



Different Methods of Composting for Bulk Waste Generators

Comparison · Suitable Applications · Practical Cost View

For Kerala BWGs Apartments · Hotels · Institutions · Commercial kitchens	Purpose A practical decision-support guide, not a product brochure	Prepared on 04 May 2026
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Key message: The right composting method depends on waste quantity, moisture, space, manpower, odour sensitivity, maintenance support and compliance expectations.

Why Method Selection Matters

Wet waste from BWGs is high-moisture, fast-degrading and complaint-prone. A system that works in one site may fail in another if space, operator skill or curing area is ignored.

Waste audit	Site fit	Technology fit	O&M plan	Records
Know kg/day and peak load	Check space, access and rain protection	Match to moisture and manpower	Operator, bulking material, AMC	Track quantity and output

Kerala site realities

Limited urban space	High rainfall	High kitchen moisture	Odour sensitivity
Compact systems need curing/storage planning.	Covered and ventilated processing area is usually needed.	Dry bulking material and drainage matter.	Neighbour complaints can quickly become an O&M issue.

Compliance awareness

Practical caution

BWG requirements, local body expectations, PCB interpretations and Suchitwa Mission guidance may vary by location and project. Verify locally before final design, procurement or submission.

Who This Guide Is For

BWG type	Typical wet waste source	Main decision concern
Apartments	Household kitchen waste	Odour, resident cooperation, daily operation
Hotels & resorts	Kitchen, buffet and plate waste	High moisture, oil, peak loads
Restaurants	Preparation and plate waste	Limited space, daily reliability
Schools/colleges/hostels	Canteen and hostel kitchen waste	Quantity variation, manpower
Commercial buildings	Food courts, pantry and tenants	Segregation, vendor coordination
Builders/facility managers	Handover and daily O&M	Compliance readiness, maintainability

Main methods compared

Aerobic bins Simple low-cost bins	Modular aerobic / OWC-style Controlled, scalable BWG option	Mechanical OWC Machine-assisted processing	Vermicomposting Earthworm finishing process
Windrow Large open-row composting	Pit composting Low-cost rural method	Biogas Energy recovery with slurry	Outsourced collection Off-site processing

Methods 1-4: Practical Fit

Aerobic bin composting

- Best for small to medium loads where segregation, daily mixing and dry material are available.
- Range: about 5-75 kg/day.
- Watch: moisture, leachate, curing area.

Mechanical OWC systems

- Useful for medium-large loads when service support and power are reliable.
- Range: about 50-1,000 kg/day depending on machine.
- Watch: AMC, power, false “instant compost” expectation.

Modular aerobic / OWC-style systems

- Balanced option for many apartments, hotels and institutions.
- Range: about 25-500 kg/day or more by adding modules.
- Watch: operator training, bulking material and curing space.

Vermicomposting

- Good as a secondary or campus/garden-linked method using pre-composted feed.
- Range: about 5-100 kg/day.
- Watch: worms are sensitive to heat, oily waste and fresh acidic food waste.

Practical preference, not a product claim

For many Kerala BWGs with limited space and odour sensitivity, a well-designed modular aerobic / OWC-style system is often practical because it is controlled, scalable and easier to supervise than open methods. It still needs proper segregation, dry material, curing and O&M.

Methods 5-8: Practical Fit

Windrow composting

- Suitable for large open sites, farms or campuses.
- Good for garden waste and large quantities.
- Difficult for compact apartments and city hotels.

Biogas / biomethanation

- Useful where steady kitchen waste and gas use exist.
- Can suit hotels, hostels and canteens.
- Watch: slurry handling, safety and maintenance.

Pit composting

- Very low-cost option for small rural/garden waste.
- Not preferred for serious BWG kitchen waste.
- Watch: groundwater, wells, leachate and odour.

Outsourced wet waste collection

- Useful where on-site processing is not feasible.
- Needs authorized, reliable daily collection.
- Maintain quantity and handover records.

Typical aerobic process flow

Segregate	Mix	Load	Aerate	Cure	Use/Remove
Wet waste only	Add dry bulking	Daily controlled feed	Keep oxygen flow	Stabilise compost	Garden or safe disposal

Comparison Table: Practical View

Method	Scale	Space	Capex	Opex	Skill	Odour	Apt.	Hotel	Inst.	Rating
Aerobic bins	S-M	L-M	Low	Low-M	Med	Med	Good	Limited	Good	Good
Modular aerobic / OWC-style	S-L	Med	Med	Med	Med	Low-M	V.good	V.good	V.good	V.good
Mechanical OWC	M-L	Med	High	Med-H	Med-H	Low-M	Good	Good	Good	Good
Vermicomposting	S-M	Med-H	Low-M	Low-M	Med	Med	Limited	Limited	Good	Moderate
Windrow	Large	High	Low-M	Med	Med-H	Med-H	Poor	Poor	Good	Moderate
Pit composting	Small	Med	V.low	Low	Low-M	Med-H	Poor	Poor	Limited	Low-Mod
Biogas	M-L	Med-H	High	Med-H	Med-H	Low-M	Limited	Good	Good	Selected
Outsourced collection	Any	Low	Low	Med-H	Low-M	Med	Case	Case	Case	Case

Reading note: S = small, M = medium, L = large. Ratings assume good segregation, proper sizing and daily O&M.

Practical Cost Comparison

Do not select only by equipment price. Actual cost depends on capacity, civil works, shed, electrical/plumbing, brand/vendor, accessories, operator cost, AMC, bulking material and compost handling.

Method	Indicative capex	Indicative opex	Cost caution
Aerobic bins	Low	Low-Medium	Labour, dry material and curing area still needed
Modular aerobic / OWC-style	Medium	Medium	Balanced lifecycle cost when sized and operated well
Mechanical OWC	High	Medium-High	Power, AMC and spares are important
Vermicomposting	Low-Medium	Low-Medium	Works best after pre-composting
Windrow	Low-Medium	Medium	Land and labour are major costs
Pit composting	Very low	Low	Not preferred for BWG kitchen waste
Biogas	High	Medium-High	Slurry, safety and maintenance must be planned
Outsourced collection	Low	Medium-High	Recurring vendor cost and reliability risk

Main cost heads

System/equipment	Civil platform/shed	Electrical/plumbing	Operator cost
Bulking material	AMC/maintenance	Space opportunity cost	Compost handling

Three Practical Examples

Example	Usually practical	Usually difficult	Practical recommendation
Apartment 100 kg/day	Modular aerobic / OWC-style; aerobic bins with strong O&M; authorized collection as backup	Windrow, pit composting, vermicomposting alone	Choose modular aerobic with curing space, dry material and daily records. Avoid undersizing.
Hotel 200 kg/day	Modular aerobic / OWC-style; mechanical OWC; biogas if gas/slurry use is clear	Simple bins alone, vermicomposting alone, pits	Plan for oily/high-moisture waste and banquet peak loads. AMC and curing area matter.
Institution 300 kg/day	Modular aerobic / OWC-style; mechanical OWC; biogas for hostels; windrow if large land exists	Pit composting; outsourcing only if collection is weak	Consider combined approach: modular aerobic + curing + garden waste mixing; optional vermicompost finishing.

Rule of thumb

Match the system to real daily operation

A technically good system can still fail if the site has poor segregation, no operator, no dry material, no curing space or no maintenance support.

Common Mistakes and Practical Recommendations

Common mistakes to avoid

- ✗ Choosing only by lowest capex
- ✗ Ignoring space and curing area
- ✗ No dry bulking material plan
- ✗ Poor segregation
- ✗ Vermicomposting fresh kitchen waste directly
- ✗ Mechanical systems without AMC support
- ✗ Ignoring peak loads
- ✗ No leachate/odour control
- ✗ No compost use or disposal plan

Practical recommendations

- ✓ Do a 7-14 day waste audit first
- ✓ Match technology to operator capability
- ✓ Prefer maintainable local systems
- ✓ Plan curing and storage space
- ✓ Keep dry material available daily
- ✓ Slightly oversize rather than overload
- ✓ Compare lifecycle cost, not only capex
- ✓ Verify local body/PCB/Suchitwa expectations
- ✓ Keep daily quantity and O&M records

Final Decision Matrix

If your site has...	Usually better options	Be careful with
Limited space	Modular aerobic / OWC-style; mechanical OWC; authorized collection	Windrow, pit composting
High kitchen waste	Modular aerobic / OWC-style; mechanical OWC; biogas where steady feed exists	Vermicomposting alone, pits
Garden waste	Aerobic composting; windrow; vermicomposting; modular aerobic	Biogas without feed prep
Low manpower	Simple modular SOP; mechanical with AMC; authorized collection	Labour-heavy windrow or unmanaged bins
Low odour tolerance	Controlled modular aerobic / OWC-style; well-maintained mechanical; reliable collection	Pits, unmanaged windrows, overloaded bins
Large open land	Windrow, vermicomposting, biogas, modular aerobic	Compact systems without curing area
Energy recovery need	Biogas / biomethanation	Aerobic composting if energy is main goal
Simplest operation	Aerobic bins for small loads; modular aerobic for BWG loads	Complex machines without trained operator

Need Help Assessing Your Waste or Wastewater System?

Assure Earth can help with

- STP design and review
- Existing STP assessment
- Oil & grease trap planning
- PCB compliance support
- Composting and water-saving systems

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Important note: This guide is prepared for general awareness and practical decision-making. Regulatory requirements, PCB interpretations, Suchitwa Mission guidance, vendor offerings and local authority expectations may change over time and may vary by project location, category and site conditions. Before final design, procurement or submission, verify the latest requirements with the local PCB office, local body, Suchitwa Mission guidance where applicable, or a qualified consultant.