

A Template for Solid Waste Management Planning

*Department of Rural Development and Panchayat Raj,
Government of Tamil Nadu*

TAMIL NADU – STATE RURAL PROFILE



4,84,17,701

**Total Rural Population
(Current)**



37

**Number of Rural
Districts**



388

Number of Blocks



12,525

**Number of Village
Panchayats /Rural
Local Bodies**



79,395

**Number of
Habitations**



1,23,68,156

**Number of rural
households**



690

**Peri-Urban
Villages**



278

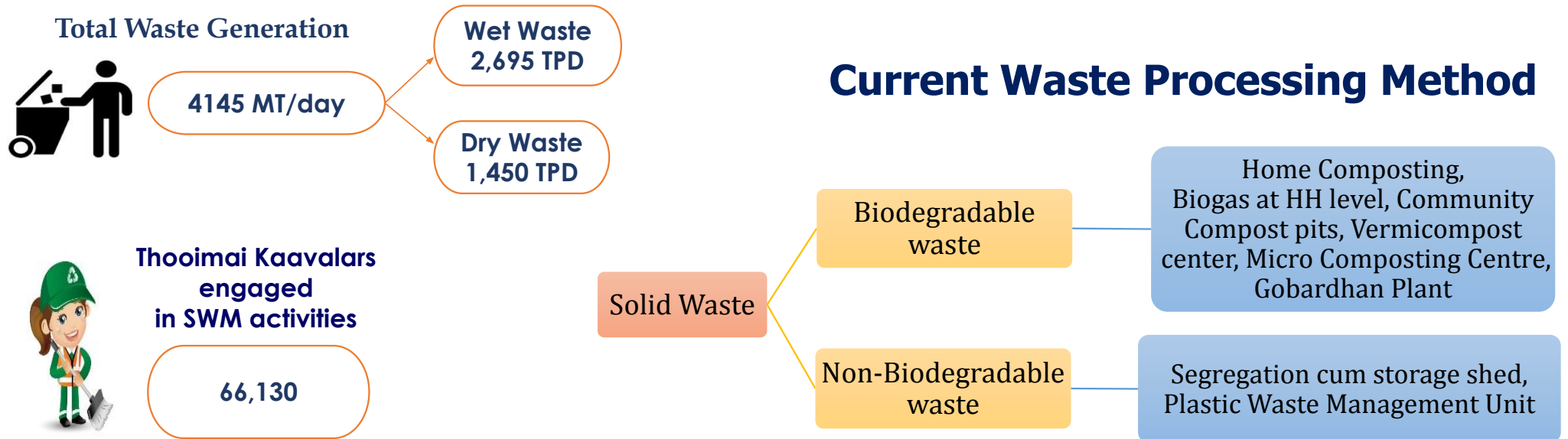
Hilly Villages



11557

Other Villages

WASTE MANAGEMENT PROFILE OF RURAL TAMIL NADU



Type of Processing infrastructure available	Composting Pits	Vermicompost units	Micro Composting Centres	Segregation cum storage shed	Plastic Waste Management Units	GOBAR-dhan
Numbers	17,991	7,447	287	7,978	285	80

NEED FOR A STRATEGY

1.Environmental Preservation:

- Improper SWM leads to pollution and disease vectors.
- Effective SWM preserves natural resources and biodiversity.

2.Public Health:

- Inadequate waste management threatens public health.
- Strategic SWM minimizes health risks, enhancing rural well-being.

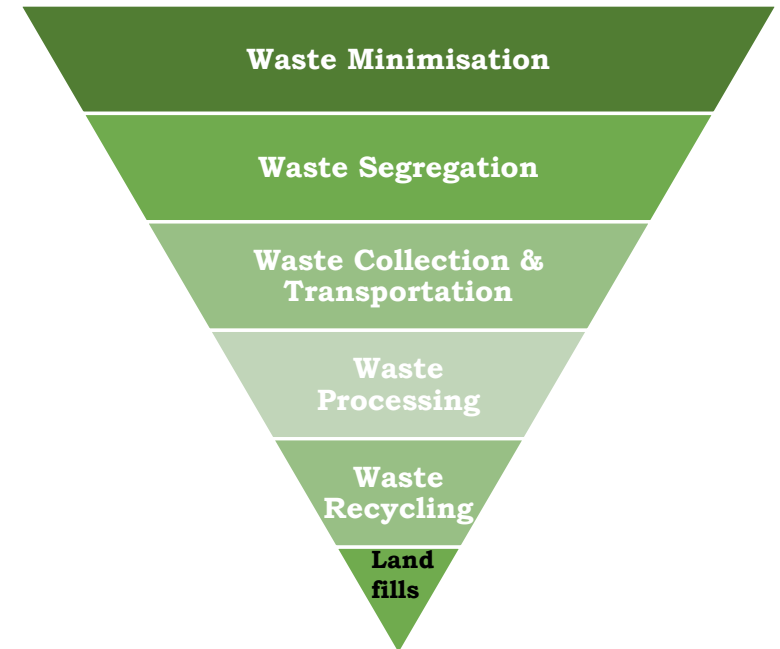
3.Resource Recovery and Circular Economy:

- SWM unlocks resource recovery, recycling, and economic value through a circular economy.

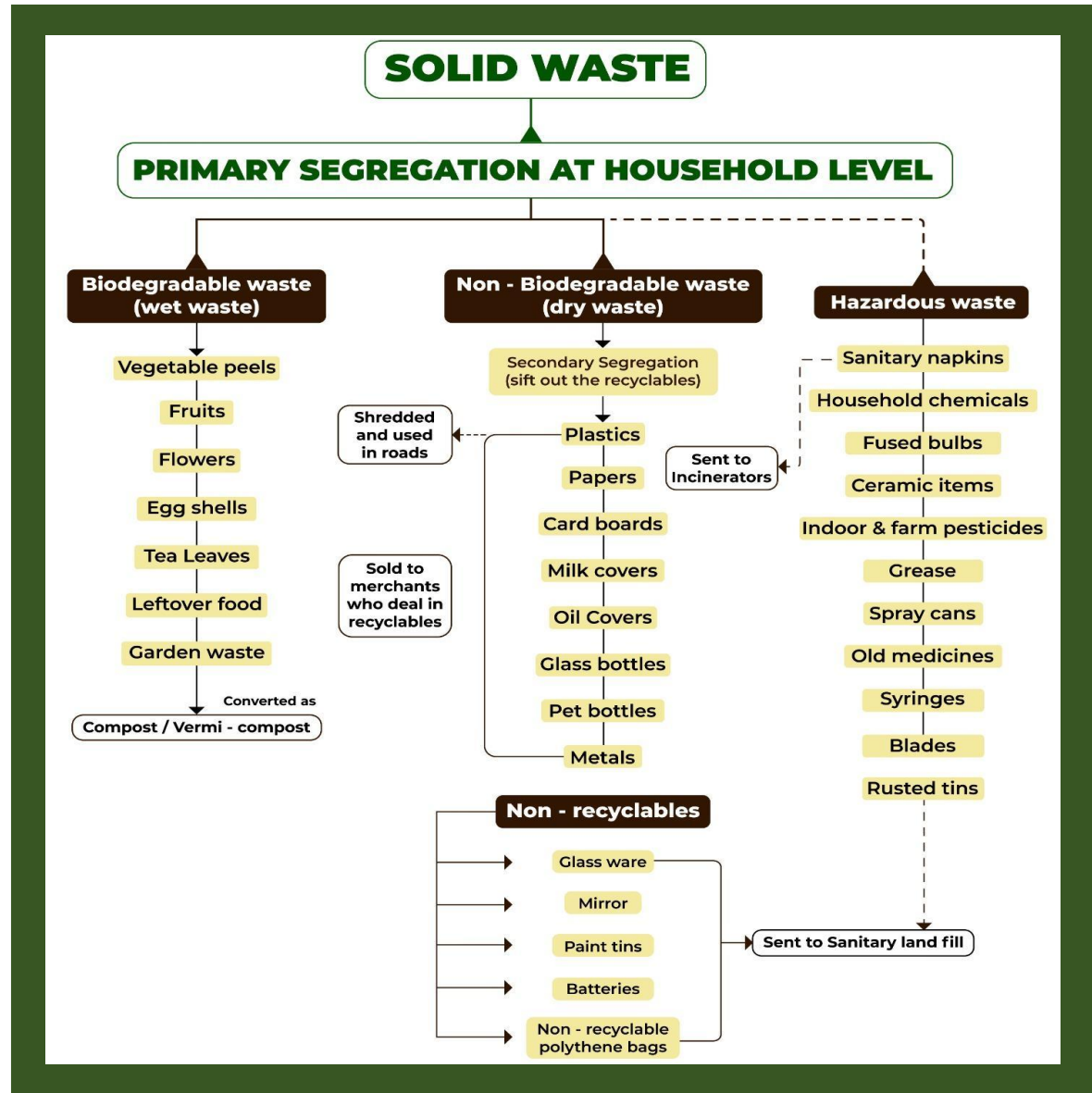
Scope of the plan for solid waste management

This strategic plan is specifically tailored to the unique challenges mentioned below in solid waste management in Tamil Nadu

- ❑ **Public Awareness and Education:** Lack of awareness hinders community involvement and cooperation.
- ❑ **Waste Segregation:** Limited understanding and cooperation leads to mixed waste streams.
- ❑ **Non-biodegradable Waste Processing:** Improper disposal of materials like plastic and glass.
- ❑ **Human Resources Planning:** Shortage of workforce in rural waste management.
- ❑ **Efficient Route Planning and Clustering:** Absence of route planning and clustering challenges.



Classification of Solid Waste





Waste Minimization

As a step toward waste minimisation Tamil Nadu has banned Single Use Plastics (SUPs) the following initiatives have been taken up

- *Namma Ooru Superu* campaign
 - Emphasising the adverse environmental impacts of SUPs
 - Encourage the adoption of eco-friendly alternatives like cloth bags through the *Meendum Manjappai* program.
- Effective enforcement of the SUP ban, it is imperative that the Additional Collectors (ACs)/Project Directors (PDs) ensure monthly plastic raids on all shops and commercial establishments in their district
- Plastic buyback policy - Plastic is purchased **at the rate of Rs. 10 per kg** in the Collection Centres/ Plastic Waste Management Units managed by SHGs. After purchase, the plastic waste is shredded and sold to DRDAs at the cost of Rs.35/- per kg.



தூய்மை பாரத இயக்கம் (ஊரகம்)
நெகிழி இல்லா தமிழகம்!
நம்ம ஊராட்சிக்கு நெகிழியில் இருந்து
விடிவுகாலம் வந்திருச்சிங்க!
நெகிழியை தரம் பிரிச்சி கொடுத்தா

1 கிலோவுக்கு
10 ரூபாய்
தராங்க

பெறும் பொருட்கள் :
* நெகிழிப்பை * பில்கட் கவர்
* எண்ணெய் கவர் * மசாலா கவர்
* பால் கவர்

நெகிழி பையை தாங்க!
காச வாங்கிட்டு போங்க!

'மீண்டும்-மஞ்சப்பை...' 'பிளாஸ்டிக்குக்கு குட்பை...'

தொடர்புகள் :
நெகிழி கழிவு மேலண்மை அலகு, முடிகண்டநல்லூர்

Waste Segregation

MCF/RRF/
Segregation
Sheds

Secondary
Segregation

Households

Primary
Segregation



Biodegradable
Waste



Non
Biodegradable
Waste



Domestic
hazardous and
sanitary
Waste

Waste Collection - what do you want to collect and how often?

1. Category A

Villages of rural nature

Wet Waste: Composting at households/own premises.

Dry Waste: Door-to-door collection by Thooimai Kaavalars twice a week, on days determined by the Panchayat Council.

Existing facilities will be maintained. If unavailable, MCF are to be set up.

2. Category B

Peri-urban panchayats

Wet Waste: Door-to-door collection by Thooimai Kaavalars every day.

Dry Waste: Door-to-door collection by Thooimai Kaavalars every day

An MCC and MRF/RRF are to be set up.

3. Category C

Villages of rural nature with a large population or with factors rendering them unable to be classified as category A.

Wet Waste: Door-to-door collection by Thooimai Kaavalars every day.

Dry Waste: Door-to-door collection by Thooimai Kaavalars every day

Existing facilities will be maintained. If unavailable, MCF and MRF/RRF are to be set up.

Note: Bulk waste generators in all the panchayats will handle the waste within their premises

Categorisation of Village Panchayats

S. No.	Name of District	No. of panchayats in category			
		A	B	C	Total
1	ARIYALUR	128	4	69	201
2	CHENGALPATTU	284	45	30	359
3	COIMBATORE	191	11	26	228
4	CUDDALORE	514	34	135	683
5	DHARMAPURI	202	7	42	251
6	DINDIGUL	217	18	71	306
7	ERODE	103	31	91	225
8	KALLAKURICHI	306	2	104	412
9	KANCHEEPURAM	197	32	45	274
10	KANNIYAKUMARI	54	25	16	95
11	KARUR	56	7	94	157
12	KRISHNAGIRI	308	13	12	333
13	MADURAI	280	19	121	420
14	MAYILADUTHURAI	127	12	102	241
15	NAGAPATTINAM	125	7	61	193
16	NAMAKKAL	33	16	273	322
17	PERAMBALUR	79	8	34	121
18	PUDUKKOTTAI	411	8	78	497
19	RAMANATHAPURAM	372	9	48	429

S. No.	Name of District	No. of panchayats in category			
		A	B	C	Total
20	RANIPET	65	19	204	288
21	SALEM	198	34	153	385
22	SIVAGANGAI	323	6	116	445
23	TENKASI	44	19	158	221
24	THANJAVUR	347	26	216	589
25	THE NILGIRIS	16	0	19	35
26	THENI	66	3	61	130
27	THOOTHUKKUDI	311	7	85	403
28	TIRUCHIRAPPALLI	260	42	102	404
29	TIRUNELVELI	60	15	129	204
30	TIRUPATHUR	156	7	45	208
31	TIRUPPUR	99	41	125	265
32	TIRUVALLUR	442	63	21	526
33	TIRUVANNAMALAI	277	22	561	860
34	TIRUVARUR	246	13	171	430
35	VELLORE	120	27	100	247
36	VILUPURAM	370	22	296	688
37	VIRUDHUNAGAR	258	16	176	450
Total		7,645	690	4,190	12,525

Collection Vehicles : How many do you need?



- The existing assets available in panchayat are not sufficient to collect the waste generated daily or weekly twice (In the case of Category A panchayat)
- The number of battery-operated vehicles required in each panchayat based on the category and existing assets is calculated based on the formula below

Category A - No Wet Waste - Twice a Week

$$[\text{No. of properties as per VPtax} - (\text{BoVs} \times 350 + \text{Tricycle} \times 100 + \text{Tractor} \times 500 + \text{LMVs} \times 500 + \text{Pushcart} \times 150)] / (350 \times 3)$$

Category B & C - Wet and Dry Waste Collected - Daily Collection

$$[\text{No. of properties as per VPtax} - (\text{BoVs} \times 350 + \text{Tricycle} \times 100 + \text{Tractor} \times 500 + \text{LMVs} \times 500 + \text{Pushcart} \times 100)] / (350)$$

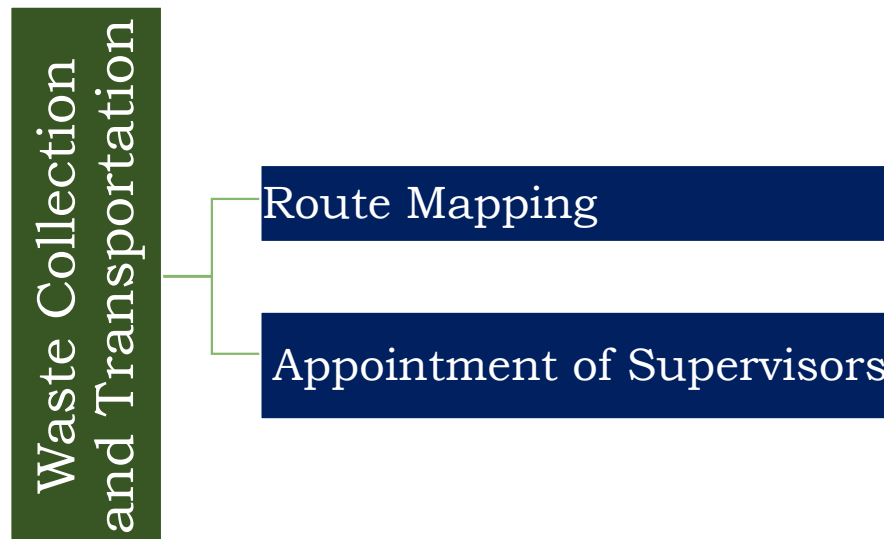
*Note:

1. Every asset in a category A panchayat will be mapped to 3 routes. Hence, this formula is divided by the product of 350 and 3 (350 x 3).
2. For Categories B & C every asset will be mapped to 1 route. Hence the formula is divided by only 350.

S.No.	Type of the asset	Approx no. of household covered by the asset
1	Tricycle	100
2	Pushcart	100
3	BoV	350
4	Tractor	500
5	LMV	500

Waste Collection and Transportation

- Based on the calculation about 10,070 battery-operated vehicles are required for 100% collection of solid waste.
- To streamline waste collection in rural areas two major mechanisms are being introduced.



Appointment of Supervisors (1 for every 10 Thooimai Kaavalars):

Supervisors will be appointed to coordinate and monitor waste collection activities, ensure timely march out, manage absentees,

Collection and Transportation - Route Planning



Route Mapping:

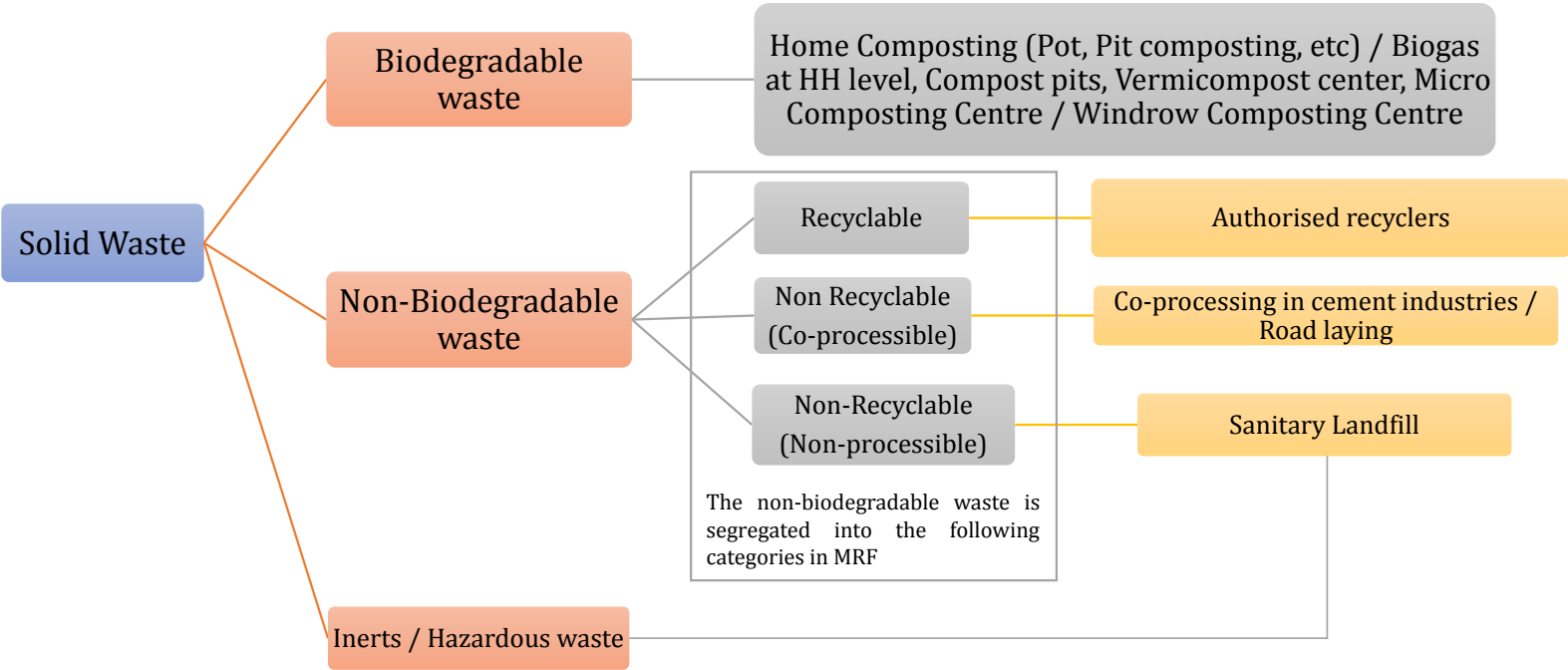
A comprehensive module will be integrated into the TNRD portal, featuring sub-modules for assets and route mapping.

1. **Asset Mapping:** Next, panchayats will report available asset details in the asset mapping form of the TNRD module. This includes recording assets involved in solid waste collection, such as tricycles, pushcarts, e-carts, light motor vehicles (Type 1 & Type 2), and tractors with trailers.
 - Additional information like **registration numbers, purchase time, and asset conditions** will also be documented. (For pushcart and tricycle registration numbers, panchayat-wise numbering can be done).
 - Districts will also need to report other assets such as **panchayat-wise garbage bins** with street details and location, solid waste management infrastructure in each habitation, garbage hotspot details with street and location, and Thooimai Kaavalar information for each panchayat.
2. **Route Mapping**
 - Each collection vehicle in Category B & C panchayats will have one route.
 - In Category A panchayats, vehicles will have three routes scheduled as follows:
 - ✓ Route 1: Monday & Thursday
 - ✓ Route 2: Tuesday & Friday
 - ✓ Route 3: Wednesday & Saturday.

Collection and Transportation - Route Planning

- All vehicles (except vehicles reported as beyond repair) from the asset mapping will be pre-filled and available for route mapping.
- **Street Selection:** For each route, the number of streets to be covered must be selected. The system will auto-fill the number of households (HHs) from the VP tax portal for each selected street.
- **Property Count Range:** The total number of properties (households, shops and commercial establishments) covered by the route must fall within specified ranges based on the collection assets used. The property count range is as follows:
 - ✓ 75 to 100 HHs for Pushcart
 - ✓ 300 to 500 HHs for e-cart
 - ✓ 350 to 500 HHs for LMV
 - ✓ 350 to 500 HHs for Tractor
- Alongside mapping streets, additional aspects like garbage bins to be collected in the route, waste from garbage hotspots to be collected, and the disposal location of the waste must be recorded for each vehicle.
- **Error Handling:** If the total property count is not within the specified range, an error message will be prompted, and the form cannot be submitted.
- **E-cart Suggestion:** The module will suggest the required number of e-carts per 350 households based on the number of properties not mapped with any collection asset.

Waste Processing



Clean Tamil Nadu Company Limited

To manage the logistics of all non-biodegradable waste in a centralised manner government will form Clean Tamil Nadu Company Limited (CTCL).

Role of CTCL

SPV will collect waste from MCF and transport it to the MRF /RRF. CTCL will empanel agencies through a yearly Expression of Interest process. These agencies collect recyclables and rejects from MRF/RRF at the panchayat or block level for a specified contract period.

Financial overview of CTCL

- The price floor (for recycling) and ceiling (for co processing) will be fixed by the CTCL after conducting a tendering process and coordination meeting with all empanelled agencies and representatives from the State Government Departments.
- Compensation will be provided to the local body for waste items possessing resale value. Charges will be levied for waste items deemed non-resalable and can only be sent for co-processing.
- CTCL will charge a commission on the local bodies on a tonnage basis.



Infrastructure Requirements

Additional infrastructures planned under solid waste management in two phases

Phase I

- ✓ Wet waste management – Micro Composting Center @ 1 per Peri-Urban Panchayat
- ✓ Dry waste management - Material Recovery Facility / Resource Recovery Facility @ 1 per block

Phase II

- ✓ Wet waste management – Micro Composting Center @ 1 per block additionally

Waste Processing

The following facilities below will be provided to panchayats to address the current gap in waste processing

- **CATEGORY A:**

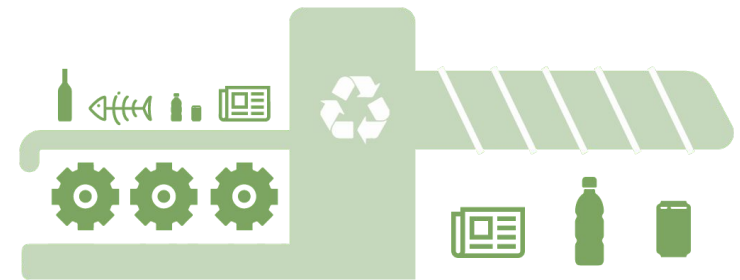
- ✓ WET: Home composting/food for livestock / As manure in kitchen gardens/ Biogas
- ✓ DRY: Existing segregation cum storage shed will be utilized. New ones will be set up based on capacity utilization.
- ✓ Additionally, a block-level RRF will be provided.

- **CATEGORY B & C:**

- ✓ WET: MCC or windrow composting centre will be provided wherever necessary
- ✓ DRY: MRF/RRF will be provided wherever necessary

E-Waste Management

Exclusive rights will be given to **SPV** for collecting the E-waste from all the Government offices, PSUs and all Government establishments for revenue generation, to ensure that it is transported to authorised recyclers



Implementation of Action Plan

User charges for different user categories

Sl. No	User Category	Service Charges (monthly)	Remarks
1.	Households – Category A	Rs 20	Payable monthly
2.	Households – Category B & C	Rs 60	Payable monthly
3.	Apartments	Rs 20 / Rs. 60 x no. of houses	Payable monthly
4.	Tea stalls	Rs 50- Rs 100	Payable monthly
5.	Eateries/Restaurants	Rs 100 - Rs 300	Payable monthly
6.	Marriage halls	Rs 200 - Rs 500	Payable after every marriage/function
7.	Mutton/chicken/fish stalls	Rs 50	Payable weekly
8.	Grocery shops	Rs 50	Payable monthly
9.	Events with over 100 participants	Rs 200- Rs 500	Payable before the event (at the time of notifying the panchayat as per Annexure II)
10.	Bulk waste generators	Rs 200 – Rs 500	Payable monthly
11.	Schools and offices, if any	As decided by the panchayat	As decided by the panchayat
12.	Temples, churches, mosques etc. (unless they have their own waste disposal arrangement)	As decided by the panchayat	As decided by the panchayat
13.	Others (dispensaries etc.,)	As decided by the panchayat	As decided by the panchayat

Penalties for different user categories

An amendment is required from the Government to notify SWM rules under the Act

Sl. No	User Category	Penalties
1.	Throwing garbage in public/private places/sewer/canal/ water bodies/around bins	Rs 500
2.	Non-segregation of waste	
	Individual households	Rs 100
	Apartments	Rs 100 x no. of houses
	Bulk waste generators	Rs 1000
3.	Unauthorised dumping of construction and demolition waste in public places	
	Up to 1 tonne	Rs 1000
	1 tonne and above	Rs 5000
4.	Burning of solid waste (private premises & public places)	Rs 500 to Rs 5000 (depending on the volume of waste)
	Use of SUPs	
	Shops/ commercial establishments	Rs 100 (first time offenders)- Rs 500 (third time offenders)
	Large shops/ establishments	Rs 1000 (first time offenders) – Rs 5000 (third time offenders)

Thank you