



NET ZERO WASTE

A LEAP START TO RESPONSIBLE WASTE MANAGEMENT

APRIL 19, 2015



Balaji Pristine

COMMUNITY SWM STORY

SWM at Balaji Pristine

Some facts & figures

- 132 apartments
- Zero segregation when we started 2.5 years ago
- 100% segregation consistently since we adopted SWM
- In-house composting of food waste

Did we have Infra/ Money / Space to get us going ?

Did we manage to get everyone's buy-in for taking up SWM ?

Volume of waste

BEFORE

(PER DAY)

Type	KG	%
Organic	85	41
Dry	42	20
Rejects	80	39
Total	207	100%

AFTER

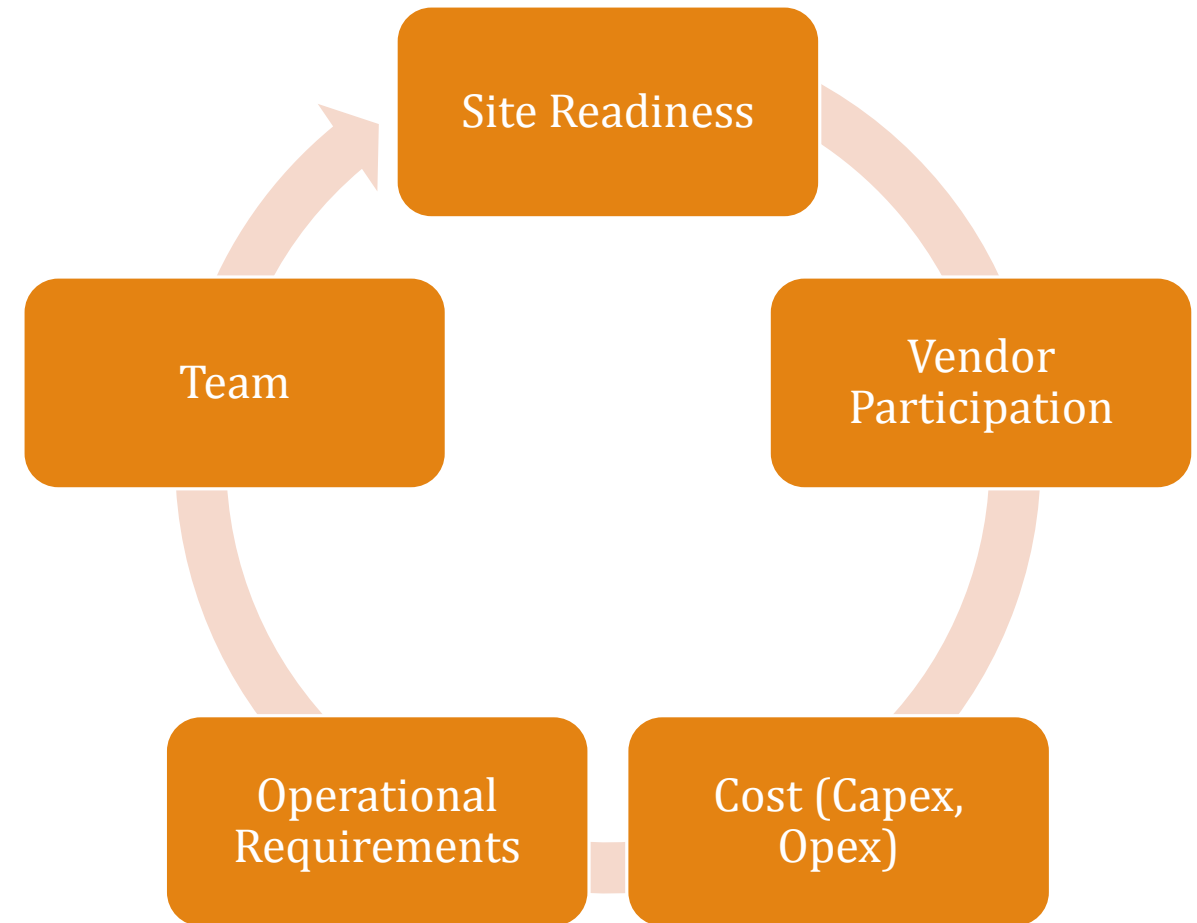
Type	KG	%
Organic	80	57
Dry	30	22
Sanitary	30	21
Total	140	100%

How did we achieve this ?



Planning & Implementation

- Understand SWM
 - Segregation
 - Routing the segregated waste
- Understand Composting options available
 - Composting types
 - Aeration
 - Organic waste shredding
- Identify the constraints – Space, Finances
- Finally – Who will drive this ?



Planning & Implementation – Site Readiness

How much space is required

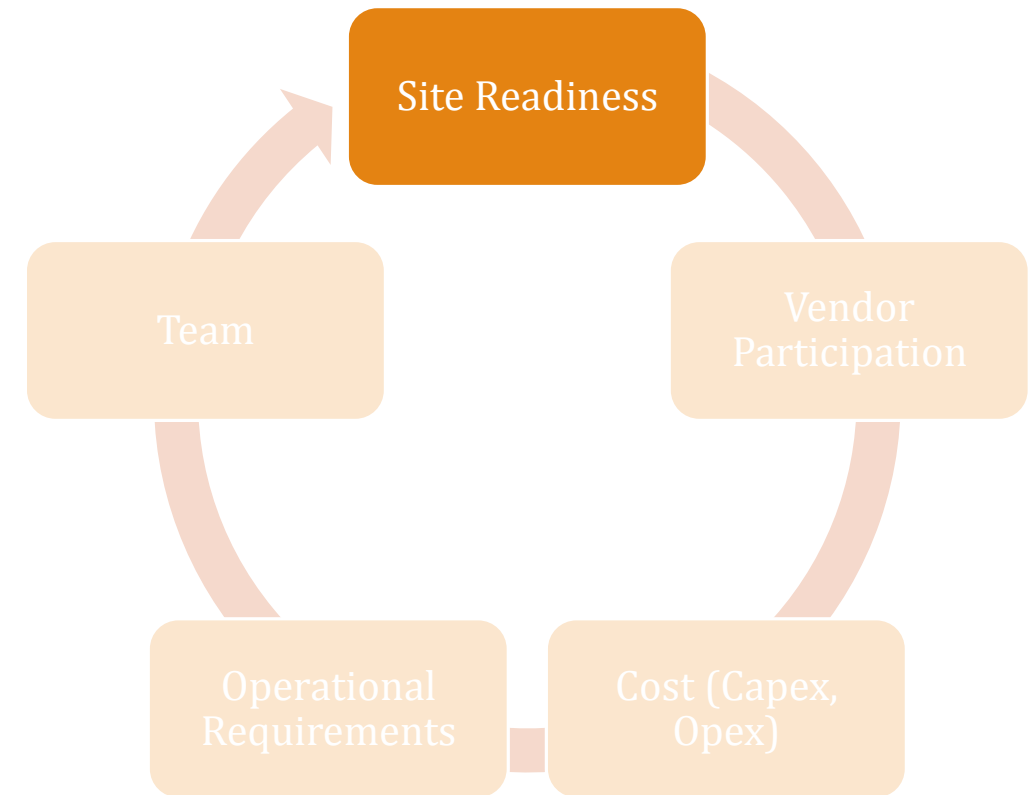
- Wet Waste handling
- Dry waste segregation
- Composting area

What kind of location is suitable

- Sufficient Aeration

Organic Converter suitability

- Volume of wet waste to be handled
- The efficiency / output from the machine



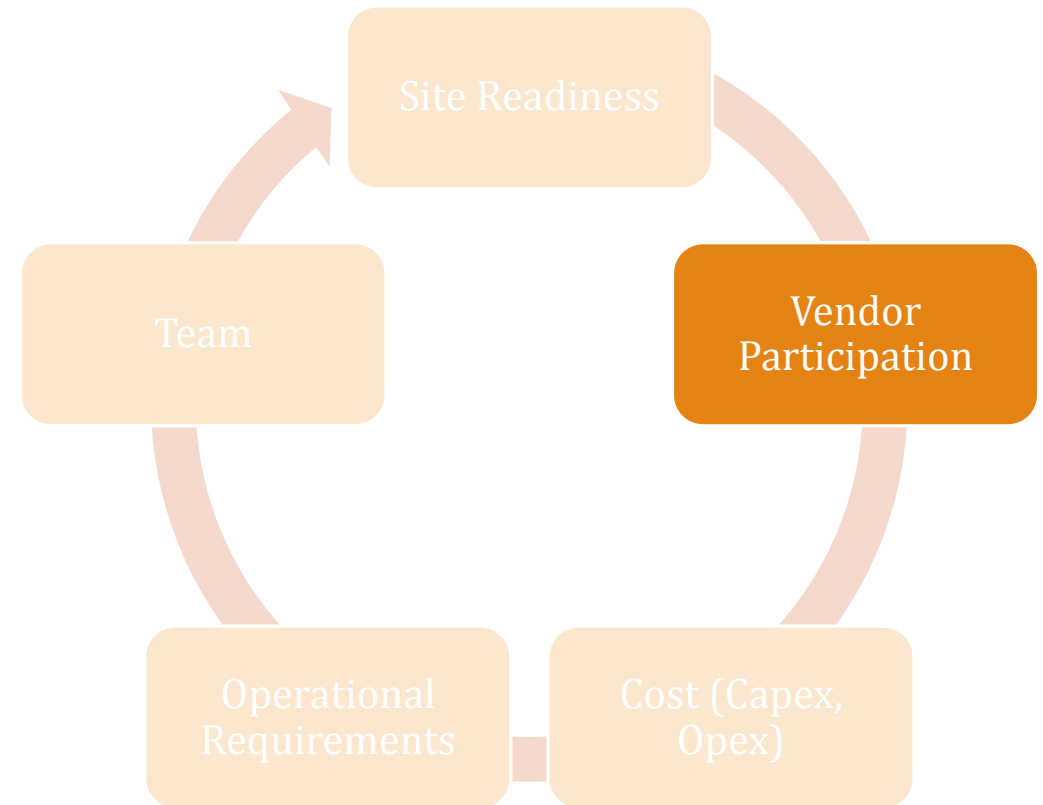
Planning & Implementation – Vendor Preparation

Multiple vendors were evaluated

In-house or Vendor Contract ?

Criteria for selecting a vendor for BP

- Professionalism
- Understanding of the subject
- Experience in handling similar operations at other sites
- One Stop solution



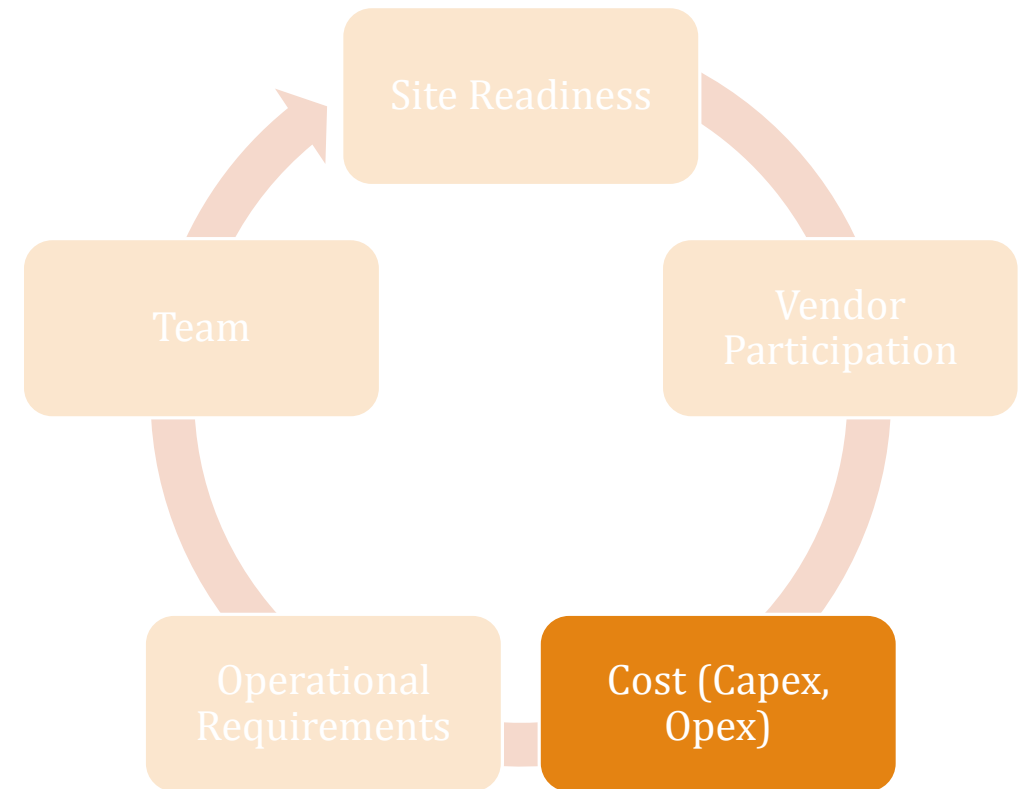
Planning & Implementation - Cost

Capex

- OWC Unit – 3.8 – 4 Lakhs (100- 150 / 175 Kg of wet waste / day)
- Crates / Stand units for the composting – Approx. 1.5 – 1.75 Lakhs
- Electrical setup – Approx. 15k

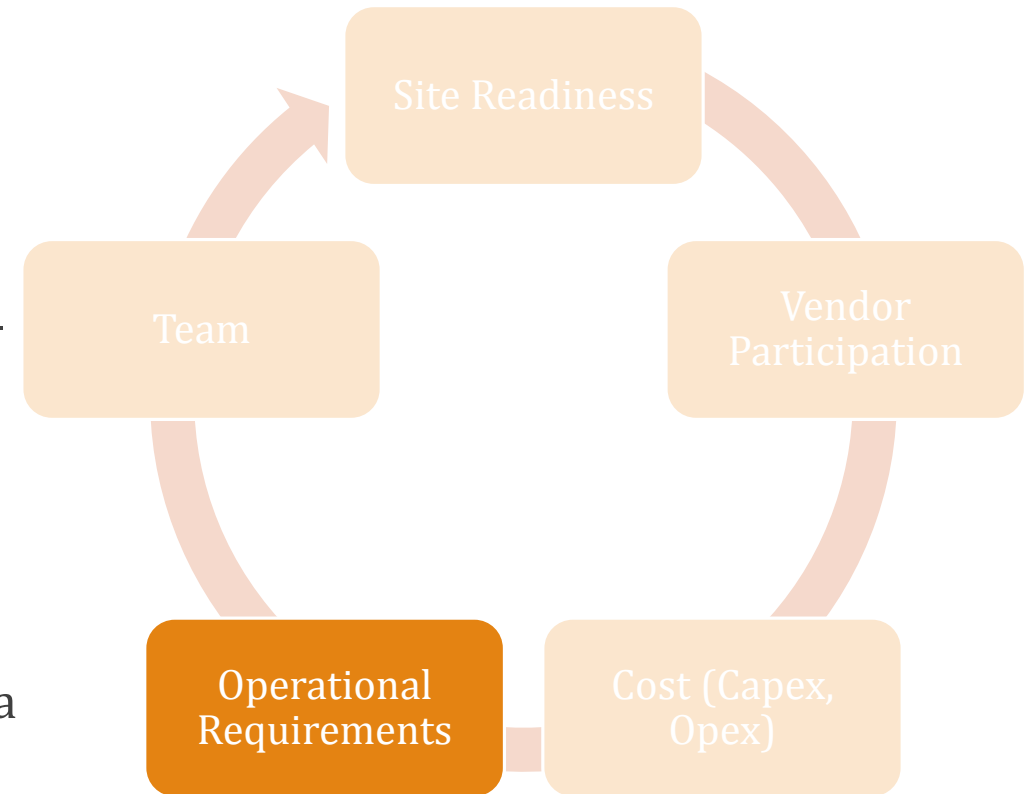
Opex

- OWC AMC – 25-30k / Year
- Operations – 2.4 L / Year (handling all types of waste)
- House-keeping staff for waste pickup



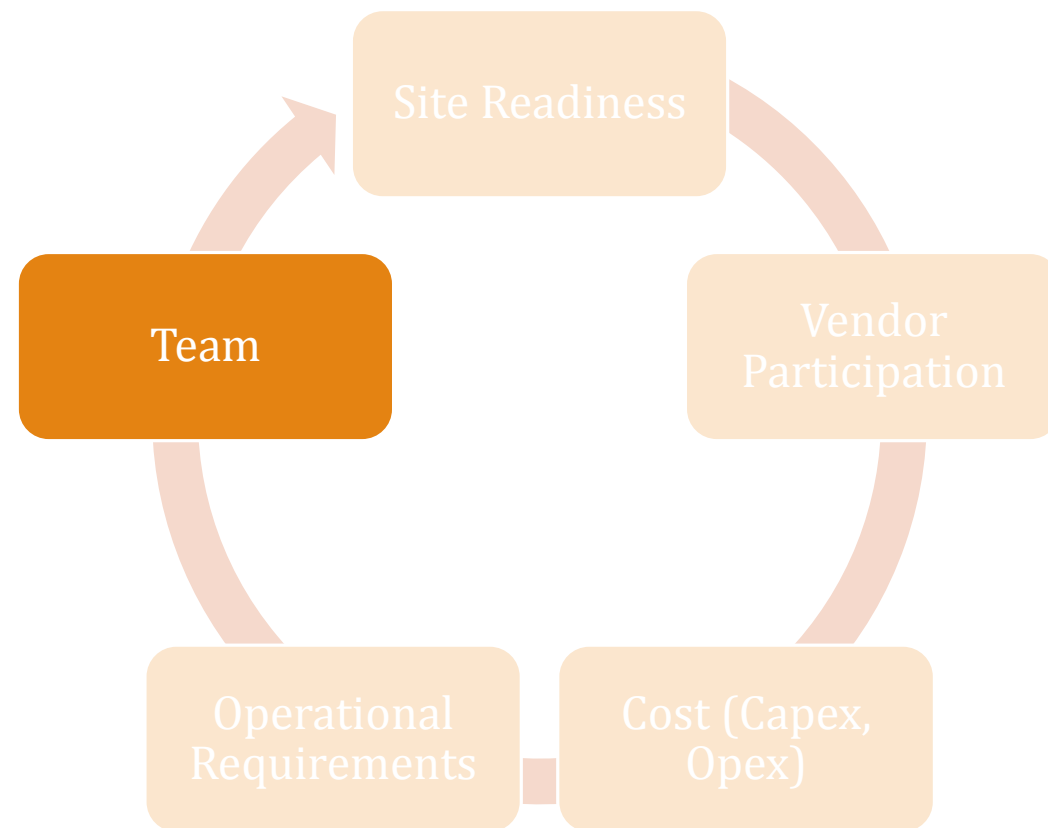
Planning & Implementation – Operational Requirements

- How should the residents segregate waste ?
- How do we pick up the waste ?
- At what frequency will each type of waste get collected – daily / weekly / quarterly
- How do we put a process in place for waste segregation – separate bins, no plastic, dry and clean waste
- How to ensure full compliance ?
- How to train the House Keeping staff to handle the waste ?
- Any health hazards while handling the waste ?
- How should the waste be handled in the Segregation Area to ensure it is neat and efficient ?
- How should the crates for composting be handled (FIFO for composting)



Planning & Implementation - Team

- A “Must-Have” to make Waste Management successful
- Team to lay down the guidelines for putting the process in place
- Regular monitoring of operations
- Training / Re-training of the staff



Challenges

People and their mindset

- Counselling sessions
 - Door to door campaigning
 - Pamphlets
 - Educate the children
 - No pick-up in case of non-compliance
 - Penalty
- Wet waste was little too wet – composting cycle was longer than anticipated. So space planning was key
 - Additional crates & crate numbering
 - Byobins

Challenges

Organic composting challenges

- Too many flies
 - Fly catchers
 - Fans installed for better air movement
 - Invested in OWC
- Smell

Sustaining the compliance

- Dedicated team to monitor the pick up (consistency is the key)
- Moving population – work out ways to educate them
- Training / Retraining the HK staff
- Surprise checks regularly
- Penalty / Hall of Shame – Peer pressure works

Windmills of your Mind

COMMUNITY SWM STORY

Windmills - Background

- Total of 160 households: mix of apartments + villas
- Lot of renters + singles
- Garbage chute in the towers
 - Frequently broken due to incorrect use
- Past contract with BBMP approved vendor
 - Segregated waste mixed up after collection



Prep work

WHAT WE WANTED:

- ❖ Vendor who would take care of all our waste – medical, hazardous, sanitary, garden etc
- ❖ Introduce a comprehensive plan, looking into every minute issue that could possibly pose a challenge towards compliance
- ❖ Ease of process – this we felt was imperative as the success hinged on it

RESEARCH

- ❖ Met with different communities to evaluate their process – both villa and apartment layout; reviewed I Got Garbage with customers, both corporate and villa community
- ❖ Long discussions about pros/cons
- ❖ Discussions with multiple vendors – Samarthanam, Eco-Maridi, RxDx, Hasirudala, I Got Garbage
- ❖ Solicited advice from WR Segregation team

Why we chose Hasirudala & I Got Garbage

- ❖ Ease of segregation – very important
- ❖ Proven expertise and processes
- ❖ Ability to generate data for analysis
- ❖ Flexibility to accommodate our waste segregation needs: individual pick up from each household, set timelines
- ❖ Cost – little higher than our current operations; however it outweighed the benefits in our collective opinion
- ❖ Generate jobs – Windmills dry waste will allow HD to provide employment. *This was key to us as it further drove home the importance of segregation to our stakeholders – the residents*



Prior to Launch



- ❖ Emails to community --- **REPETITION HELPS**
- ❖ Clear Targets set: **100% compliance + reach LESS THAN 10% reject waste]**
- ❖ Meeting with community along with HD and IGG – two separate meetings with
 - Resident meeting: **+40 attended**
 - House help + House keeping staff meeting: **100 helpers attended**
- ❖ Adherence
 - Very strict – no segregation means, no pick up.
 - Common bins removed; Smaller bins for dog poop kept instead
 - Note for non segregation
 - Track compliance

Prior to Launch

❖ Procured + developed materials

- Two bins and bag from Big Basket – size is good for daily pick up
- Laminated segregation guide + soft copy of comprehensive 9-pager visual guide
- Pick up Schedule



Waste	Pick Up Frequency / Time
Wet	Daily @ 10 am
Sanitary/Rejects	Daily @ 10 am
Dry	Every Mon, Wed & Fri @ 10 am
E-Waste	Quarterly pick up; Time will be relayed Bins for the same available in the clubhouse
Hazardous	
Medical	

How is it working?

❖ Results

- 95% compliance within the first week, **100% by the second week!**
- Since March 2015, we have consistently hit 100%
- Reject waste is also down from original weeks
- HK staff happy! Less mess!

❖ Challenges

- Complaints - Member of the Green Team met with each house hold and suggested ways to work around the difficulty
 - What to do when travelling
 - Frequency of dry waste pickups; Size of garbage bins

❖ Status update to Community

- Regular emails to motivate
- **Creating a sense of pride among residents** – Acknowledging the support and giving credit to community for segregation - only community that IGG knew of that hit 100% within a month, and most importantly reduced our reject waste successfully



Thank you!

Prestige Ozone

COMMUNITY SWM STORY

Community Overview

Community of 282 villas

Significant number of expat residents – revolving door

Large number of household maids, cooks, gardening help coming in to the community

Large common gardens with many trees, generating a LOT of garden waste

Restaurant and Spa in the community



Started implementation of SWM in March 2013

Solid Waste Management Overview

BEFORE

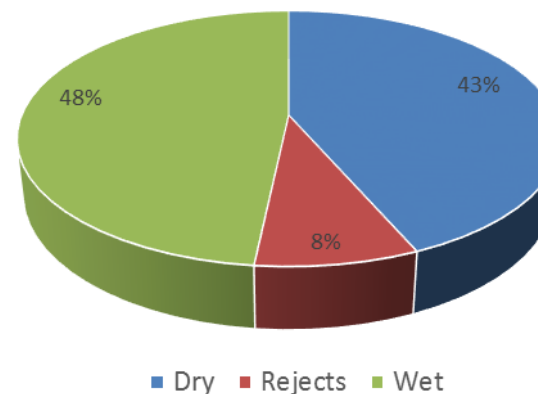
100% waste (all mixed) was sent to landfills – 2 tractors a day



AFTER

Wet Waste	Average 100 kgs / day
Dry Waste	Average 90 kgs / day
Rejects	Average 17 kgs / day

Waste Composition



SWM Process

Two carts, two daily pick-up routes

- Wet, Dry and Reject waste picked up daily

Centrally located E-waste bin

- Vendor picks up when sufficient collection accumulated

Currently not segregating hazardous, sanitary and medical waste at source

- Need to find a vendor for the same, before asking residents to segregate

Gardeners expected to dump garden waste at a central location



SWM Process - Garden Waste

Some dry leaves used with wet waste to balance it

Rest of the dry leaves, smaller cuttings, hedge trimmings etc. are composted using open pit composting method

- These are shredded first

Larger tree branches, coconut, palm and banana leaves, are sent out to landfill (garden specific)

Grass cuttings not collected, left on grass (these don't compost)



SWM Process – Wet Waste

In-house composting using Organic Waste Converter (OWC)

- We get 8-10 crates / day
- Within 10 days it looks like compost
- No foul smell!

Mix this compost with compost generated from garden waste and use it in our extensive gardens 😊



SWM Process – Dry Waste

Earlier, our SWM staff used to sort the dry waste and recover the valuables, BUT

- We used to get a lot of contamination in dry waste
- Unwashed milk, juice, yogurt cartons, oily take out containers etc.

We re-named it to “Recyclable” waste and are now giving it to Hasiru Dala

- The new revival process and social advantages of Hasiru Dala has helped reduce the contamination



Challenge – Change is Hard

Changing residents' mindsets about waste

- Awareness campaign with a kick-off event with art competition for kids and a play to encourage participation
- Lots of banners and information through Adda
- Door to door campaign to personally talk to residents



Challenge - Accountability

Revolving population and ownership of process

- Emphasize that segregation is resident's responsibility
- Carried out periodic training for household staff



Challenge – Bullying & Spilled Waste



Empowering garbage collectors

- Residents and maids would bully them into picking up mixed waste

Stray cats ripping through garbage bins creating a mess

- Residents would use flimsy bins without lids and then complain

We moved to standardized 3 colour bins mounted on a stand outside the villa.

- Makes it easier for the garbage collectors
- Buckets are secured and lids are tight



Challenge – Tragedy of the Commons

Littering of common areas

Contamination of common emergency bins

- Hard to know perpetrators
- No amount of monitoring was helping

We removed the emergency bins and mandated that everyone **MUST** put their garbage out for collection.

- HUGE pushback against this
- Settled after a month



Other Challenges

Pushback against the policy of no plastic bags in wet waste

Churn in SWM staff (social stigma to it)

- We allowed them sell the valuable recyclables and distribute the money amongst themselves
- Also recognized them at community annual functions like Republic Day and Independence Day

Monitoring and Sustaining

SWM team member periodically walks with the cart to assess the situation on the ground

Random audit checks

Personally have to talk to the non-compliant households

- We have learnt that the key is to be **polite, but firm and not provide any exceptions!**
- Usually if we manage to convince the non-complying resident to come and see our backend processing, they do start appreciating the amount of thought and effort that we are putting and slowly turn around

Maids rotate and teach new residents about SWM 😊

Key Learnings

Don't provide emergency disposal bins around the community

Standardize on bins (we did this much later)

Have at least 3 SWM team members, helps to deal with criticism 😊

Use authorized dealer to ensure our segregation at source efforts are not in vain