriculture (e.g., investigate avenues to liberalize beneficial reuse) if such a review considers that biosolids could potentially disperse micro-contaminants.

c. We urge that the State prioritize the siting of organics processing near NYC and in City where practicable (by instituting regulations that incentivize local processing over long distance and under-utilized land)

d. In addition, we encourage the State to consider efficiency of truck routes, also considering rail and water transport, and to promote local solutions first by means of organics processing, micro-hauling, corner collections in any legislative effort.

3. Support for enhanced handling of C&D Materials

a. We urge support for S87, in Environmental Conservation Committee as of 1/9/2019, which establishes goals for NY agencies considering bids

b. Likewise we urge support for S1587, in Cities Committee and A3203 in Assembly Committee as of 1/15/2019, which requires contractors in cities of greater than 1 million population to recycle 50% of C&D material.

c. Also, we urge support for legislation to require deconstruction and reuse of as much building material as possible.

4. Support for extended product / packaging responsibility (EPR)

a. We encourage legislation that scales producer fees in such a way as to favor packaging that is designed to be recyclable, reusable, have recycled content, etc

b. We urge passage of paint industry-supported legislation for sharing the responsibility for environmentally-appropriate disposal of paint S4351, A1463 as

of 1/15/19 in Environmental Conservation Committee.

5. MSWAB supports DEC's receiving adequate resources it needs to achieve and enforce our mutual zero waste goals.

6. MSWAB supports the reconciliation of the Green New Deal - S2878B & A5334A provided that these bills incorporate Zero Waste initiatives, because 42% of carbon emissions to the atmosphere come from production and distribution of consumer goods and packaging according to USEPA.

7. NYS DEC must ensure New York City does not enact long-term waste export contracts to landfill and incineration. For example, the NYS FY 2019 DSNY budget allocated \$411 million to continue long-range export contracts for the incineration and landfilling most of NYS's curbside collection. New York City's policy to continually enter into long-term landfill and incineration contracts ensures that the State's zero waste goal can never be reached.

Again, we thank the Committee for their interest in both zero waste and climate change. We stand ready to work with the Environmental Conservation Committee, and would welcome any questions.

Sincerely,

The Manhattan Solid Waste Advisory Board Chair: Jacquelyn Ottman; Vice-Chair: Rona Banai; Co-secretaries: Katie Hanner, Christine Johnson, Treasurer: Diane Orr. Members: Margot Becker, Matthew Civello, Maggie Clarke, Debby Lee Cohen, Peter Cohen, Naomi Cooper, DeNeile Cooper, Ellen Cooper, Phillip Corradini, Sarah Currie-Halpern, Meredith Danberg-Ficarelli, Wendy Frank, Cullen Howe, Sofia Huda, Melissa Iachan, Nathaniel Johnson, Kate Mikuliak, Kathy Nizzari, Kristi Parson, Tinia Pina, Martin Robertson, Jennie Romer, Laura Rosenshine, Rick Schulman, Brendan Sexton, Marc Shifflett, Amy Uong.