

Composting Units

Capacity Estimation & Basic Design Approach

A practical guide for Bulk Waste Generators in Kerala

Apartments

Estimate daily wet waste, buffer and curing space

Hotels & Restaurants

Plan for meal load, buffet waste and peak days

Institutions

Size for canteens, hostels and campus operations

Why capacity estimation matters

Correct sizing prevents nuisance, avoids overloading and supports practical compliance.

A composting unit is a process area, not just a one-day waste bin.

It must handle daily wet waste, retention time, moisture control, curing, dry support material and operator movement.

Compliance

Helps show planned wet waste handling responsibility.

Odour & hygiene

Avoids anaerobic overload, flies and leachate problems.

Better operations

Gives the operator enough space and time to work.

Usable compost

Allows proper mixing, curing and safe storage.

Practical takeaway: Size for real daily waste plus a buffer. Then check retention time, curing space and operation access before finalising the system.

Who is considered a Bulk Waste Generator?

Use this as a practical awareness guide. Final interpretation should be verified locally.

Practical understanding

A property generating significant solid waste and expected to manage segregation and biodegradable waste responsibly.

Common benchmark

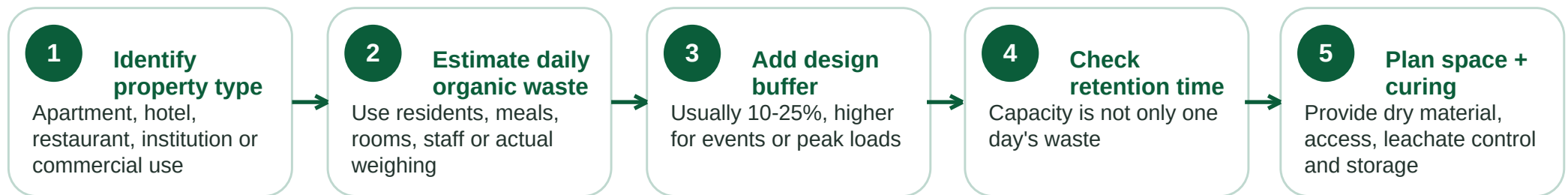
A common BWG benchmark is 100 kg/day of solid waste. Newer criteria may also consider floor area and water use.

Property type	Practical BWG possibility
Large apartment association	Kitchen waste, garden waste and housekeeping waste
Hotel / resort	Food preparation waste, plate waste, buffet waste and garden waste
School / college / hostel	Canteen waste, hostel mess waste and campus garden waste
Commercial complex	Food court waste, shop waste and housekeeping waste

Regulatory caution: BWG classification and expectations may vary by current rules, local body, PCB interpretation and project conditions. Verify before final design or submission.

Capacity estimation flow

A simple field approach before selecting or installing a composting unit.



Core formula

Daily organic waste = Number of users x Organic waste rate

Design organic load = Estimated daily organic waste x Buffer factor

Use actual weighing

For existing properties, weigh wet waste for 3-7 representative days, including weekends or peak-use days.

Basic formula and practical assumptions

Use conservative assumptions when actual weighing data is not available.

Property type	Practical estimation basis	Indicative planning range
Apartments	Flats x occupancy x wet waste/person/day	0.35-0.45 kg/person/day
Hotels / restaurants	Meals served + guests + staff + garden waste	0.20-0.60 kg/meal depending on service
Institutions	Students/staff using canteen; hostel residents	0.10-0.25 kg/meal or 0.35-0.55 kg/person/day
Commercial properties	Food outlets, housekeeping and landscape waste	Actual weighing strongly recommended

Apartment example

100 flats x 4 persons x 0.40 kg = 160 kg/day
 Add 15% buffer = 184 kg/day
Plan around 185-200 kg/day

Restaurant example

600 meals/day x 0.25 kg = 150 kg/day
 Add 20% buffer = 180 kg/day
Plan around 180-200 kg/day

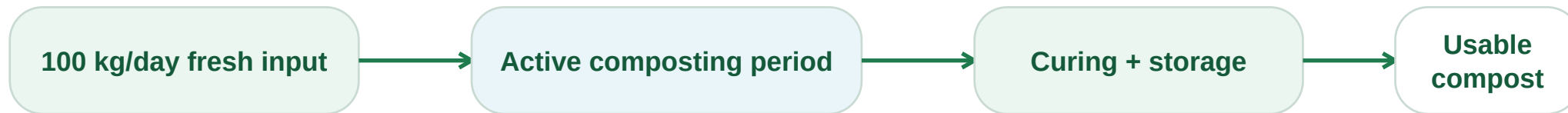
Hostel example

550 users x 0.45 kg = 248 kg/day
 Add 20% buffer = 297 kg/day
Plan around 300 kg/day

Daily waste is not the same as system capacity

A simplified view of why retention time must be checked.

Common misconception: If a property generates 100 kg/day, it needs only a 100 kg system. In reality, composting takes time, and material remains in the process for several days or weeks.



Retention check

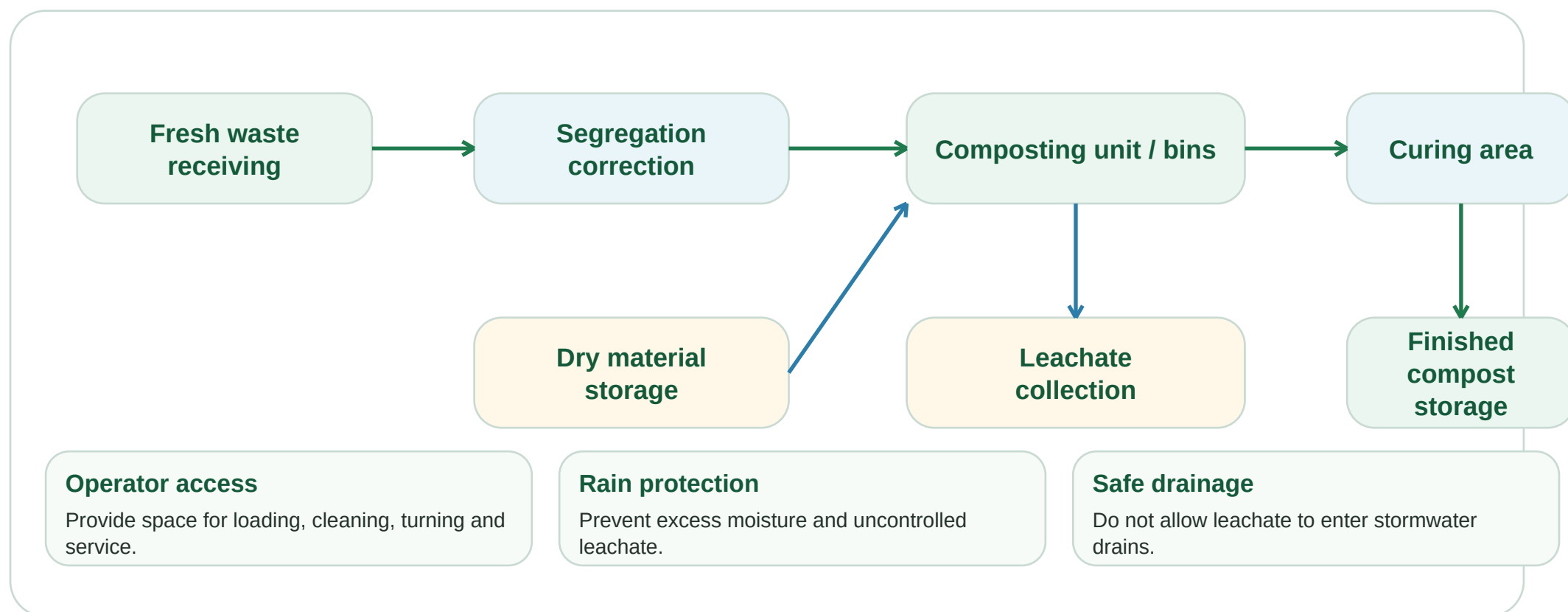
Approximate active holding requirement =
Daily input x retention time

Example

100 kg/day x 15 days = 1,500 kg under active processing, before allowing for volume reduction and curing.

Basic design layout for a composting area

Plan the process flow so daily operation is easy, clean and repeatable.



Operating essentials checklist

Daily discipline is as important as the equipment or bins.

Daily operating checklist

- Segregate wet waste at source
- Remove plastics, packets, glass and rejects
- Add dry leaves / cocopeat / sawdust as needed
- Keep mix moist, not dripping wet
- Do not leave fresh food waste exposed overnight
- Clean floor, bins and leachate points
- Record daily waste quantity and issues

Key control points

Issue	Control approach
Moisture	Use dry bulking material and avoid wet gravy overload
Odour	Prevent anaerobic conditions; aerate/turn as required
Vectors	Keep waste covered, floor clean and leachate controlled
Curing	Provide space after primary processing

Space planning items

Receiving

Daily unloading

Segregation correction

Remove contaminants

Composting unit

Main process area

Dry material storage

Leaves/cocopeat/sawdust

Curing

Stabilisation

Compost storage

Before reuse/removal

Operator access

Loading, cleaning, service

Common mistakes to avoid

Most failures are operational and sizing-related, not only technology-related.

Undersizing

Sizing only for one day's waste and ignoring retention time.

No buffer

System fails during weekends, full occupancy or events.

Poor segregation

Plastic, foil and rejects spoil compost and damage equipment.

No dry material

Wet, airless mass creates odour, leachate and flies.

No curing space

Semi-processed compost accumulates near the unit.

Bad location

Operator access is difficult and daily operation gets skipped.

No leachate control

Dirty water reaches drains, soil or public areas.

No operator

System becomes unused after initial enthusiasm.

Practical rule: A composting system should be selected only after checking daily wet waste, buffer, retention period, curing space, dry material and operator access.

Practical recommendations for BWGs

Plan for compliance, usability and daily maintenance.

Action checklist

- 1. Measure first:** Weigh wet waste for 3-7 representative days.
- 2. Add buffer:** Use 10-25% depending on occupancy, events and variation.
- 3. Check process time:** Confirm retention period and curing requirement.
- 4. Keep dry material:** Store dry leaves, cocopeat, sawdust or shredded garden waste.
- 5. Plan the area:** Provide washable floor, access, ventilation and leachate control.
- 6. Assign responsibility:** Train an operator and maintain simple daily records.

Need Help Assessing Your Waste or Wastewater System?

Assure Earth supports apartments, hotels, institutions and commercial properties with practical, compliant waste and wastewater solutions.

We can help with STP design/review, existing STP assessment, oil & grease trap planning, PCB compliance support, composting and water-saving systems.

Important note

This guide is for general awareness and practical decision-making. Regulatory requirements, PCB interpretations, Suchitwa Mission guidance and local authority expectations may change and may vary by location, category and site conditions. Prepared on: **04 May 2026**. Before final design or submission, verify latest requirements with the local PCB office, local body or a qualified consultant.

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