

**GOVERNMENT OF MEGHALAYA
FORESTS AND ENVIRONMENT DEPARTMENT**

No. FOR/ CC/8/2019/Vol-I/2273

Dated Shillong the 21st December, 2022

From: Dr. Manjunatha C, IFS
Secretary to the Govt. of Meghalaya.
Forests and Environment Department

To: The Registrar General
Judicial Section
National Green Tribunal Principal Bench
New Delhi

Sub: Submission presentation for the hearing of O.A. No. 606/2018 on compliance of Municipal Solid Waste Management rules, 2016 in respect of Meghalaya.

Sir,

In reference to the above cited subject, I have the honour to enclose herewith presentation on status of compliance of Solid waste management and Sewage management in respect of Meghalaya State for personal appearance of the Chief secretary to the Government of Meghalaya scheduled on 22nd December, 2022.

Yours faithfully,

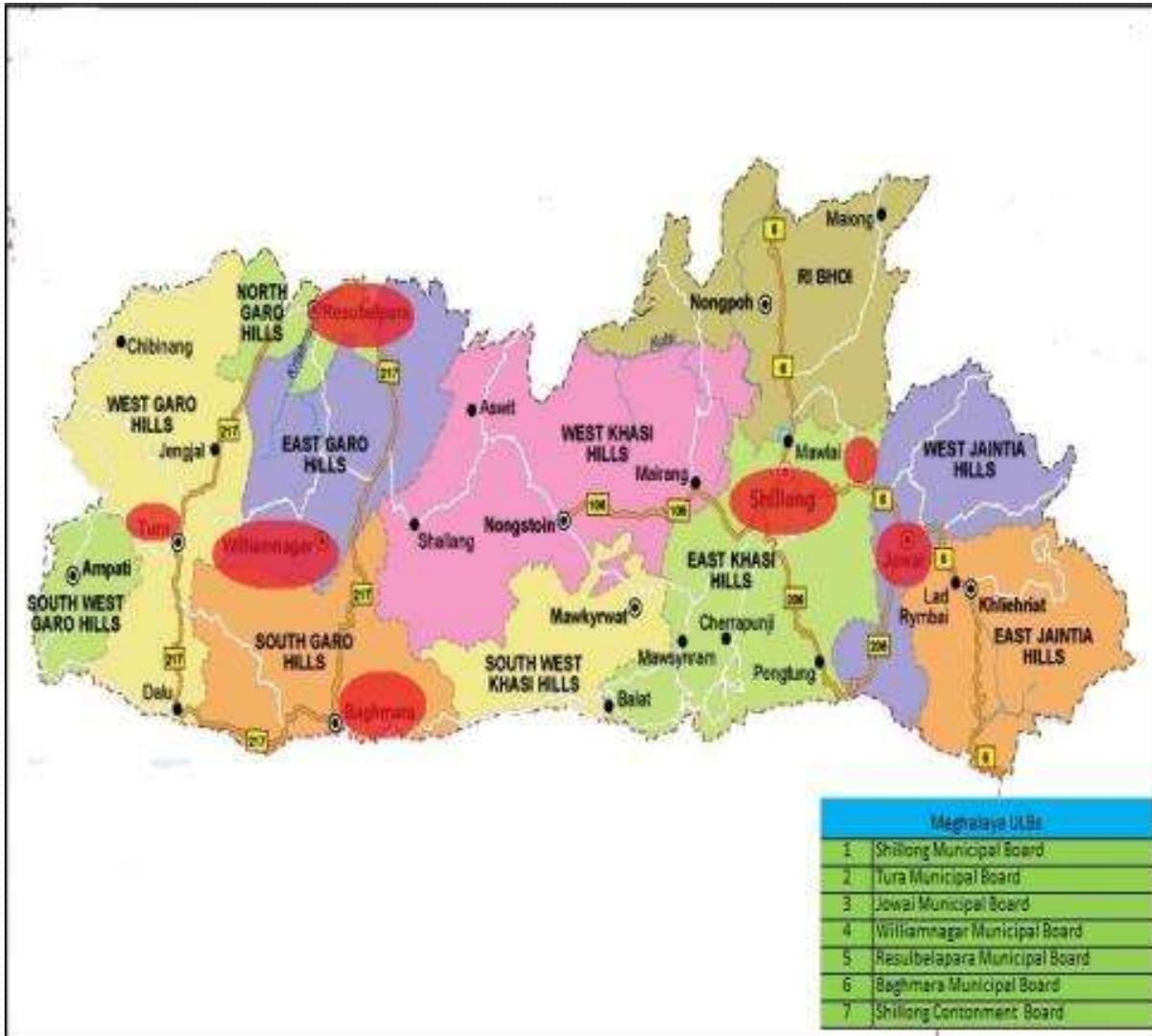
(Dr. Manjunatha C, IFS)
Secretary to the Government of Meghalaya
Forests and Environment Department

STATUS OF SOLID WASTE & LIQUID WASTE MANAGEMENT IN MEGHALAYA IN COMPLIANCE OF HON'BLE NGT DIRECTIONS IN O.A.606 OF 2018



Government of Meghalaya

MEGHALAYA: Profile



Total Population	29.67 lakh (2011 Census)
No. of Districts	12
No. of Blocks	46
No. of Villages	6030
Urban Local Bodies	7 (96 Wards)

SOLID WASTE MANAGEMENT CURRENT STATUS

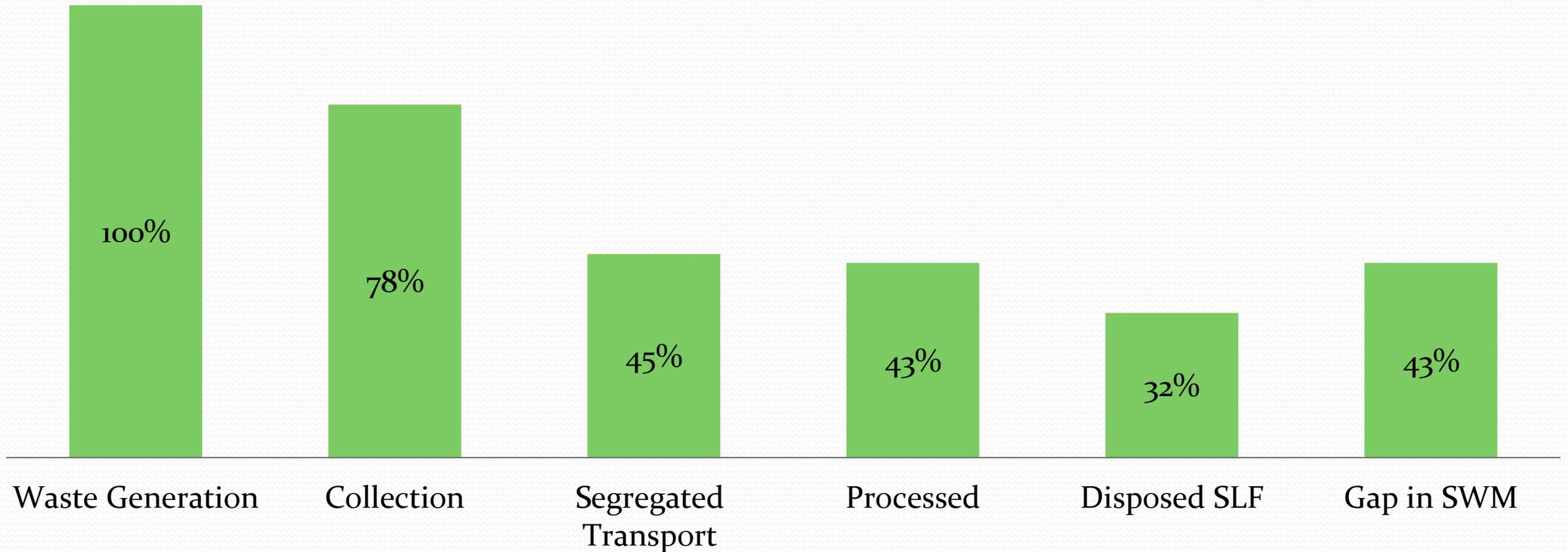
URBAN

1	Particulars	Quantity	Percentage
a	Quantity of MSW generated (TPD)	182.50	100%
b	Quantity of MSW collected (TPD)	143 *	78%
*	Gap in MSW Collection (TPD)	39.50	22%
c	Quantity of segregated & transported waste (TPD)	82.25	45%
*	Gap in segregated & transported Waste (TPD)	100.25	55%
d	Quantity of MSW processed (TPD)	45.30	25%
e	Quantity of MSW disposed in secured landfill site (TPD)	59.10	32%
f	Gap in Solid waste Management UTs (TPD) [1(a)-I(d)-1(e)]	78.10	43%

* Remaining Waste is either collected by Rag Pickers/Scrap Dealers (Glass, Metals, Plastic bottles, cartons, cans etc), Used for composting at household level and collected by piggery/poultry farms directly from households (kitchen waste).

SOLID WASTE MANAGEMENT STATISTICS (URBAN)

■ Percentage



Collection: Door - Door

Particulars	Wards	Percentage
Present Status	78	81%
Target	96	100%
Gap	18	19%
Timeline	2024	



Solid Waste: Segregated

Particulars	Wards	Percentage
Present Status	38	40 %
Target	96	100%
Gap	58	60 %
Timeline	2024	



Transported: Segregated Waste

Particulars	Wards	Percentage
Present Status	38	40%
Target	96	100%
Gap	58	60%
Timeline	2024	



Decentralized Waste Processing:

Particulars	Quantity (TPD)	No. of Processing Units
Present Status	11.83	9
Target	43.43	53
Gap	31.6	44
Timeline	2026	2026



Waste Recovery Centre: Shillong



**Waste Recovery Centre:
Jowai**



**Waste Recovery Centre:
Jowai**



Waste Recovery Centre: Shillong

Waste Processing:

Particulars	Compost TPD (Capacity)	No. of Processing Units	RDF/Waste to Energy TPD (Capacity)	No. of Processing Units
Present Status	170	1	10	1
Target	245	6	20	6
Gap	75	5	10	5
Timeline	2024	2026	2024	



Bio Medical Waste Treatment Plant : Shillong



Compost Plant: Shillong



Refused Derive Fuel Plant: Tura



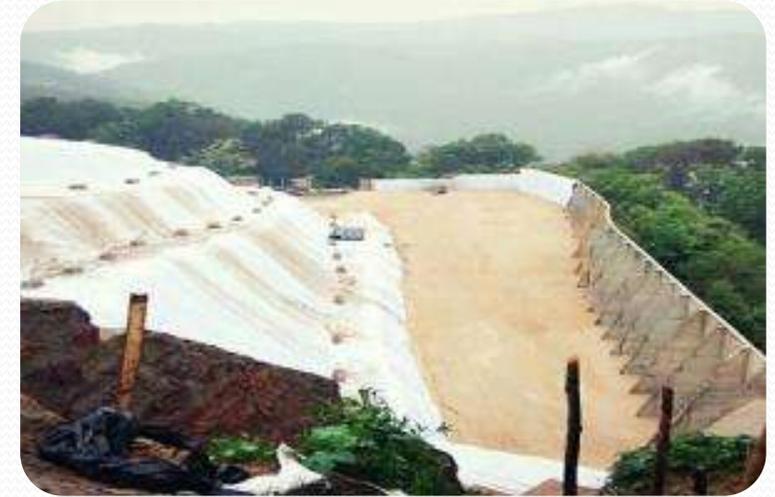
Compost Plant Tura: Tura



Bio Medical Waste Treatment Plant : Tura

Disposal: Sanitary Landfill Site

Particulars	Tons	No of ULBs Covered
Present Status	1,34,129	2
Target	4,34,783	7
Gap	3,00,689	5
Timeline	2026	2026



For the remaining 5 ULBs, Land is currently being identified to set up SLFs and is at an advanced stage.



Legacy Waste:

Particulars	Quantity (Tons)	No. of ULBs	Bio Remediation of 30,000 Tons of Legacy Waste committed under 15 th Finance Commission Funds amounting to Rs. 9 Cr
Legacy Waste to be cleared	2,88,037.5	7	
Cleared	0	7	
Gap	2,88,037.5	7	
Timeline	2026		



Liquid Waste Management: URBAN

Particulars	Quantity (MLD)
Sewage Generation	51.0
Treatment (Existing & Ongoing)	28.02
Gap	22.98
Timeline	2026*

Gap is being addressed through projects proposed under Swachh Bharat Mission 2.0 (U), Finance Commission, State Catalytic Funding for SDG, North East Special Infrastructure Development Scheme (NESIDS), AMRUT 2.0.

* Upon review the target timeline has now been refixed at 2024



1	Details of Existing Treatment Facilities	
i	Number of Existing FSTPs	1 Nos
ii	Existing Treatment Capacity (MLD)	0.115 MLD
iii	Location of Existing FSTP and their individual capacity	Marten, Shillong
iv	Project Cost	2.0 Cr



FSTP: Shillong



2	Treatment Facilities under Construction (Started during last one year as compliance)	
a	FSTP	3 Nos (Shillong, Tura & Jowai)
b	Onsite STPs	5 Nos (Shillong)
c	Nallah Treatment	16 Nos 5 Nos in Shillong & 11 Nos in Jowai
3	Treatment Facilities recently sanctioned and the locations where they are proposed for installation	
a	FSTP	2 Nos (Resubelpara & Baghmara)

4. Details of Ongoing STP Projects: Shillong (funds sanctioned and released)

FSTP & On-site STPs Project	Total Capacity	Project cost	Target Completion	Funding source
i. Municipal filling point, Kenches Trace	3.17 MLD	51.00 Cr	31 st March 2023	AMRUT
ii. Junction of Wahthangsniang and Umkhrah	0.28 MLD			
iii. Junction of Wahingdoh and Umkhrah	7.12 MLD			
iv. Junction of Wahdasoi and Umkhrah	0.85 MLD			
v. By the site of Wahpomdngiem behind SMB Complex at Bishop Cotton Road	2.00 MLD			
Feacal Sludge & Septage Treatment Plant (FSSTP) behind SMB Complex at Bishop Cotton Road	0.35 MLD			



4. Details of Ongoing FSTP projects (Funds sanctioned and released)

FSTP Project	Total Capacity	Project cost	Target Completion	Funding source
FSTP at Tura	50 KLD	1.17 Cr	March 2023	Grant in Aid/ 15 th FC
FSTP at Jowai	50 KLD	2.63 Cr	July 2023	Grant in Aid
FSTP at Resubelpara	30 KLD	0.78 Cr	February 2023	15 th FC
FSTP at Baghmara	15 KLD	0.21 Cr	March 2023	15 th FC



FSTP at Tura



FSTP at Jowai

5. Details of Nallah Treatment Projects in Shillong (Funds sanctioned and released)

Nallah Treatment Project	Project cost	Target Completion	Funding source
i. Pomdngiem Drain (also referred as Wah Thangsniang Drain)	22.00 Cr	March 2023	Smart City Mission
ii. Oakland Drain			
iii. Lawmali Drain			
iv. Wahingdoh – Raimohan Drain			
v. Polo Drain 2			



5. Details of Nallah Treatment Projects in Jowai (Funds sanctioned and released)

Nallah Treatment Project	Project cost	Target Completion	Funding source
i. Syntu Ksiar (near Myntwa Stream)	19.42 Cr	October 2023	Grant in Aid
ii. Panaliar			
iii. Caroline Colony			
iv. Ladthadlaboh west			
v. Khimusniang			
vi. Umshangiar			
vii. Iawmusniang			
viii. Mynthong1			
ix. Mynthong2			
x. Panaliar Mutong			
xi. Liar Kdongtreriat Panaliar			



Caroline Colony

INNOVATIVE TECHNIQUES TO CLEAN POLLUTED STRECHES

Phycoremediation Technology

Implementation of Kyrhuhkhla and Lukha Pilot
Project

Kyrhuhkhla River Pilot Project

Salient points of the Pilot Project

- Pilot project awarded and approved by the subcommittee of NGT – Meghalaya Government
- Technology used – PHYCOREMEDIATION – based on Micro Green Algae Consortia. No chemicals. Carbon Negative.
- Total Cost of the project – 17 lakhs + GST, awarded in January 2020
- Objective – To improve the pH
- Duration of implementation - 18th December 2020 -30th April 2021 (Delay on account of nationwide Covid Restrictions by Govt of India)
- Detailed report has been submitted to the concerned department
- **Status – Successful implemented and the improvement is indicated in the following table. Apart from pH improvement, Sulphates were also reduced by 50%.**

N.B: Detailed report is enclosed. Results validated by Meghalaya state pollution control board

Distance from Dosing site	pH before treatment	pH as on 7 th Jan 2021	pH as on 2 nd March 2021	pH as on 30 th April 2021	Improvement w.r.t pH7.00
0.0 Km	3.50	6.73	8.72	8.75	100 %
1.0 Km	3.04	5.35	7.54	7.20	100 %
2.0 Km	3.10	4.49	5.71	6.30	90 %
3.0 Km	2.99	3.98	5.01	5.90	84 %
4.0 Km	2.86	3.75	4.36	5.70	81 %
5.0 Km	2.82	2.92	3.53	5.55	78 %

Before Treatment – ph 3.5



AFTER Treatment – ph 6.5+



Lunar River Pilot Project

Salient points of the Pilot Project

- Pilot project awarded and approved by the District Mineral Fund Trust (DMF) EJM of Meghalaya Government
- Technology used – PHYCOREMEDIATION – based on Micro Green Algae Consortia. No chemicals. Carbon Negative.
- Total Cost of the project – 1.56 crores, awarded in February 2021
- Objective – To reduce metal toxicity / COD and improve the colour.
- Duration of implementation – Scheduled for 24 months but successfully completed in 14 months from February 2021 till April 2022.
- Detailed report has been submitted to the concerned department
- **Status – Successful implemented. COD successfully reduced by over 33% and drastic improvement in colour from Blue to Green. Water rendered Non-Toxic during pilot.**
- **N.B: Detailed report is enclosed. Results validated by Meghalaya state pollution control board**

Parameter tested	Upstream sample – No 2	Downstream sample – No 1	Comments
pH	7.1	7.0	Absolutely normal
COD	30 mg/L	20 mg/L	33 % reduction in Chemicals
SO4	251.1 mg/L	247.00 mg/L	Marginal reduction
DO	7.8	8.0	Increase in O2 level

Before Treatment



After Treatment



Change in Colour
and Clarity after
treatment





Algal growth tanks



Basic Statistics of Rural areas in Meghalaya

Sl. Nos	Items	Nos.
1	Nos. of Districts	12
2	Nos. of Blocks	46
3	Nos. of Villages	6030
4	Nos. of Households	547366

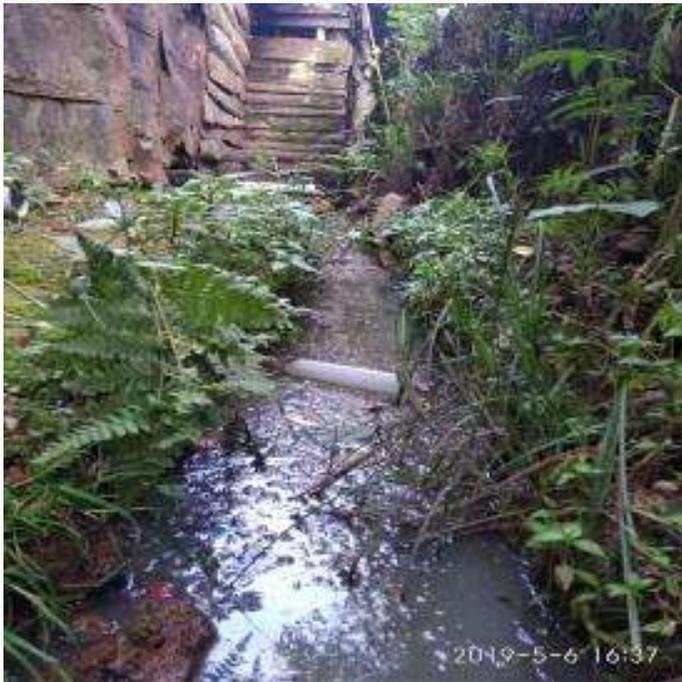
Sl. No.	Particulars	Quantity
1	Percentage of households with Single Pit toilets	60%
2.	Percentage of households with Twin Pit toilets	30%
3.	Percentage of households with Septic tank toilets	10%



Note:

- More soakpits at household and community level are being constructed.
- Use of kitchen wastewater for garden irrigation water is being practised in large scale in the villages.
- Actual data on single and twin pit being currently updated for requirement of retrofitting of single pit into twin pits.

Impact of Soakpit Interventions in Rural areas



Before



Oil Trap in construction



After

Status of Solid Waste Management in Rural areas

Sl. No.	Particulars	Quantity
1.	Amount of Solid waste generated	297.49 TPD
2	Amount of biodegradable waste generated	28.06 TPD
3	Amount of non-biodegradable waste generated	269.43 TPD
4	Nos. of villages practicing composting	1252
5	Nos. of village having community composting pits	672
6	Nos. of villages having household composting pits	920
7	Nos. of villages doing door-to-door collection	695
8	Nos. of villages doing source segregation	695
9	Nos. of villages having Resource Recovery Center	1252
10	Nos. of villages having Plastic Waste Management Unit	10



Note:

Use of the kitchen biodegradable waste as feed for the livestock is being practiced by the villages in large scale
 Visits of scrap dealers to villages for purchase of waste materials are being reported from most villages

INNOVATIONS - Improved Wastewater Soak pit in rural areas

For safe disposal of household wastewater, soak pits are being adopted by the villages. However, on prolonged use, the soak pit gets clogged resulting in overflowing and creating unhealthy condition in the surroundings.

To overcome this problem, certain innovations are added to the soak pit:

1. **Two chamber oil and grease trap** that works on the principle of floatation as oil becomes lighter floats on top of the surface whereas water being heavier settle below the surface.
2. A **PVC tee outlet** readily available in the market is fitted at the outlet of the second chamber and by virtue of its design allows only the wastewater to flow into the soak pit thereby protecting the soak pit to clog.
3. A **basket sieve** is placed on the first chamber of the oil and grease trap to collect all the unwanted solid particles that may have come out along with the wastewater, thereby protecting the soak pit to be filled up with solids.
4. A **biomass material**, usually used with betel nut husk or dried leaves available in plenty as waste material in each and every house, is placed in the plastic sieve to strain off the oil and grease as well as the solid particles. The biomass material when saturated is emptied from the sieve and thrown at the roots of flower to act as fertiliser.



IEC ACTIVITIES

A tool for Behaviour Change which is necessary to ensure sustainable outcomes of efforts in sanitation



Cleaning Drive



School Rally with display of Slogans on Cleanliness



Hands-on Training on SLWM



Training of Trainers (ToT) Programme



Awareness Programme



Tree Plantation around Water Bodies

COMMUNITY MOBILIZATION IN CLEANING OF PUBLIC PLACES WHILE UNDERTAKING SEGREGATION AND TRANSPORTATION OF THE WASTE IN RURAL AREAS



Swachhatha Hi Seva Campaign in Rural areas

- a yearly fortnight event as a run -up to Gandhi Jayanti promoting voluntary service by the people towards cleanliness in the village surroundings by instilling the spirit of service to nation
- Details of events captured on real time and available online in SBMG portal
- Promotes sense of ownership to swacch bharat movement and ensures sustainability of efforts in cleanliness

Sl.Nos	Activities	Nos.
1	Nos. of Villages participated	938
2	Nos. of People participated	17028
3	Nos. of people participated in awareness campaigns	7535
4	Nos. of people participated in shramdan activities	4696
5	Nos. of sarpanch participated in Swachhatha Samvad	216
6	Nos. of public places and institutions cleaned	155
7	Nos. of villages passing GP Resolution on banning SUP	226
8	Nos. of dumping sites cleaned	123
9	Nos. of trees planted around water bodies	161
10	Nos. of wastes collection and segregation shed constructed	30



MODEL VILLAGES

SL.NO	NAME OF DISTRICT	NAME OF BLOCK	NO OF MODEL VILLAGES	NAME OF MODEL VILLAGES
1.	NORTH GARO HILLS	KHARKUTTA	3	DOCHISORAM, CHIMA APAL, ADOKGRE
		BAJENGDOBA	3	MATCHUKI, DANGORPITA, SUALMARI RABHA
		RESUBELPARA	3	WAKSO ASIM, NISANGRAM BABUPARA, WAKSO NENGSA(Upper Nengsa)
TOTAL : 9				
2.	SOUTH WEST GARO HILLS	BETASING	3	BAINAPARA GARO, LATRIGRE, CHIRINGPARA
		ZIK ZAK	2	BIDUKURA, BAKDAGRE
TOTAL : 5				
3	EAST JAINTIA HILLS	KHLIEHRIAT	2	LUMPUTHOI, UMLANGSHA
		SAIPUNG	3	BANGLA, SEMMASI, MOOLOMYLLIANG
TOTAL : 5				
4	WEST KHASI HILLS	NONGSTOIN	3	MAWTHAWNIAW, MAWTHUNGMARWEI, MYNDO UMKYLLAIN
		MYNSHYNRUT	1	NONGRYNIAW
		MAWTHADRAISHAN	2	MAWKATAD, KHYLLEM
		MAIRANG	3	NONGKAKRAI, KHAH, DOMTRAW
TOTAL : 9				

SL.NO	NAME OF DISTRICT	NAME OF BLOCK	NO OF MODEL VILLAGES	NAME OF MODEL VILLAGES
5	WEST GARO HILLS	RONGRAM	1	GANOL APAL
		DALU	1	MARAKPARA
		GAMBEGRE	1	AMINDA RANGSA
		DADENGGRE	1	KALSINGRE
		TRIKRIKILLA	1	BOLDAMPITBARI
TOTAL : 5				
6	EAST KHASI HILLS	KHATAR SHNONG	1	LAITMAWLONG WAHPEIN
		MYLLIEM	1	LAITMYNSAW
		MAWSYNRAM	1	MAWTANGOR
		MAWRYNGKNENG	2	WARMATLAH, POMLAHIER
		PYNURSLA	3	DYMMIEW, MASSAR, MAWLYNNONG
TOTAL : 8				
7	SOUTH WEST KHASI HILLS	MAWKYRWAT	10	MAWSDE, MAWMERANG, MAWPHARPHREW, SOHKHYLLAM, SAKWANG, PDENSAKWANG, MAWRANGLANG, NONGLYNKIEN, DOMJYRTI, MARSHILLONG
		RANIKOR	5	DOMSOHKHAI, KENIONG, UMPUNG, RILANG, KHADPHRA
TOTAL : 15				
8	SOUTH GARO HILLS	BAGHMARA	3	AGIMPAL NOKMA COLONY, DABIGRE SONGGITAL, JAKSONGRAM SONGGITAL
		GASUAPARA	2	KOLAPARA, JATRAKONA
		CHOKPOT	2	SASATGRE, RONGKUGRE
		RONGARA	2	DAMBUK AGA, GULPANI SONGMONG
TOTAL : 9				
9	RI BHOI	UMSNING	3	UMKTIEH, UMTUNG, NONGTHYMMAI UMSNING
TOTAL : 3				
TOTAL NO OF MODEL VILLAGES : 68				

**Collection of the plastic wastes by the households and handing over to the
VWSC**





UMNGOT RIVER: CLEANEST RIVER



MAWLYNNONG : CLEANEST VILLAGE IN ASIA

Block Level Plastic Waste Management Unit (PWMU)



Pomlahier Village,
Mawryngkneng Block, East Khasi Hills District



Urksew Wahpathaw Village,
Pynursla Block, East Khasi Hills District



Pomlahier Village,
Mawryngkneng Block, East Khasi Hills District



Kyrdemkhla Village,
Khatarshnong Laitkroh Block, East Khasi Hills District

Total Nos. Targeted	Nos. Completed	Ongoing	Balance	Target Year for completion
46	5	5	36	2023-24

Funds Committed for Solid Waste Management and Liquid Waste Management in Urban Areas

1	Funds Committed for Solid Waste Management in Urban Area	Amount in Rupees
	15 th Finance Commission	40.47 Cr
	14 th Finance Commission	10.90 Cr
	Swachh Bharat Mission (Urban)	18.67 Cr
	Total	70.04 Cr
2	Funds Committed for Liquid Waste Management in Urban Area	
	15 th Finance Commission	0.78 Cr
	Swachh Bharat Mission (Urban)	45.30 Cr
	Smart City	22.00 Cr
	AMRUT	53.00 Cr
	Grant-in-Aid	6.58 Cr
	Total	127.66 Cr

Funds Committed for Solid Waste Management and Liquid Waste Management in Rural Areas

3	Funds Committed for Solid Waste Management projects in Rural areas under Swachh Bharat Mission (Gramin)	Rs 7.63 Cr
4	Funds committed for Liquid Waste Management projects including faecal Sludge Management under Swachh Bharat Mission (Gramin)	Rs 28.72 Cr
	Total funds committed (1+2+3+4)	234.05 Cr