

DRAFT

Recycling Advisory Committee (RAC) Meeting Minutes

March 13, 8:00am – 9:30am

Virtual - Zoom

Minute Taker: Emily Lee

Members present: Dailey Brannin, Dave Demme, Lee Elliot, Debby Galef, Tracie Gordon, Sakiko Isomichi, Debby Knight, Elka Kuhlman, Emily Lee, Audrey Ng, Carlie Peters, Dawn Quirk, Diane Roseman, Meera Singh, Helen Snively, Quinten Steenhuis, Rob Vandenabeele, Stephanie Wasiuk,

Members absent: Scott MacGrath, Laura Nichols, Richard Nurse, Alex Toupal, Julia Tsang

Staff Present: Meryl Brott, John Fitzgerald, Kristin Kelleher,

Public present: Kabir Singh, Tamene Tedla, Amy Waltz

1. Housekeeping

- Vote on February Minutes - Approved

2. City Updates

- [Sign up](#) to volunteer at Parking Registration.
- Earth Day Volunteering: [Sign up here](#) to volunteer for April 13 Earth Day!
- Presentation from Meryl about how school waste diversion program works. (see end of Minutes for PPT)
 - Program covers ~6500 students across 17 schools, mostly elementary schools
 - Custodians remove recycling from classrooms
 - Meryl meets yearly with custodians and provides them with “Get Rid of It Right” pamphlet
 - Teachers/classrooms- Meryl provides them recycling and composting information, sends 5 emails out per year, sometimes presents to classes (mostly Kindergarten because they have curriculum on Earth)
 - Other forms of communication- website, “Backpack Express” inserts, superintendent newsletter
 - Cafeteria waste diversion
 - Lunch aides sometimes help out
 - Volunteers usually at beginning of school year but some go weekly
 - Mostly cover lunch, sometimes for breakfast
 - 2023-2024 had most volunteers yet!
 - Food services
 - Kitchens have composting and recycling
 - Meryl presents to staff at start of school year
 - Taught us the Recycle song

- How do classrooms handle composting? Classrooms get kitchen bin and roll of bags. Do they get a new roll of bags? No, sometimes they put food directly inside and then empty in cafeteria every day.

3. Presentations from RAC members

- **Meera:** Recycling and Reuse in Mumbai (see end of Minutes for PPT)
 - All waste is mixed- person comes every morning to pick up trash
 - Need to separate recyclables yourself and either take to a facility or call raddiwalla (person who picks up recyclable waste and sells) to pick up
 - Working to get buildings to separate recyclables from kitchen waste
 - 70% of trash ends up in landfills, landfill fires happen (there was one so big that NASA caught it)
 - Recycling and waste reduction very much embedded in daily life- there are waste pickers, recycling vendors, sidewalk repair shops, etc.
 - Waste Pickers
 - Sell recyclables to Material Recovery Facilities or to individual recycling vendors
 - Mumbai Marathon- collecting dropped water bottles
 - Lakshmi- collecting waste for 20 years and supports family that way
 - Face certain societal, economic, and safety challenges- there are some NGOs that support them
 - Dalmia Polypro's Material Recovery Facilities- good example of municipal/private/waste picker partnership: city donated space where waste pickers can bring recyclables to private sorting company. Also sponsored by bank
 - Raddiwalla
 - raddi=scrap, junk; raddiwalla = scrap/junk dealer or recycling vendor
 - comes to house, weighs, and pays you for recyclables, then takes to a shop to sort where small scrap traders will buy
 - commodity prices fluctuate daily
 - Innovative recycling initiatives
 - Milk bag recycling

- “flowercycling” temple flower waste- flowers considered sacred so can’t be sent to landfill and oftentimes end up in plastic bags littering the rivers so a company has started upcycling them
- **Dawn:** A career designing out waste (see end of Minutes for PPT)
 - Began as Cambridge DPW Recycling Specialist- focus on customer service
 - Drove around to look at trouble spots- people complaining their recycling wasn’t picked up (sometimes it was because they put it out too late)
 - Participated in City’s first staff diversity committee, with 3-yr term funded by Mass DEP from unclaimed bottle deposits
 - Conducted first curbside participation study in the nation
 - waste audit of curbside material
 - collected from 10 streets (residents didn’t know ahead of time about audit) and took to Charlestown MRF to audit
 - focus on non-recycling households to inform outreach efforts
 - results inconclusive- not big enough sample size and staffing issues
 - Zero Waste Program Manager, Tufts University (10 yrs)
 - Worked on social marketing with signature mascot and color that matched bins and labels, had 40 hrs of student labor every week to shape initiatives and create more peer-to-peer communications
 - signature color-painted recycling dumpsters a lighter green because trash dumpsters were pine green and people would get confused
 - started collecting specialty items like tennis balls and sneakers, sneakers shipped out to nonprofit
 - signature initiative: zero waste commencement- sorting out commencement waste for recyclables and compostables
 - move-out: encouraged people to take items with them or would collect and give back to them for free at the beginning of school year; partnered with Goodwill
 - Rebranded from Dump & Run to R2ePACK (Reuse, Recycle Everything, Pack & Clean...K!)
 - Initiative for promoting reuse all year round: For dorms being renovated, requested the addition of Freecycle stations/closets (used to be payphone rooms)
 - MassDEP Bureau of Air & Water (1 yr)

- waste ban inspector
- paint recycling program
- household hazardous waste specialist
- Design Out Waste, MIT
 - Focus on creating circular economy
 - Grad student Alexis Hocken has focused on recycling small plastic recyclables that usually get thrown away, fall through cracks, at recycling facility (ex. nips bottles)
 - Companies say they will take back small plastic recyclables from their brands
 - Hosting collection drive for plastic containers from specific brands to train AI to read-> reach out to Dawn if you want to participate
 - Projects in the ideation phase
 - Working on designing a reusability metric
 - Waste generation tracks with economy; Tufts recycling went up but trash never went down; need reuse metric for each item
 - New recycling symbol- partnered with architecture student to design
 - Does MIT's reuse system have an online presence? Would be great for sharing learning with for instance Harvard Architecture department.
 - Working on it. Right now Dawn's spending a lot of time educating folks on recycling even within the sustainability department

4. Closing

- Public Comment- none
- Action Plan/Decisions
 - Sign up for Parking Registration and Earth Day volunteering opportunities
 - Reach out to Meryl if you'd like to volunteer at the schools
 - Reach out to Dawn if you want to participate in the small plastics collection efforts
- Announcements- none

Waste Diversion in Cambridge Schools



Meryl Brott, Recycling Program Manager

Schools

- 11 Elementary
(~300 students)
- 4 Upper (share cafeteria
with elementary school)
(~275 students)
- 1 Elementary + Upper
(Amigos)
(~425 students)
- 1 High School
(~2,000 students)



6,539 students

Public Works

- Recycling Program Manager
(part of position)
- Receptacles for recycling
 - Carts, dumpsters (STS)
 - Blue bins, deskside bins, slim jims
- Receptacles for composting
- Trash, recycle, compost hauling
(CRLS has trash compactor)



CPS Facilities / Custodians

Chief Operating Officer

Director of Facilities

Custodian Supervisor

Senior Custodians

Custodians

- Chief Operating Officer support (composting 2009)
- Attend a custodians meeting 1/yr
- Custodians remove recycling from classrooms
- "Get Rid of It Right" document for custodians
- Some custodians help at the waste stations
- Custodians may inform re: which grades need improvement in cafeteria

TV's, Electronics, Cords, Small Appliances, etc. Ink Cartridges*



Have your school's Tech email the city's contractor to request a pickup (8 items or more).

If you have an abandoned TV and it cannot wait, email Meryl.

*or return to office supply company / manufacturer

Air Conditioners, Refrigerators

Metal Items (Desks, Chairs, Cabinets, etc. OK to include smaller metal items as well.)



Contact Meryl at DPW:
x4836, mbrott@cambridgema.gov

Fluorescent Bulbs & Non-Alkaline Batteries



Contact Roy Contreras to make arrangements for contractor to pick up (HHW or Recycle Center are options too)

Hazardous Waste

Oil-Based Paints, Cleaners, Solvents, Non-Alkaline Batteries, Fluorescent Bulbs*, Thermometers*, Thermostats*, etc. Dry out latex paint and put in trash with the lid off.



Hold for Household Hazardous Waste Collection, usually held April, June, August, November.

*contractor may come to your school for pickup of items with mercury

Please:

- Report missed pick-ups: CambridgeMA.Gov/311
- Request additional pickups: recycle@cambridgema.gov
- Flatten cardboard before placing in cardboard dumpster
- Email Meryl for blue bins, deskside bins, totes, labels

*Thanks
for Getting
Rid of It Right!*

Teachers / Classrooms

- Provide recycling and composting information to teachers to share with students and post in classroom
- Offer presentations
- Emails:
 - Start of school
 - America Recycles Day
 - Resolve to Recycle
 - Earth Month
 - End-of-year clean-out
- Promote “The Green Team” (few)
- Some classrooms collect food scraps
- CRLS – work with teacher, club



Communications

- Website, Communications Office
- “Backpack Express” inserts about recycling and composting
- Waste Reduction Memo - Superintendent Newsletter

Annual Waste Reduction Reminders to all CPS Staff

Please take a moment to quickly review the annual Waste Reduction reminder memo from the Chief Operating Officer.

Recycling and Composting

Thank you for all you do to reduce waste and to help your students to recycle and compost!

Please contact [Meryl Brott](#), DPW Recycling Program Manager, for recycling bins, presentations, questions, etc.



Documents

- [We Recycle at School - Recycling Guidelines](#)
- Our Lunchroom Set Up & Tips:
 - [CSUS](#)
 - [Hagerty](#)
 - [King Open](#)
 - [MLK/PAUS](#)
 - [All Other Elementary & Upper Schools](#)
- [The Sorting Game](#)
- Review & Quiz
 - [CSUS](#)
 - [Hagerty](#)
 - [King Open](#)
 - [MLK/PAUS](#)
 - [RAUC](#)
 - [All Other Schools](#)
 - [All Other Schools - No Share Table](#)

Signs/Posters

- Waste Stations
 - [Elementary & Upper Schools](#)
 - [Spanish](#)
 - [MLK/Chinese](#)
 - [CRLS](#)
- [CRLS Composts & Recycles](#)

Videos

- [Watch How Your Recycling Gets Sorted](#)

Worksheets

- Get Rid of It Right in the Lunchroom: Fill-in-the-Blank
 - [MLK/PAUS/KingOpen/CSUS](#)
 - [All Other Schools \(Elementary & Upper\)](#)
- Get Rid of It Right in the Lunchroom: Match the Item with the Container
 - [MLK/PAUS](#)
 - [CSUS](#)
 - [All Other Schools](#)
- Get Rid of It Right: Recycling Quiz
 - [All Schools](#)

The Green Team

Sign your class up for [The Green Team](#)! The Green Team is an interactive educational program that empowers students and teachers to help the environment through waste reduction, recycling, composting, energy conservation, and pollution prevention. Participating classes receive certificates of recognition and are eligible to win awards.

Cafeteria Waste Diversion



- In all schools except the Tobin (no cafeteria)

We Recycle and Compost at School



LIQUIDS

Drinks
Soup
Cereal Milk
Ice

RECYCLE

EMPTY - NO FOOD

Plastic Cups
Cereal Bowls
Bottles
Cans
Foil
Paper Bags
Boxes

TRASH

EVERYTHING ELSE

Forks, Spoons, Knives
Wrappers
Chip Bags
Milk Cartons, Juice Boxes
Yogurt Cups*
Mini Plastic Cups
Black Plastic Containers

*Too much food on it to recycle it at school. At home, rinse and recycle it.

FOOD

NO WRAPPERS

All Food
(Napkins OK!)

Compostable PAPER

Trays
Plates, Bowls
Napkins

Thank you!

You protect animals and nature when you recycle and compost!

Get Ready to Clean Up!

While at your table:

DRINK IT, OPEN IT

- Try to finish your drink.
- Make the opening bigger so it pours out faster.

EAT IT, UNWRAP IT, SHAKE IT (FOIL)

- Try to eat all your food. The best place for your food is your stomach!
- Take food out of wrappers.
- Shake foil to get off as much food as you can. Foil goes in RECYCLE unless there's a lot of food on it.

GATHER IT

- Put all trash items together -- forks, plastic wrappers, mini cups, straws, etc.
- Then you can grab them all at once and put them in the TRASH.

Then...

LIQUIDS → RECYCLE → TRASH → FOOD → COMPOSTABLE PAPER



Thank you!

You are helping protect animals and nature when you recycle and compost!



Questions?
Contact Meryl Brott:
617-349-4836
mbrott@cambridgema.gov



Have **unopened** food or drink from school lunch?
Have **uneaten** fruit from school lunch?

Put it on the Share Table!



Still hungry? Take what you need!

We protect animals and nature



when we RECYCLE and COMPOST! ♻️

Lunch Aides

- A few help students sort
- Added to their job description



Volunteers - “Cafeteria Crew”

- Cafeteria volunteers (start of school mostly, a few go weekly)
- Lunch mostly, very few for breakfast
- 2023-2024 – the most volunteers yet



ZERO WASTE
CAMBRIDGE

It's Back to School and we...
Need Volunteers!

Help Cambridge Public School Students after Breakfast and Lunch:

- ✓ Learn what to compost/recycle
- ✓ Build life-long compost/recycling habits
- ✓ Feel good about taking the time to “Get Rid of It Right”

No Experience Necessary

LIQUIDS **RECYCLE**

COMPOSTABLE PAPER **FOOD** **TRASH**

START

Sign Up Here To Volunteer

For more information, contact recycle@cambridgema.gov or call 617-349-4836

The poster features a green header with the Zero Waste Cambridge logo and a green banner with the text 'It's Back to School and we... Need Volunteers!'. Below this, it lists three benefits of volunteering: learning what to compost/recycle, building life-long habits, and feeling good about taking the time to 'Get Rid of It Right'. It also states 'No Experience Necessary'. A QR code is provided for signing up. The bottom section shows four types of waste: Liquids (a pitcher), Recycle (a blue bin), Compostable Paper (a green bin), Food (a green bin), and Trash (a black bin). A red arrow labeled 'START' points from the Trash bin towards the Liquids bin. The footer provides contact information for more details.

Food Services

- Present to staff at start of school year (if possible, or director covers)
- Kitchens have compost and recycle
- Products: compostable, recyclable, no polystyrene
- Bulk condiments/dressing vs. individual packets
- Water dispensers & cups vs. water bottles
- Straws for JK & K only

Hiring new Director of Food & Nutrition Services



Presentations

- Most presentations: Morse School
- Most common grade: Kindergarten
- Content:
 - What is recycling?
 - What do we recycle? (4 categories)
 - Practice sorting
 - What happens to our recycling?
 - What do recyclables become? (examples)
 - (Recycle song)
 - Casella video of materials getting sorted
 - Some things go in “special recycling”
 - Clothes, electronics, metal
 - Recycle food scraps – compost!
 - Use a bag or box at home for your recycling.
- Give pencils made from recycled newspapers and reusable recycling bags



**Recycle, Recycle
I like to Recycle**



**What I put
in here today**

**comes back again
another way.**

Waste Diversion in Cambridge Schools



Meryl Brott, Recycling Program Manager
mbrott@cambridgema.gov / 617-349-4836



RECYCLING & REUSE IN MUMBAI

Meera Singh

March 13, 2024



SOME FACTS ABOUT MUMBAI

21.3 MILLION

Mumbai Metro Area Population

6,800 TONS
*Estimated

Daily Municipal Solid Waste

70%

Daily Waste Ending up in Landfills

UP TO 300,000
*Estimated

Number of Waste Pickers in Mumbai

There is no clear estimate since this sector is considered “informal”



OVERVIEW

- **Recycling and waste reduction is spun into the webs of daily life in Mumbai.**
- **For most, it is a source of livelihood before it is a project of eco-consciousness**
- **Waste Collectors (street), recycling vendors, repair shops mochis (sidewalk cobblers), sidewalk tailors**
- **This myriad of systems and actors might seem confusing, but it enables far more meticulous processes of collection and sorting than, for example, a municipal recycling program in the US**
- **For people – extending life of shoes, clothes, household goods**

INDIA'S SOLID WASTE MANAGEMENT SYSTEM





WASTE PICKERS

The unsung heroes of
the recycling industry's
supply chain



WHO ARE WASTE PICKERS?

Waste pickers are defined as a “people or group of persons informally engaged in collection and recovery of reusable and recyclable solid waste from the source of waste generation the streets, bins, material recovery facilities, processing and waste disposal facilities for sale to recyclers directly or through intermediaries to earn their livelihood (sic)”.

– Solid Waste Management Rules [Rule 3(1) (58)]



Source: <https://thewire.in/rights/india-waste-pickers-covid-19-lockdown>

Image Source: <https://www.goethe.de/prj/zei/en/nac/22273144.html>

Waste Picker collecting recyclables to sell

They sell their recyclables to Material Recovery Facilities, or to individual recycling vendors.





Lakshmi, a waste collector in our neighborhood told me she has been collecting waste for about 20 years. She moved to Mumbai from a southern state to do this work. Her relatives had done the same before. She provides for her family.

Here she is sitting outside the recycling vendor's shop, separating different types of metal from objects.

Bare hands, rudimentary tools.

Dalmia Polypro's Material Recovery Facility

MRFs like this are set up in the city, and are a good example of Municipal – Private – Waste picker Partnership. Here further sorting is done before the materials are transported to manufacturing units.



MATERIAL RECOVERY FACILITIES

Material Recovery Facilities (MRFs) are collection and separation centers where recyclables are received from independent waste pickers and aggregators, before they are transported to recycling and manufacturing units.

This chart hangs in a MRF and lists the names of the independent waste pickers and the areas they collect waste from.

Sr No.	Center code	Road Name	Location	Name	Start Point Latitude & Longitude	Distance From the Sea	End Point Latitude & Longitude	Distance From the Sea	Area covered in Kilometers (Kms)
1	D/SBS/025	Nepeansea road	PDP to Kemps corner	Shankar Sheteyar	18°57'25.22"N , 72°47'55.88"E	0.2 km	18°57'46.50"N , 72°48'19.40"E	0.6 km	1.9 km
2	D/VS/003	Nepeansea road	Covers area Pdp	Vijaya Shetty	18°57'24.36"N , 72°47'55.69"E	0.2 km	18°57'1.67"N , 72°47'45.53"E	0.3 km	1.6 km
3	D/RMK/001	Nepeansea road	PDP to Kemps corner	Rajeshree Mobin Khan	18°57'25.22"N , 72°47'55.88"E	0.2 km	18°57'46.50"N , 72°48'19.40"E	0.6 km	1.9 km
4	D/YBC/004	Nepeansea road	PDP to Nepeansea road to Dabulkar road	Yankamma Balu Chowdhari	18°57'25.44"N , 72°47'56.67"E	0.2 km	18°56'57.51"N , 72°47'42.00"E	0.3 km	1.8 km
5	D/RKD/008	Altamount Road	Covers Altamount road	Rajati Kalippa Devendra	18°57'56.64"N , 72°48'32.16"E	0.9 km	18°58'25.51"N , 72°48'40.72"E	0.8 km	1.7 km
6	D/PSD/009	Altamount Road	Covers Altamount road	Parmeshwan Suresh Devendar	18°57'56.64"N , 72°48'32.16"E	0.9 km	18°58'25.51"N , 72°48'40.72"E	0.8 km	1.7 km
7	D/MMS/011	Tata Garden	Covers Tata garden, Parsi Hospital Lane to Breach candy	Madhuakka Murugan Swamy	18°58'0.90"N , 72°48'11.09"E	0.3 km	18°58'28.67"N , 72°48'23.41"E	0.15 km	1.1 km
8	D/SPK/012	Nepeansea road	PDP to JM Mehta Marg	Sulochana Perual kaunder	18°56'56.10"N , 72°47'45.18"E	0.2 km	18°57'22.89"N , 72°47'57.77"E	0.3 km	2.1 km
9	D/LSN/015	Tata Garden	Breach candy	Laxmi sagadeva Naydu	18°58'0.25"N , 72°48'12.14"E	0.3 km	18°58'30.44"N , 72°48'24.06"E	0.15 km	1.1 km
10	D/MSK/016	Walkeshwar road	Chowpatty to babunath till Raj bhavan	Madhurani Siddhan Kaunder	18°56'35.43"N , 72°47'39.76"E	0.15 km	18°57'12.91"N , 72°48'55.66"E	0.12 km	3.9 km
11	D/ASK/017	Walkeshwar road	Chowpatty to babunath till Raj bhavan	Anjali Kaunder	18°56'35.43"N , 72°47'39.76"E	0.15 km	18°57'12.91"N , 72°48'55.66"E	0.12 km	3.9 km
12	D/C/FP/001	Grant Road	Kamathipura to Grant road to Madanpura	Fareed Plastic	18°57'47.47"N , 72°49'4.32"E	2.6 km	18°58'11.46"N , 72°49'48.23"E	2.3 km	2.9 km
13	D/C/SP/002	Mahalaxmi	Mahalaxmi railway compound	Shehzad Plastic	18°58'54.19"N , 72°49'28.70"E	1.0 km	18°58'32.90"N , 72°49'17.68"E	1.0 km	1.1 KM
14	D/C/AP/004	Masjid bandar	Masjid bandar Road to Bhendi bazaar	Anamul Plastic	18°57'10.43"N , 72°50'2.46"E	1.4 km	18°57'25.85"N , 72°49'55.82"E	1.6 km	1.1 km

Location	Name
PDP to Kemps corner	Shankar Sheteyar
Covers area Pdp	Vijaya Shetty
PDP to Kemps corner	Rajeshree Mobin Khan
PDP to Nepeansea road to Dabulkar road	Yankamma Balu Chowdhari
Covers Altamount road	Rajati Kalippa Devendra
Covers Altamount road	Parmeshwan Suresh Devendar
Covers Tata garden, Parsi Hospital Lane to Breach candy	Madhuakka Murugan Swamy
PDP to JM Mehta Marg	Sulochana Perual kaund
Breach candy	Laxmi sagade





MAKING AN EXTRA BUCK

For every 2 pounds of
plastic bottles collected,
waste pickers earn around \$0.24







CHALLENGES FOR WASTE PICKERS




SOCIETAL & CULTURAL CHALLENGES

-  Waste pickers are poor and marginalized
-  They face caste discrimination
-  They are often seen and labelled as vagrants
-  Most are Illiterate

ECONOMIC CHALLENGES





-  Waste pickers are excluded from the municipal system
-  They are not hired as employees of the city government
-  No safety net during economic downturns, such as the COVID-19 pandemic
-  Unstable income due to fluctuation in recycling markets

SAFETY CHALLENGES

-  Waste pickers do not have appropriate equipment – only their bare hands & a large bag
-  They manually separate waste, including separating heterogeneous parts of bottles, tires, etc.
-  They have to deal with hazardous waste regularly

SUPPORT FROM MUMBAI'S MUNICIPAL CORPORATION



-  Mumbai Municipal Corporation has donated land for storage and sorting sheds across the city
-  Waste pickers' associations run these facilities
-  The Mumbai Municipal Corporation transports the sorted recyclables from these centers to Material Recovery Facilities (MRFs)
-  Despite this support, there are not nearly enough of these centers and they are spread unevenly across 24 wards of the city

NON-GOVERNMENTAL ORGANIZATIONS (NGOs) SUPPORTING WASTE PICKERS

ASSOCIATIONS & COOPERATIVE ORGANIZATIONS

-  Stree Mukti Sanghatan
Supports women WPs with financial assistance, training & setting up coops.
-  Acorn Foundation
Organizes waste pickers, training, financial support.



OTHER CITIES

-  Chintan, Delhi
-  Swach, Pune
-  International Alliance of Waste Pickers

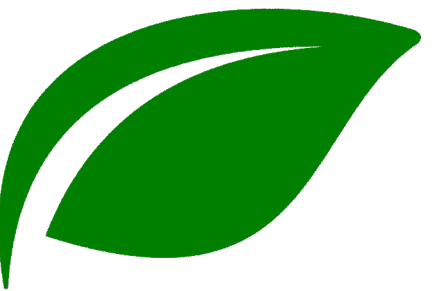
Waste
picker
sells to

Material
Recovery
Facility

Raddiwalla -
Itinerant
waste
buyers, small
scrap dealers

Raddiwalla
Itinerant waste
buyers, small
scrap dealers -
found in
neighborhoods

Sells to larger junk
and scrap dealers





RADDI & RADDIWALLAS

HOUSEHOLD RECYCLING SYSTEM

Raddi:

scrap, junk

Raddiwalla:

scrap/junk dealer, recycling vendor
(usually a small business)

Newspapers, metal, plastic, glass and other items are stored until there is enough to call the neighborhood raddiwala to sell the raddi (recyclable waste) to.





Mr. Pandey, our
neighborhood *raddiwala*,
separates the different
materials before
weighing them.



Weighing
and
paying us!



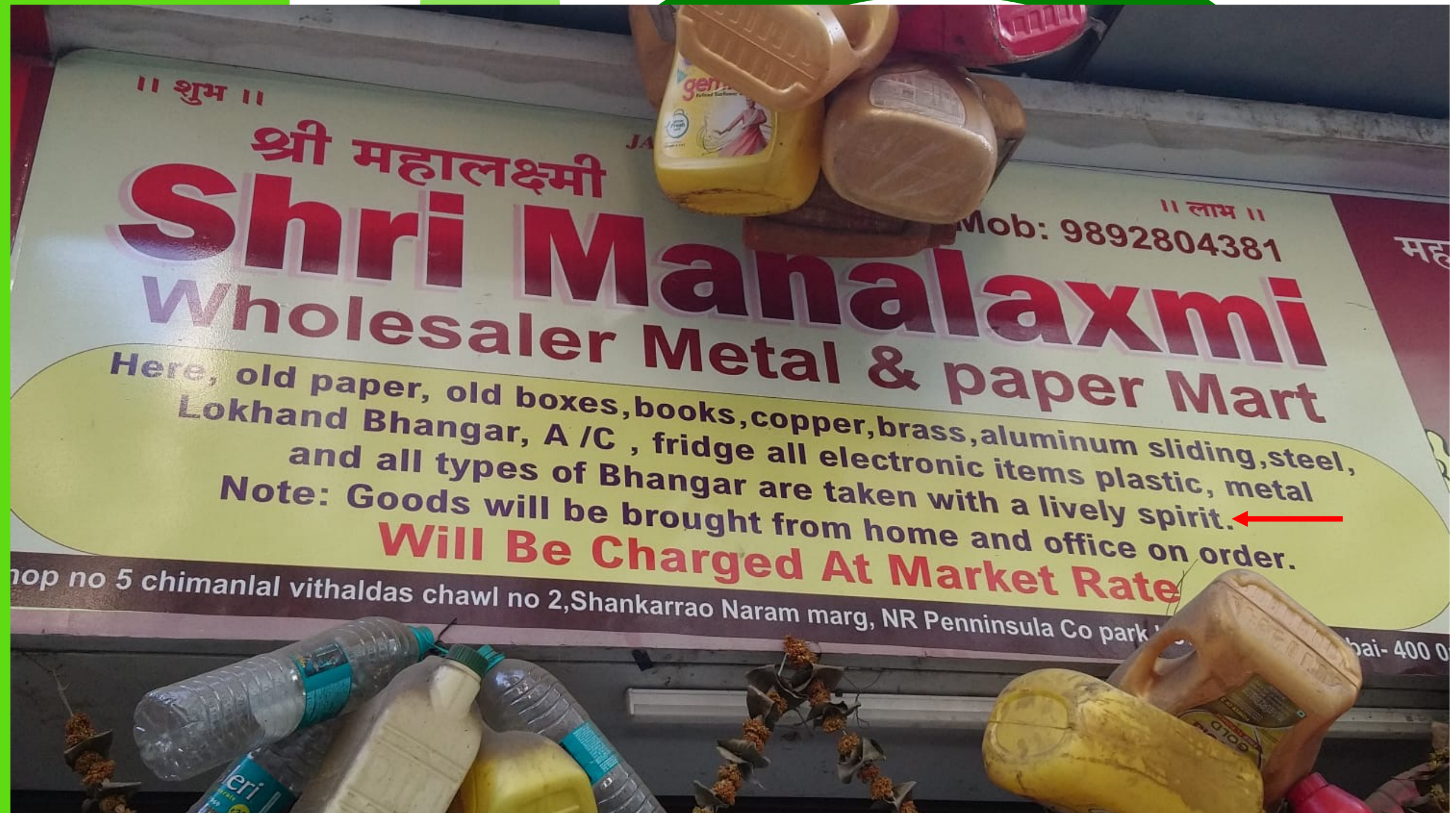


Mr. Pandey loads the recyclables on his bicycle and takes them to his kiosk about half a mile away.





Further sorting gets done at the vendor's shop before the recyclables are picked up by the small scrap traders – some of these traders will convert the plastic into pellets before selling to the larger dealers or manufacturers





Example of rates

Narayan, whose recycling shop is on the block where I live, told me the prices fluctuate daily, especially those of metal.

Item	Buys for (per kilo) INR	Buys for (per kilo) USD
Paper	₹15.00	\$0.18
Cardboard	₹10.00	₹10.00
Plastic		
Glass	Low value	Based on color
Copper	650 – 700.00	7.85 – 8.45
Brass	450.00	5.44
Zinc	150 – 180.00	1.81 – 2.17
Aluminum	150.00	1.81
Steel	30.00	.36



Lakshmi is separating metal sitting Outside Narayan's shop.



INNOVATIVE RECYCLING INITIATIVES

RECYCLING OF EVERYDAY PRODUCTS

Plastic Milk Bags  Temple Flowers

THE MILK BAG RECYCLING PROJECT



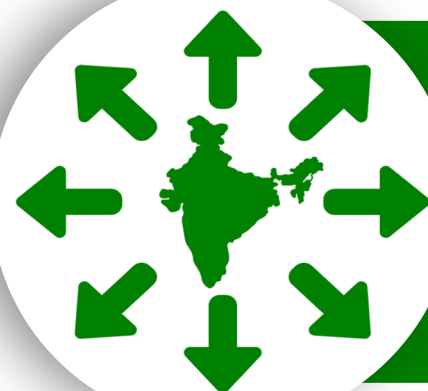
Most people in India
receive milk in plastic
milk bags



A video was created to teach
viewers how to cut milk bags
correctly to create less waste



The video went viral through
social media and spurred
Milk Bag Collection









Project grew rapidly across
India resulting in collection
partners in 5 major cities today

Recycled milk
bags are
made into pipes,
buckets,
benches,
and more



Over 2.5 tons of milk bags (about 1 million) have been saved from landfills, and from polluting water bodies and land.

“FLOWERCYCLING” TEMPLE WASTE

-  Devotion displayed with flowers
-  800 million tons of flowers offered in temples and mosques annually
-  Sacred so can't be sent to landfills
-  Put in rivers & base of sacred trees – in plastic bags
-  Pesticides leach into rivers/plastic bags
-  Initial resistance, now thriving social enterprise





**1.5 tons of flowers
collected daily from
temples & mosques**



**Sorting flower
waste – women**



**Increased
Income**



**Made incense sticks,
bathing soaps,
enriched compost**



**Products sold in holy
basil seed infused paper
for planting**



“REPAIR & REUSE” ENTERPRISES ARE UBIQUITOUS IN INDIA

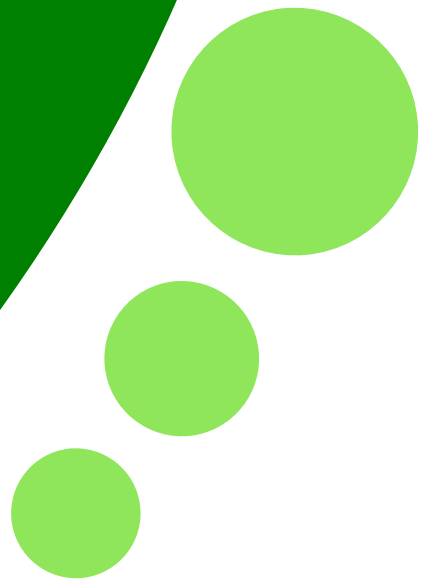
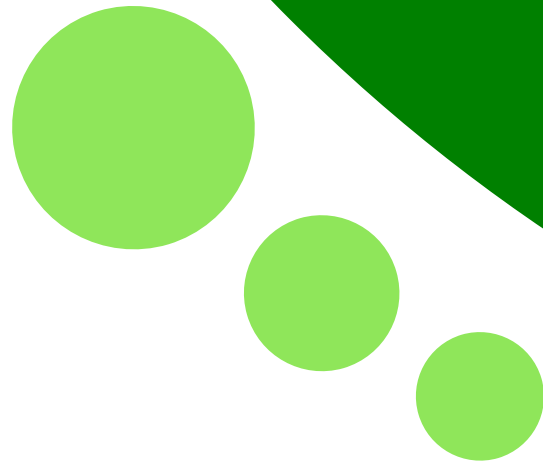
COBBLERS



TAILORS



FIX IT STORES



“MOCHI” - COBBLER

Mochis set up “shop” on sidewalks and are patronized by the rich and poor. Apart from shoes, they repair bags, belts and even umbrellas!



SIDEWALK TAILORS

You can find one in almost every neighborhood. They often “rent” small spaces in front of stores.



ELECTRICAL, ELECTRONIC AND GADGET REPAIR SHOPS

While I was in India
recently, I had our
kitchen blender and
pressure cooker
repaired!





**THANK
YOU!**

A career designing out waste

Dawn Quirk, MIT Office of Sustainability

Cambridge DPW Recycling Specialist Commissioner Lisa Peterson



Focus on customer service, community projects, managed volunteers, and contractor (FW Russell & Sons) performance at the curbside

Participated in the City's first staff Diversity Committee

Attended RAC meetings (Rob Gogan, Judy Nathans, and Robert Winter)

City of Cambridge

Community-Based Recycling Outreach
Participation Project

Sponsored by MA DEP Technical Assistance Grant
Final Report – August 2003

Project Designed By:

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Highlight

First nationwide curbside participation study, funded by MassDEP

The project Included City's first waste audit and testing the effectiveness of different educational brochures

Results inconclusive



Highlight

Helped organize the DPW's first zero waste staff appreciation barbeque

City subsequently phased out disposal event boxes





Dawn sorting contamination from the food waste



July Nathans on the left speaking with my husband during a well deserved break.

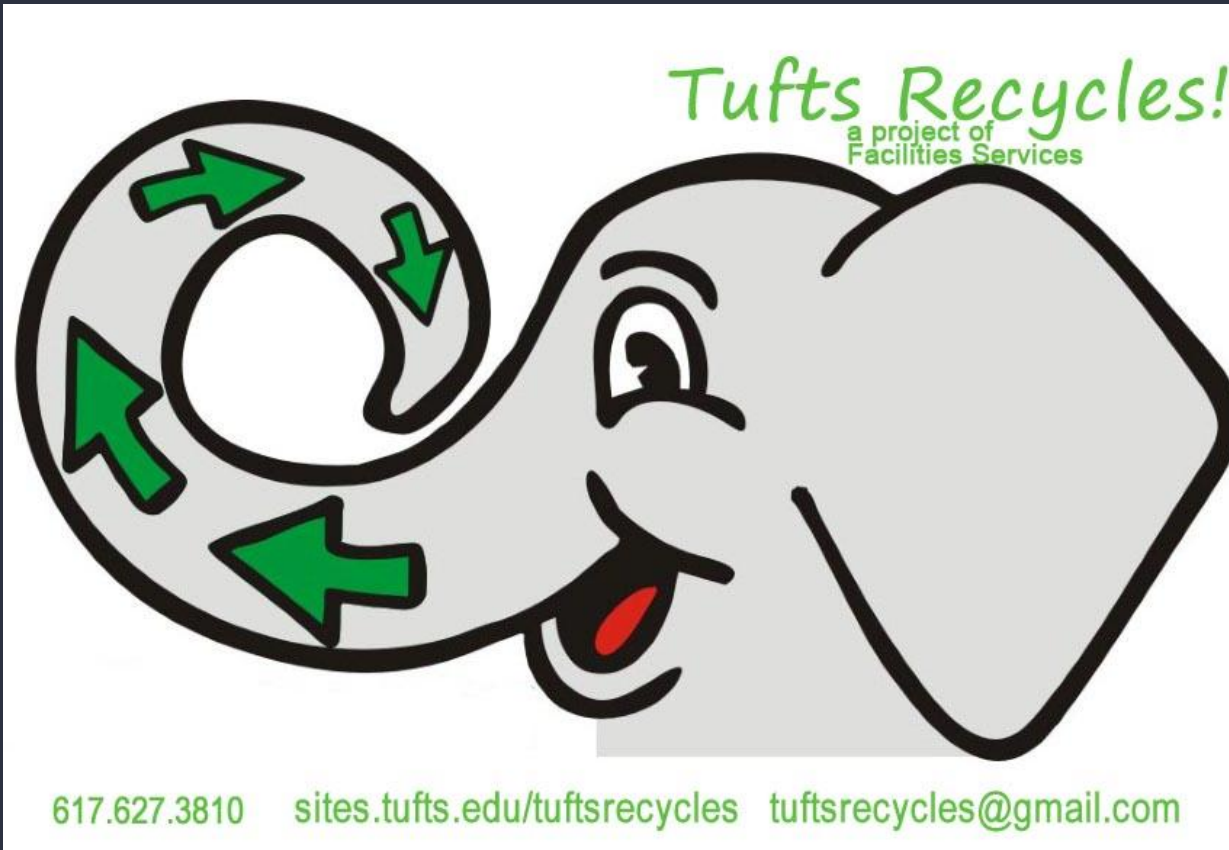
Highlight

Volunteered with several colleagues for Pat Scanlon at one of the early pioneering zero waste Lowell Folk Festivals



Zero Waste Program Manager, Tufts University

Responsible for waste & recycling contracts and designing and running programs for three campuses (Somerville/Medford, Boston Health Sciences, Grafton Vet School)



Highlights

Social marketing. Branded everything:

Mascot

Signature Color

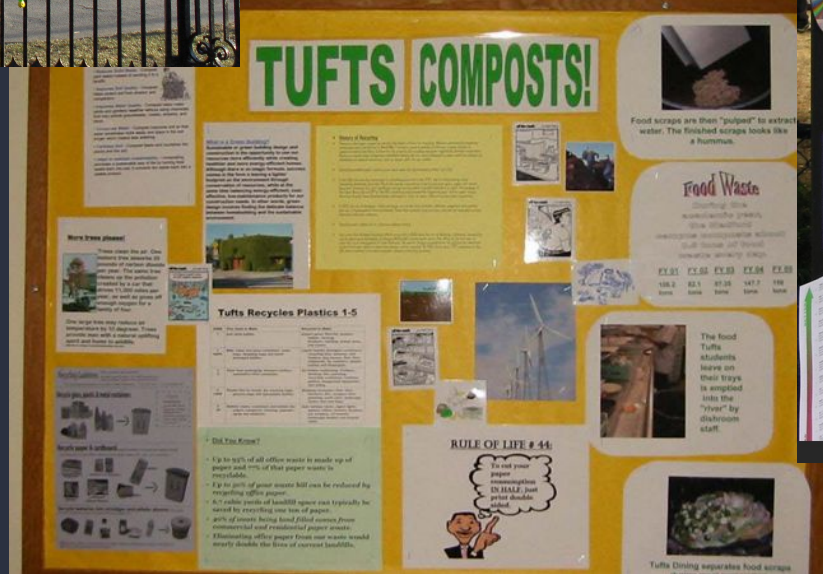
Matching Bins and Labels

Team of students curating events, competitions, videos, and more



Highlights

Tufts Recycles!





Beyond the Bin



Sneakers
Tennis Balls



Outgoing video of
recommendations for future
commencements

Highlight

My manager said that Tufts zero waste commencement is one of my legacies

Other high profile zero waste events:

Matriculation

President's Picnic

Freshman orientation night

Community Day

Homecoming



Highlight

Extensive move-out program
Evolved over my ten year
tenure. Final model was
R2Pack and
Freecycle/External Donations



Highlight

Extensive move-out program

Evolved over my ten year tenure. Final model was R2Pack and Freecycle/External Donations





From Dump & Run to Jumbo Drop to finally R2ePACK

Reuse
Recycle Everything
Pack &
Clean
...K!



Reusing all year





MassDEP Bureau of Air & Waste

Waste Ban Inspector for 12 months

Grant Manager: Cape Cod Paint Care
Grant (paint recycled into new paint)

,Boston Zero Waste Planning

Municipal Assistance Coordinator

Household Hazardous Waste
Specialist

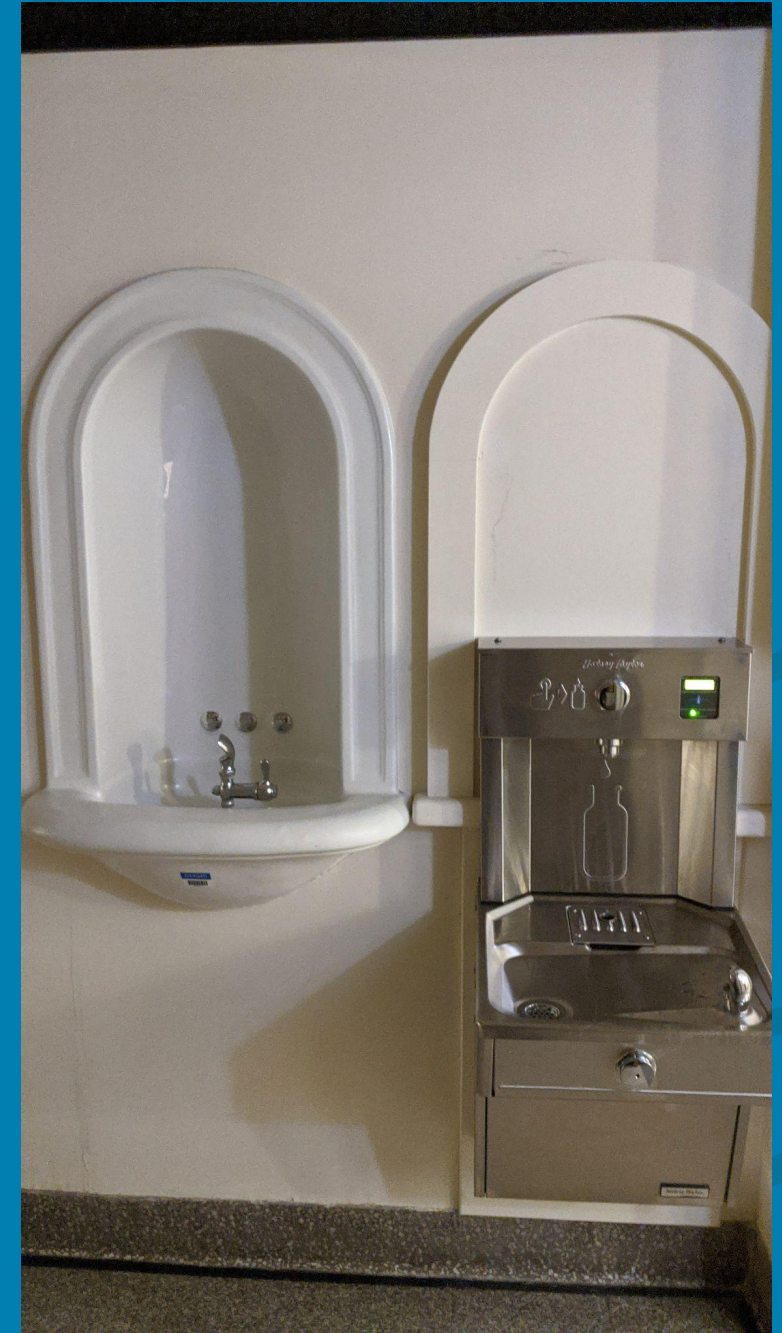


Design Out Waste, Project Manager

MIT Office of Sustainability

Focus on waste reduction

- Reuse with the online marketplace platform Rheaply
- Dormitory food waste collection
- Reuse metrics
- Reuse Action Plan
- Foodservice waste



Highlight: Alexis Hocken Research



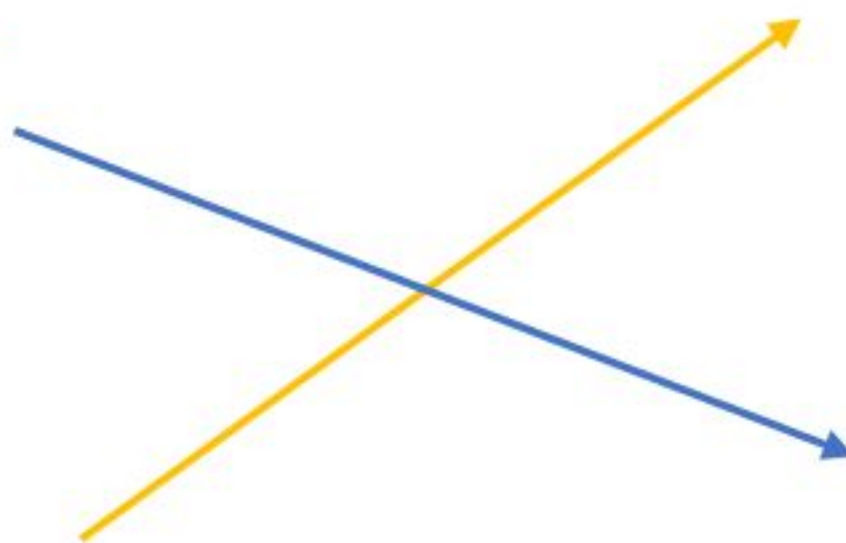
Collection drive for branded plastic containers to train AI to read brands to separate plastics for producer take back

Ideation Phase

Evolving a Reuse Brand & Measuring Design Out Waste Activities

Solid Waste Reuse

Weighted Reuse Activities



Areas to Measure

- Number of central collection bin systems adopted
- Number of water bottles refilled
- Rheaply transactions
- Choose to reuse transactions
- Reuse email list– how to quantify?
- Sales from Furniture Exchange
- Repair/refurbishing sales by number or dollar
- Number of reusable Dining green-box program used
- Number of reusable bottles/mugs distributed
- Buttons pressed (food & electronics)
- Number of whiteboard erase reuse programs
- People
- Rheaply users
- Low waste events users?
- DLCs using repair/refinishing services

Events

- Choose to Reuse
- T2T
- Repair Clinics
- Low waste catering transactions (potential to track by creating a feedback form?– ask Marty how this works)
- Reuse sites
 - Collective Reuse
 - Book swap shelves
 - Office supply share
 - Swap sites (shelves, closets, etc.)

Infrastructure

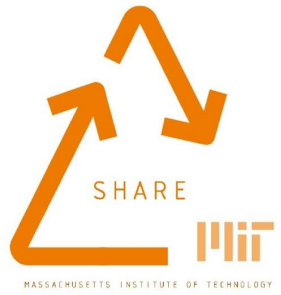
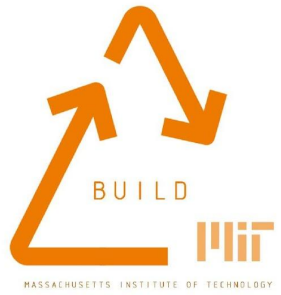
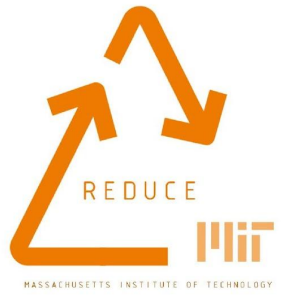
- Units of water fountains
- Units of dishwashers
- Units of hand dryers (how to repair hand dryers?)
- Red Buttons Installed

Goals Reached

- I.e., reduce volume of bottled water purchased/distributed (at events, for example)

Fissured Chasing Arrow







Thank you for learning about my career!