



ZERO WASTE REVOLUTION

2016-2017 School Year

MONTHLY REPORT • DECEMBER

Video goes VIRAL!

It was a long haul – and we had to request a three-month extension – but the Zero Waste Revolution video was finally in watchable form on December 15th, just in time for the Board’s meeting with **H. Mitchell D’Olier**, Chair of the Harold K. L. Castle Foundation. The visually gorgeous presentation was viewed on the big screen in the library conference room, a perfect venue. Following a tour of the campus with Mr. Noh and quick meeting with Ms. Mindy, Mr. D’Olier pledged Castle Foundation’s support of the Revolution’s future and confidently predicted our video would go viral.

After some tweaking with the credits a few days later, cinematographer **Gabe Cabagbag** posted the finished piece on Dropbox via the Lanikai School Facebook page and on YouTube. The numbers started climbing immediately. By end of day on December 31st, the view count on Dropbox exceeded 197,000, with over 4,700 shares. Our Zero Waste journey traveled across the mainland and as far away as Dubai!

Lanikai School is extremely proud to have created such an inspirational project and beautiful product to show to the world. We are grateful for the grant from the **Koaniani Fund of the Hawaii Community Foundation** to produce the movie and for the considerable skills and artistry of Gabe Cabagbag. Lanikai School’s Zero Waste Revolution now takes its place the *global* stage. What’s next?

The 8-minute video featured Lanikai students performing a Food Waste Audit at Ka’elepulu Elementary, sorting and separating at lunch, using Sort-It-Out Sam, harvesting compost and vermicast, and planting seeds in the garden.

Interviews with Mr. Noh, Ms. Mindy, Mr. Sawyer, custodian Jeff Mizuno, and students Emma McDonald and Ka’imi Victor provided

a variety of perspectives. The story was topped off with a few quickie lessons on compost pile construction and worm care. Google “Lanikai Zero Waste Video” or type in www.youtube.com/watch?v=nXxcC_nTFD4 or https://www.dropbox.com/s/5ymnjivrc2b7vam/ZeroWaste_FINAL3_3.mp4?dl=0



More media...

The Lanikai Grannies contacted renowned *Star Advertiser* columnist **Lee Cataluna** about their mylar upcycling project and she agreed to write a story, reprinted with permission on the facing page.

The Grannies set up a table at the Winter Concert event to sell their charming, colorful mylar craft pieces. The response was very enthusiastic and the cash box rang in at \$300! All proceeds benefit the Garden Fund.



Mylar crafters Lily Pu and Lynn Lundquist met with Star-Advertiser columnist Lee Cataluna at Lanikai.



Videographers Paul Nishijima and Malcolm Mekarū

Producers/videographers Paul Nishijima and Malcolm Mekarū were hired to produce a VNR (Video News Release) to send to the TV stations to announce Lanikai’s EPA Food Recovery Challenge award.

Unfortunately, only one station – Hawaii News Now – aired the story. It could be timing, or it could be that a little local school winning big national recognition is not considered particularly newsworthy.

In any case, the experienced filmmakers were enthralled with the project and spent three hours on campus. “This is much more than an award,” Malcolm remarked, “there’s enough story here for a half-hour documentary....” or at least a series of YouTube training videos!

Now that our high-production-values concept piece is completed and circulating, perhaps we can approach Hawaii Community Foundation to fund a series of follow-up pieces that focus on the more detailed “how-to” technical aspects of the operation. E-mail response to the video requested further information.

This banner is the first thing you see when you pull up to the Lanikai School campus!



December 11, 2016

Lanikai kids, 'grannies' team to fight Mylar trash



HAWAII
LEE CATALUNA

You would not believe the amount of Mylar kids throw away. At one little school, they calculated 80,000 pieces a year. And that's a school that's paying attention to the problem and trying to make changes.

Lily Pu's second-grade grandson stopped her from throwing away a Doritos bag. "He told me, 'Puna, that's Mylar!'"

The students at Lanikai School all know to scrupulously separate their trash, even beyond paper and plastic. The school embarked on a zero-waste environmental program this year, and one part has brought a new focus to the problem of Mylar. Far beyond the silvery balloons, Mylar is used in packaging many of the food products kids bring to school: chips, juice pouches, granola bars, packages of dried fruit — sometimes, the healthier the food, the thicker its Mylar package.

They've been keeping records. The school of 330 students from grades K-6 generates between 400 and 450 pieces of Mylar a day. That's enough to fill an 18-gallon storage bin.

"A chip bag for snack, a chip bag for lunch, it adds up quickly," says Ed Noh, director of the public charter school.

On campus, there are no trash cans, only separation stations. The Mylar bins are full almost daily.

Pu teamed up with her friends Lynn Lundquist, who also has a grandchild at the school, and Adele Wilson, who lives nearby, and formed the Lanikai Grannies to help the school figure out what to do with all this waste.

The three started crafting. Lundquist experimented with cutting up the packages and rolling them into beads on a spindle and stringing these into colorful necklaces. Wilson began sewing juice boxes into cute, durable tote bags and purses. Pu made a charming woven pencil case with a zippered closure out of 62 Cheetos bags. "That's two classrooms, one snack," Noh says.

The smaller pieces, the ones that can't be turned into a bracelet or a purse, are being made into sound-buffers to be installed in the noisy cafeteria. "I'm calling it 'acoustical apparatus art installation,'" says Mindy Jaffe, who helps organize the school's environmental programs through a grant. She plans to help students take decibel readings of the cafeteria noise before and after the Mylar "flowers" are installed on the ceiling.

But the Lanikai Grannies say the craft projects will only get them so far. They're so labor-intensive and each piece of Mylar has to be washed and cleaned thoroughly before it can be reused. They'll sell their crafts as a fundraiser for the school's environmental program, but what they really hope for is awareness.

"People ask me about the beads and I say they're made of Mylar and they go, 'What?'" Lundquist said. "They have no idea."

The students have become teachers in their homes and communities, telling people that Mylar doesn't decay, it can't be recycled, and there are no big up-cycling programs in Hawaii as there are on the mainland. Parents are starting to make changes like buying food products that don't come in Mylar packaging, packing juice in washable containers, and buying a large bag of chips and packing smaller portions into reusable bags. The Grannies have even created reusable sandwich and snack bags out of Mylar.

For Halloween, the Grannies made Noh a grand cape and headpiece made out of Mylar packages. When the students asked him what he was, he joked, "I'm your conscience!"

Reach Lee Cataluna at 529-4315 or lcataluna@staradvertiser.com.



Lily Pu shows off a pencil case made out of 62 Cheetos bags. The Lanikai Grannies have been trying to help Lanikai School's zero-waste program by finding ways to deal with the Mylar packaging that comes with so many snack foods and juice pouches.

Kainalu says YES and we get creative

The Food Waste Audit conducted at Kainalu Elementary last month revealed a challenging situation. The average of 244 pounds of food waste generated at breakfast and lunch daily presents a **22-ton** annual food waste recovery opportunity.

This is roughly equivalent to Pearl City High, where two professional Resource Recovery Specialists were on hand every day from 10:30am to 2:30pm to handle the load. Is it possible to accomplish the same superhuman collecting and processing feats with one aging but experienced practitioner, a few part-time energetic KUPU interns, and a handful of fairly reliable Master Gardener volunteers?

Although in the Waste Audit Report we recommended only one day of separation and hot-compost-pile building based on our current resources of Ms. Mindy and one KUPU intern, we all knew in our heart of hearts that once you have separated and bucketed food waste with 460 fresh-faced impressionable elementary school students, there is no way back to the Dark Side.

So starting Monday, January 9th – the first day of the 2nd semester – Kainalu is going Zero Waste in the cafeteria. They have a worm colony that will process only 2% of the total; the rest will be hot composted. They will build nearly one 1,000-pound pile a week, 20 over the semester, 40 piles annually. (At Lanikai, for comparison, we build eight to ten piles each year.)

To make this happen, we are exploring monetizing the compost piles and creating a reward-for-hours volunteer structure. Last month we met with Jayme Grzebik, coordinator of UH's Master Gardener program, now located in Waimanalo. Volunteering a number of hours is required for MG certification. Composting is part of the curriculum, but hot composting in a residential setting is neither feasible or adequate for most local gardeners, so we thought that learning and helping with school-level composting would be more practical.

Master Gardeners – or anyone else who is interested – can purchase a \$20 share in a specific compost pile, say, Turquoise. (Limit of four shares per pile. Money goes into the Garden Fund for tarps, bricks, hoses, nozzles, pitchforks, storage boxes, and other expenses.) Shareholders are required at the very least to help harvest, and automatically get two buckets of finished compost upon completion of the harvest.

To earn additional buckets of compost, volunteers can help with the daily cafeteria Separation Station, add layers of food to build the pile, do the weekly poke 'n soak pile maintenance, or help with garden projects. Volunteer hours are converted into points, and so-many points earns buckets of compost. Gardeners will have a chance to earn all the compost they need, we will be training and monitoring a corps of experienced school-style composters, and the expenses of the program will be covered.

After “paying” the shareholders with bucketsful, the remaining compost is handed over to the school for their own use. Considering that each pile yields three cubic yards, there will be plenty for everyone.

Without going into any detail on the investment and point system, Jayme sent out an e-mail to current and new Master Gardeners to ask for assistance the week of January 9th and got enough enthusiastic response to help cover the every day of separating and composting.

We are very hopeful this works over time. Paid staff will always be in short supply so we have to get creative. In any case, it's always advantageous to pool resources and build community.

Dishwasher arrives, raises questions

The commercial dishwasher that was supposed to audition at the beginning of the school year finally was delivered! Everyone, especially Shannon of One Love Cafe – who has been paying out of her pocket for expensive “compostable” cups, boats, bowls, and forks – was looking forward to the switch to reusable, washable food service items, the quintessential Zero Waste breakthrough.

Over Winter Break, Mr. Noh himself broke out the power tools to help build new shelving in the custodians’ supply room so all the equipment could be reorganized to make room for the dishwasher and dishwashing operation. The dishwasher will drain directly into the custodial floor drain, enabling us to add the unit without expensive underground plumbing modifications. Mr. Noh also was able to find an available licensed electrician to run the appropriate wiring to run the machine.



So imagine our surprise when we cracked open the box and found, not the amazing \$6,000 commercial unit that would accommodate hundreds of pieces in one high tech power wash, but what looked like a typical residential under-the-counter appliance. It looks like it will require at least five loads – there goes the afternoon. What happened here???

No matter, we will make do. Equipment can always be upgraded and replaced. The point is, we can get a protocol in place and make the adjustment from disposables to washables, whatever it takes. It’s a teeny dinky dishwasher but it’s a toe in the door.

Lanikai is now the only public school in the State of Hawaii with a dishwasher. This qualifies as a triumph!

Bottom line for December 2016

This report covers the period between December 1 through December 31, 2016. There were 15 school days in December, each one a waste management challenge with endless classroom celebrations, all-school special events, and rainy weather that decentralized lunch catch several times. With practice, everyone on campus has become much more adept at handling these exceptional situations. Whatever minimal food waste we missed is statistically insignificant.

- 100% of all food waste was recovered and composted on site to total **1,673 pounds**. Total to date is **9,308 pounds**, or 4.65 tons.
- 100% of all HI-5 cans and bottles were collected, sorted, and redeemed, thanks to custodian Uncle Jeff.
- 99% of all green waste was processed on campus.
- 98% of all paper and cardboard waste was collected and processed on campus.
- 95% of all mylar was collected and cleaned for future processing.

August thru December 2016 RESOURCE RECOVERY data

<u>Week of</u>	<u>Vermicomposting</u>	<u>Hot Compost</u>	<u>Bokashi</u>	<u>Weekly Total</u>
8/1/2016	193 pounds	192 pounds	0 pounds	385 pounds
8/8/2016	122 pounds	195 pounds	0 pounds	317 pounds
8/14/2016	299 pounds	313 pounds	0 pounds	612 pounds
8/22/2016	254 pounds	364 pounds	0 pounds	618 pounds
8/29/2016	242 pounds	233 pounds	0 pounds	475 pounds
TOTAL August	1,110 pounds	1,297 pounds	0 pounds	2,407 pounds
9/5/2016	178 pounds	218 pounds	0 pounds	396 pounds
9/12/2016	148 pounds	252 pounds	0 pounds	400 pounds
9/19/2016	112 pounds	298 pounds	0 pounds	477 pounds
9/26/2016	216 pounds	202 pounds	0 pounds	418 pounds
TOTAL September	654 pounds	970 pounds	0 pounds	1,624 pounds
10/3/2016	241 pounds	310 pounds	0 pounds	551 pounds
10/17/2016	285 pounds	399 pounds	0 pounds	699 pounds
10/24/2016	199 pounds	366 pounds	0 pounds	565 pounds
TOTAL October	725 pounds	1,075 pounds	0 pounds	1,800 pounds
10/31/2016	199 pounds	374 pounds	0 pounds	573 pounds
11/7/2016	109 pounds	141 pounds	0 pounds	250 pounds
11/14/2016	249 pounds	409 pounds	0 pounds	658 pounds
11/21/2016	157 pounds	166 pounds	0 pounds	323 pounds
TOTAL November	714 pounds	1,090 pounds	0 pounds	1,804 pounds
11/28/2016	234 pounds	250 pounds	0 pounds	484 pounds
12/5/2016	218 pounds	297 pounds	0 pounds	515 pounds
12/12/2016	226 pounds	153 pounds	124 pounds	503 pounds
12/19/2016	123 pounds	0 pounds	48 pounds	171 pounds
TOTAL December	801 pounds	700 pounds	172 pounds	1,673 pounds
AUG. thru DEC. TOTALS	4,004 pounds	5,132 pounds	172 pounds	9,308 pounds

HISTORY of our HOT COMPOST PILES • 2016-2017



CHARTREUSE

START DATE: **8/5/16**

Date	Pounds	Food	Temp
8/5	192		80°
8/12	+195		142°
8/19	387	+313	164°
8/30	700	+110	164°
9/7	810	+100	162°
9/16	910	+133	163°
1,043			

HARVEST DATE: **3/16/17**



PINK

START DATE: **8/24/16**

Date	Pounds	Food	Temp
8/24	187		80°
8/26	+177		142°
9/2	364	+124	168°
9/9	488	+118	156°
9/16	606	+119	162°
9/21	725	+202	156°
927			

HARVEST DATE: **3/21/17**



GOLD

START DATE: **9/23/16**

Date	Pounds	Food	Temp
9/23	298		90°
10/5	+129		152°
10/7	427	+181	156°
10/19	608	+204	156°
10/26	812	+191	160°
1,003			

HARVEST DATE: **4/26/17**



BLUE

START DATE: **10/21/16**

Date	Pounds	Food	Temp
10/21	210		90°
10/28	+175		146°
11/2	385	+177	160°
11/4	562	+197	166°
11/9	759	+141	172°
11/16	900	+146	162°
1,046			

HARVEST DATE: **5/16/17**



YELLOW

START DATE: **11/18/16**

Date	Pounds	Food	Temp
11/18	247		90°
11/23	+166		140°
11/30	413	+138	160°
12/2	551	+112	166°
12/7	663	+155	170°
12/9	818	+142	166°
12/14	960	+153	166°
1,113			

HARVEST DATE: **6/14/17**

Aug. thru Dec. 2016 FOOD WASTE analysis

Food waste generated

The first half of the school year included 89 school days in which lunch was prepared and served.

- Food waste includes all kitchen prep, lunch plate scrapings and snacks, plus occasional events (Fall Festival, Winter Concert, etc.) Total food waste collected and processed: **9,308 pounds** or 4.65 tons. Food waste diversion rate: 100%

- Average pounds of food waste generated daily: **104.6 pounds.**

This compares to 87.9 pounds daily last year. The extra bucket per day is primarily prep waste generated by our lunch provider. Shannon expanded One Love Cafe's catering service to two other schools this year, neither of which are equipped to process their share of the prep waste, so Lanikai absorbed it. Two additional Pipeline POD worm bins were activated to handle 50 additional pounds weekly. Additional prep surplus easily folded into existing operations.

Lunch and snack waste have remained consistent, averaging 80 pounds daily.

Food waste processed

- Total waste composted by worms: 4,004 pounds – 43%. The February harvest yielded 548 pounds of vermicast.
- Total waste hot composted: 5,132 pounds – 55%. Five compost piles were harvested Aug-Dec yielding 13.5 cubic yards of premium compost.
- Total waste fermented via bokashi: 172 pounds – 1.8%

While bokashi fermentation was a necessity at Pearl City High, where heavy meat meals were prepared (Oven Baked Chicken on the menu guaranteed 150 pounds of uneaten chicken thighs complete with skin and bone), animal protein is used sparingly in Lanikai lunches. Only one Bokashi Blaster was filled for a science experiment.

With the demand for thermal compost and vermicast so high, it makes sense to focus primarily on producing these popular and profitable soil amendments.

TOTAL FOOD WASTE
processed during the
first half of the
2016-2017 School Year:
9,308 pounds
(4.65 tons)

TOTAL COMPOST
produced during the
first half of the
2016-2017 School Year:
13.5 cubic yards

TOTAL VERMICAST
produced during the
first half of the
2016-2017 School Year:
548 pounds



Two new worm bins absorbed 50 additional pounds of prep waste weekly, and will yield 320 additional pounds of vermicast annually starting August of 2017.

Summary of new accomplishments

The following list summarizes our major accomplishments from August 1 – the first day of the 2016-2017 School Year – through December 31, 2016.

Waste reduction

- Lanikai continues to lead the state and indeed *the nation* in organics waste reduction, with a consistent near-perfect record of waste collection and on-site processing of food waste, paper, cardboard, and green waste. Awarded EPA's 2016 Food Recovery Challenge, category Schools K-12 for 2014-2015 school year.
- *A Lanikai Parents' Guide to the Zero Waste Revolution* published and distributed.
- 95% of mylar packaging was collected for upcycling, a program still in progress.
- Dishwasher purchased, delivered, soon to be installed. Will eliminate single-use disposable items.

Media

Welcome to Lanikai School's Zero Waste Revolution video completed, posted, and circulated worldwide.

Community outreach/expansion

- Conducted Food Waste Audit for Ka'elepulu Elementary, assisted setting up Resource Recovery operation.
- Conducted Food Waste Audit for Kainalu Elementary, assisted setting up Resource Recovery operation.
- Assisted with Pipeline worm system installation for St. Andrews' Schools.
- Assisted with Pipeline worm system restoration and harvest at Palolo School.
- Restored worm program at Hawaii Nature Center, trained staff.
- Consulted with SEEQS Charter School to restore worm bin program.
- Partnered with UH Master Gardener Program at Waimanalo to establish volunteer exchange.
- Hosted tour and workshop with Hawaii Baptist Academy Middle School Jr; Honor Society students.
- Student presentation at North Shore Youth Food Summit.

Apprenticeship/training

Three superb KUPU part-time interns have learned the ropes and made it possible to expand our reach and keep up with collecting and composting operations at multiple sites.

AINA composting curriculum revised

Composting program for 3rd graders was revised and upgraded to be more relevant to schools with large scale on-site composting programs. New docent manual and materials were developed and published.

Soils testing published

Scientific nutrient analysis was prepared for both thermal compost and vermicast, as well as campus garden soils courtesy of Peter Bunn, Crop Nutrient Solutions, Inc.

Goals for 2017 and plans for the future

TBA. At the time of distribution of this report, no future funding for the project has materialized. Commitments from Castle Foundation, Hawaii Nature Center, and State of Hawaii through upcoming legislation are all pending. Lanikai School will finance the project through January 2017.

There is no shortage of interest, good ideas, and enthusiasm for future expansion and growth.