

**IMPLEMENTATION OF  
SOLID WASTE & SEWAGE MANAGEMENT  
IN THE STATE OF MIZORAM**

**BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL  
8<sup>th</sup> DECEMBER, 2022.**



# Scheme of Presentation

1. Introduction
2. Key Statistics
3. Committees / Task groups for Solid waste and sewage management.
4. Status of Solid waste management in Mizoram
5. Status of Sewage management in Mizoram
6. Model towns and villages and best practices
7. Public Participation in Solid waste and sewage management
8. Commitment of Government of Mizoram for management of solid waste and sewerage

# Introduction

- Mizoram has highest green cover in the country with 85% forest cover.
- Average value for Air Quality Index for Aizawl during the month of November, 2022 was 25 which is testament of the pristine environment in the State.
- Wherever modern facilities for sewage treatment are yet to come, effective traditional methods are employed to manage solid and liquid sewage.
- Strong punitive actions are initiated against environmental violation by executive agencies of projects.
- Elimination of Single use plastics is almost taking shape of a public movement.
- Strong commitment of the Government for modern solid and liquid waste management facilities.

# Introduction (Contd.)

- Given the hilly terrain with green cover, people naturally live in harmony with nature.
- Cleanliness is the way of life with strict adherence to sanitation rules and regulations.
- Most towns and villages are extremely clean owing to commitment of the people as well as local bodies.
  - Swachh Survekshan Overview:
    - 2021- Mizoram: 1st Rank as Fastest Mover State (less than 100 ULBs)
    - 2021-Lunglei: Best City in Citizens' Feedback in the North East Zone (50k to 1 Lakh population)
    - 2021- Biate: Best City in Citizens' Feedback in North East Zone.( < 25000 population)
- Wherever modern facilities for sewage treatment are yet to come, effective traditional methods are employed to manage solid and liquid waste.
- Already declared as ODF State in 2017 by MoHUA.

## **2. Key Statistics**

# Key Statistics

|   |   |   |
|---|---|---|
| <b>Total Population (2011 census)</b>                             | : | 10.91 lakhs                                 |
| <b>Population Density</b>   | : | 52 per sq.km                                |
| <b>Total Population (2022 Projection)</b>                         | : | 13.84 lakhs                                 |
| <b>2022 Population Projection (Aizawl ULB &amp; District HQs)</b> | : | 6.45 lakhs                                  |
| <b>2022 Population Projection (Others)</b>                        | : | 7.39 lakhs                                  |
| <b>No. of Districts</b>   | : | 11  |
| <b>No. of Autonomous District Councils (ADCs)</b>                 | : | 3   |
| <b>No. of Census Towns</b>  | : | 23  |
| <b>No. of Urban Local Bodies</b>                                  | : | 1<br>(Aizawl Municipal Corporation)         |
| <b>No. of Local Councils in the ULB</b>                           | : | 83  |
| <b>No. of Village Councils</b>                                    | : | 533 + 284 in the three ADCs<br>(Total: 817) |
| <b>No. of RD Blocks</b>   | : | 26  |



# Key Statistics (Contd.)

| S.No | Description   | Average Population (2022 Projection) | Average No. of Households (2022 Projection) |
|------|---|--------------------------------------|---|
| 1    | All District Headquarters excluding Aizawl Municipal Area | 27,820                               | 6,954                                       |
| 2    | All Other Notified towns                                  | 5,863                                | 1,466                                       |
| 3    | Aizawl Municipal Area                                     | 3,66,770                             | 91,693                                      |

## Implications:

- From the perspective of solid waste and sewage management, focus is given to Aizawl city and the district headquarters.
- For other smaller towns and rural areas with small and dispersed population, traditional and decentralised means of management as encouraged by SWM Rules – 2016 are prioritised.

### **3. Committees / task groups for Solid waste and sewage management in the State.**

# Committees and task groups formed to implement SWM Rules 2016 – State level

| Sl no. | Name   | Relevant Act/Rules  | Date of Creation             |
|--------|--|---|------------------------------|
| 1      | State Level Monitoring Committee on SWM                  | Rule 5 of SWM Rules, 2016                                     | 18 <sup>th</sup> April, 2018 |
| 2      | Environment Monitoring Cell at CS Office                 | SWM Rules, 2016   | 21 <sup>st</sup> July, 2020  |
| 3      | State level Advisory Board on Solid Waste Management     | Rule 23 of SWM Rules, 2016                                    | 4 <sup>th</sup> April, 2017  |
| 4      | Special Task Force for taking measures to eliminate SUP  | PWM (Amendment) Rules, 2021 & PRAGATI meeting dated 24.2.2021 | 17 <sup>th</sup> March, 2022 |
| 5      | State Advisory Committee on Bio-medical Waste Management | Bio-medical waste Management Rules 2016                       | 3 <sup>rd</sup> April, 2019  |

- The State Level Monitoring Committee on SWM is headed by the Chief Secretary and it has been holding regular monthly meetings with all the Deputy Commissioners of the Districts.
- The State Level Advisory Board is chaired by the Secretary, Urban Development & Poverty Alleviation Department.

# Committees and task groups constituted at District Level

| SI no. | Name of Committee/Task force  | Relevant Act/Rules/Orders   |
|--------|---|---|
| 1      | District Level committee on Solid Waste management                    | SWM Rules, 2016   |
| 2      | Sanitation Task Force   | Para 14.2 of the Mizoram Urban Sanitation and Solid Waste Management Policy, 2011 |
| 3      | Special Task Force to create awareness on SWM Rules, 2016             | NGT order dated 30.11.2021  |
| 4      | District Level Committee for Auditing Performance of Garbage vehicles | Vide GoM, UD&PA department letter dated 21.11.22                                  |
| 5      | District Level Committee on elimination of SUP                        | PWM (Amendment) Rules, 2021   |
| 6      | District Level Committee for Bio Medical Waste management             | Vide GoM, H&FW Deptt. Letter dated 3.4.2019                                       |

All District Administrations have identified and allocated suitable land for setting up solid waste processing and disposal facilities.

## **4. Status of Solid Waste Management in Mizoram**

# Status of Solid waste generated and treated

| SI No | Particulars                        | 2022 Population Projection | Total estimated waste generation MTD | Status of segregation at source / SWMC | Total wastes treated MTD |                            |               |              | Gap MTD          |
|-------|------------------------------------|----------------------------|--------------------------------------|--|--------------------------|----------------------------|---------------|--------------|------------------|
|       |                                    |                            |                                      |  | At SWM Centers           | At the point of generation | Total treated | % Treated    |                  |
| 1     | Aizawl Municipal Area*             | 3,66,770                   | 172.38                               | 100%                                   | 122.74                   | 34.48                      | 157.22        | 91.20        | 15.16            |
| 2     | All Dist HQs (other than Aizawl)** | 2,78,203                   | 83.46                                | 100%                                   | 1.54                     | 66.77                      | 68.31         | 81.85        | 15.15            |
| 3     | Semi urban & rural**               | 7,38,730                   | 139.62                               | 100%                                   | 0                        | 111.69                     | 111.69        | 80.00        | 27.93            |
|       | <b>TOTAL</b>                       | <b>13,83,703</b>           | <b>395.46</b>                        | <b>100%</b>                            | <b>124.28</b>            | <b>212.94</b>              | <b>337.22</b> | <b>84.08</b> | <b>58.24***^</b> |

\*Waste generated in Aizawl is estimated at 470 grams/person/day

\*\* Waste generated in other district HQs, semi urban and rural areas is estimated at 300 grams/person/day

\*\*\* Out of total gap, 22.13 MTD is the estimated wet waste taken at 38% of the total untreated waste.

^ The estimated untreated waste of 58.24 MTD will not lead to creation of legacy waste on account of the commitment of the State Government to set up SWMCs and the subsequent remediation of old dumpsites.

# Status of Solid waste generated and treated (Contd.)

- **Segregation of waste at source:**

- 100% segregation of waste at source / SWMC achieved
- Waste collection points are identified in every locality and it is ensured that no individual household brings their domestic waste more than 100 metres.
- Alternate days are assigned for collection of dry waste and wet waste so that segregation is also ensured systematically during collection of waste

- **Waste treatment:**

- At SWM Centre:**

- Mechanical Composting & Baling - Feed for RDF and for co-incineration in Cement Plant (Dalmia Cement Plant, Meghalaya)

- At source:**

- 1) Home composting & animal feed
  - 2) Recyclables except plastics go to authorized scrap dealers.

# Land Availability & SWM Centres In Urban Towns Of Mizoram

| S.No | Particulars  | Description  |
|------|--|--|
| 1    | No. of District Headquarters where land for SWM Centre has been identified | 11   |
| 2    | No. of other urban areas where land for SWM Centre has been identified     | 12   |
| 3    | No. of Completed SWM Centers in the District Headquarters                  | 2<br><i>Aizawl (Capacity:190 MTD) &amp; Kolasib (Capacity:10 MTD)</i>                                    |
| 4    | No. of On-going SWM Centers in the District Headquarters                   | 9  |
| 5    | Proposed Action Plan for ensuring availability of SWMC                     | Government of Mizoram has prioritised the establishment of SWMCs at all District HQs and notified towns. |

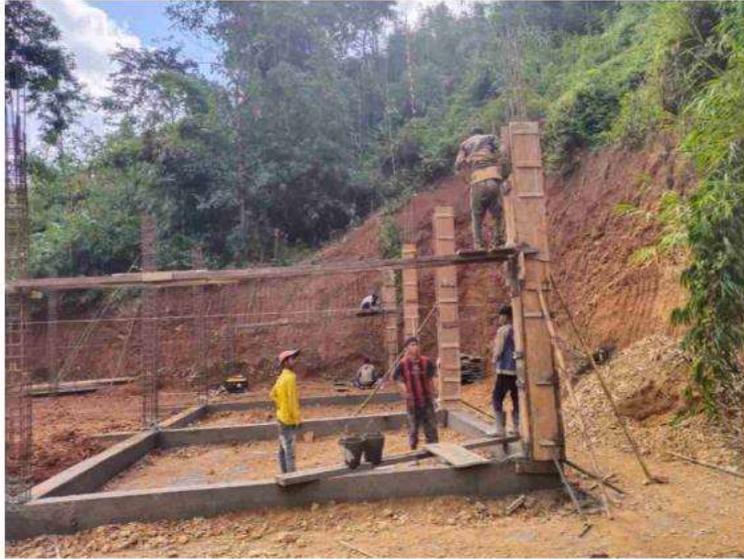
# Photo of SWMC at Aizawl, Tuirial (Operational since 12<sup>th</sup> December, 2019)



# Photos of SWMC, Kolasib (Operational since 3<sup>rd</sup> Sept. 2021)



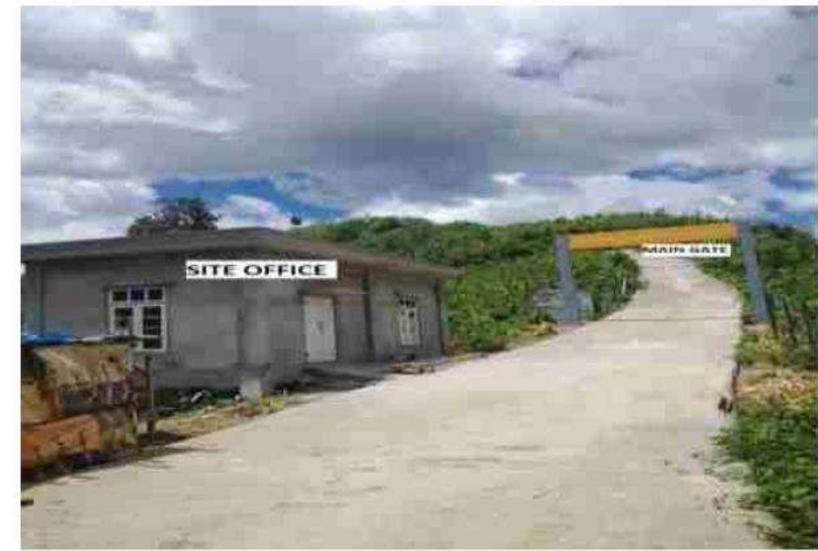
# Images of on-going SWMCs



**Lunglei**



**Champhai**



**Serchhip**



**Saitual**



**Khawzawl**



**Hnahthial**

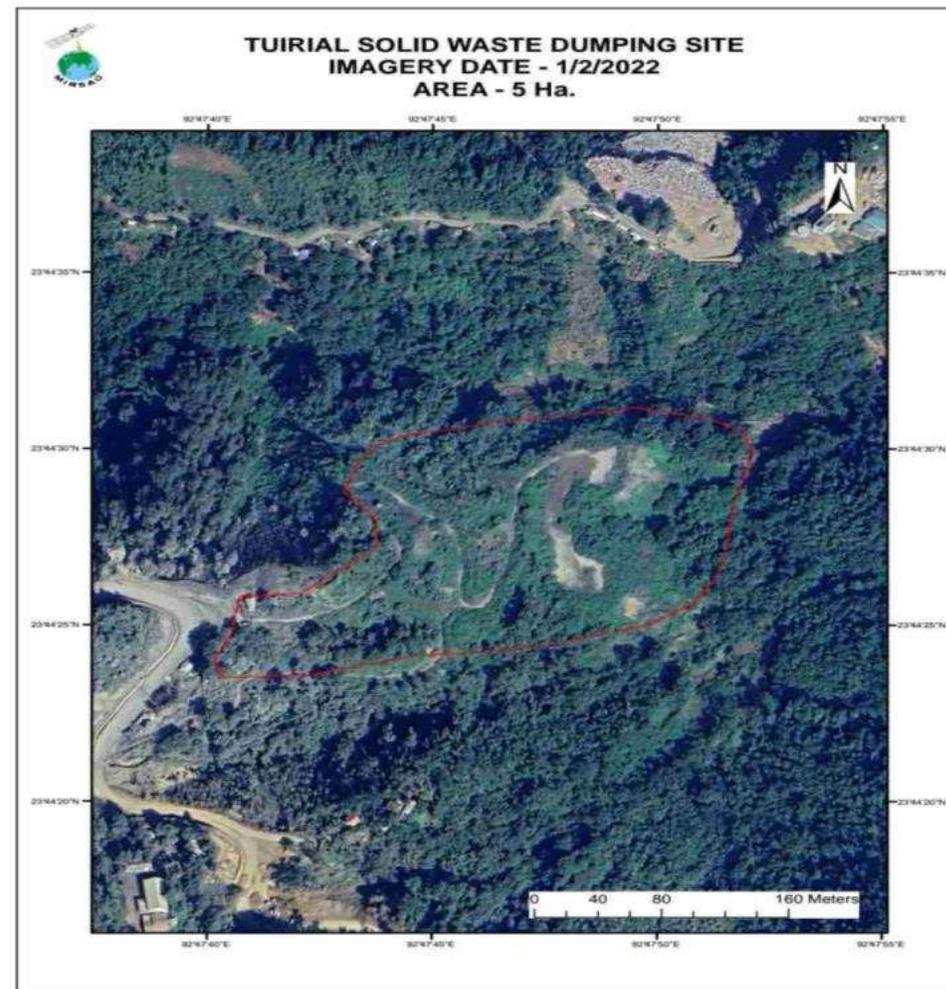
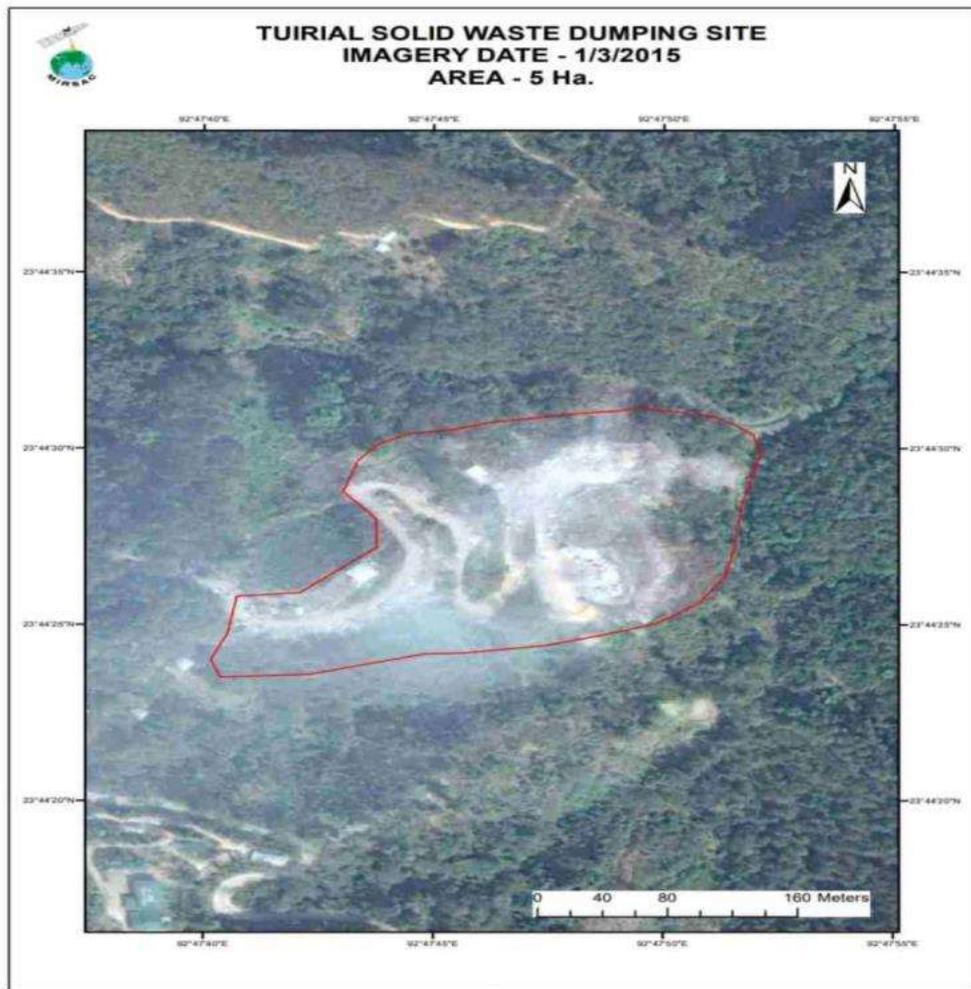


**Mamit**

# Bio-remediation of legacy waste

- Legacy waste (720,000 MT) at Tuirial which spread over an area of 5 hectares was closed in the year 2019. The legacy waste site is now fully covered by vegetation.
- PIL case in the Hon'ble Gauhati High Court on this was also closed due to successful closure of the old dump site. (*Order dated 22.07.2021 in WP(C)(PIL) No. 97 of 2016*).
- The only remaining legacy waste site is at Kolasib (60,000 MT) which will be fully remediated during 2023-2024.

# Satellite Imageries of pre and post remediation of legacy wastes at old dump site, Tuirial



(Satellite images generated by Mizoram Remote Sensing Application Centre)

# Action taken on Ban on Single Use Plastics (SUP)

- Best performing state in the North East and 12<sup>th</sup> Best performing state in the country in eradication of SUP as per the latest ranking by CPCB
- Teams for Enforcement of Ban on SUP already notified for State and all Districts.
- Inspection of SUPs sellers, dealers, stockiest, manufacturer etc. carried out at regular interval.



## **5. Status of Sewage Management in Mizoram**

# Status of Sewage Management in Mizoram

| Estimated Sewage Generation (MLD) based on population as on date |             |       |        | Existing full fledged STPs |                       | Bio-digester |                | Individual Household latrines (mostly septic tanks with soakpits) |                | Gap (MLD) |
|--|-------------|-------|--------|----------------------------|-----------------------|--------------|----------------|---|----------------|-----------|
| Aizawl Municipal Area  | Other towns | Rural | Total  | Capacity (MLD)             | Sewerage Length in Km | Nos          | Capacity (MLD) | Nos   | Capacity (MLD) |           |
| 16.6   | 14.77       | 20.44 | 51.80* | 10                         | 28.26 km              | 1451         | 1.86           | All Households  | 15.98          | 23.96     |

\*Estimate based on the supply of water by Public Health Engineering Department which is 70 lpcd for Aizawl Municipal Area, 55 lpcd for other towns and 40 lpcd in rural areas.

# 10 MLD Sewerage Treatment Plant, Aizawl

- Sewerage Treatment Plant for Aizawl with 10 MLD capacity is operational since 6<sup>th</sup> February 2021.
- Hilly and congested city with undulating topography and difficult terrain pose great challenges for construction.
- 28.26 km sewerage network have been laid.
- Treated waste water from the STP is used for recharging of water bodies
- Mizoram Pollution Control Board has found the quality of the treated waste water to be within the prescribed limits

# 10 MLD Sewerage Treatment Plant, Aizawl (Operational since 6<sup>th</sup> Feb, 2021)



## **6. Model Towns and Villages and Best Practices**

# Model towns & villages conforming to SWM Rules-2016

| SI No | District  | Model Village/Town                                  |
|-------|-----------|---|
| 1     | Aizawl    | Maubuang, Darlawng & Muthi                          |
| 2     | Khawzawl  | Biate, Khawzawl, Khualen, Arro                      |
| 3     | Saitual   | Saitual, Tualbung, NE Khawdungsei, Suangpuilawn     |
| 4     | Lawngtlai | Electric Veng(locality)                             |
| 5     | Lunglei   | Tlabung(Town), Diblibagh, Thenhlum, Thaizawl        |
| 6     | Hnahthial | Hnahthial (Town), Khawhri, Rotlang East, Chhipphir  |
| 7     | Champhai  | Champhai (Town), Zawlse, Lungphunlian, Leithum      |
| 8     | Serchhip  | Serchhip, Leng, Lungdar, Mualcheng                  |
| 9     | Mamit     | Mamit (Town), Tuahzawl, Kawnmawi, Zawlnuam Vengpui. |
| 10    | Kolasib   | Kolasib (Town), Thingdawl, Lungdai, Bilkhawthlir    |

# Best practices in model towns/villages

## 1. Maubuang Village, Aizawl District (Rural)

- Maubuang is the first ODF+ village in Mizoram
- Community has common sewage treatment plant enhanced and no treated grey water is released in natural stream
- 100% household with sanitary toilets including schools and Anganwadi centers
- 100% household have home composting unit
- Received national Panchayat Award, Deen Dayal Upadhyay Sashaktikaran Puraskar (DDUPSP) in 2021 & 2022
- All the prize money of the award exclusively utilised for sanitation and waste management



## 2. Leng Village, Serchhip District (Rural)

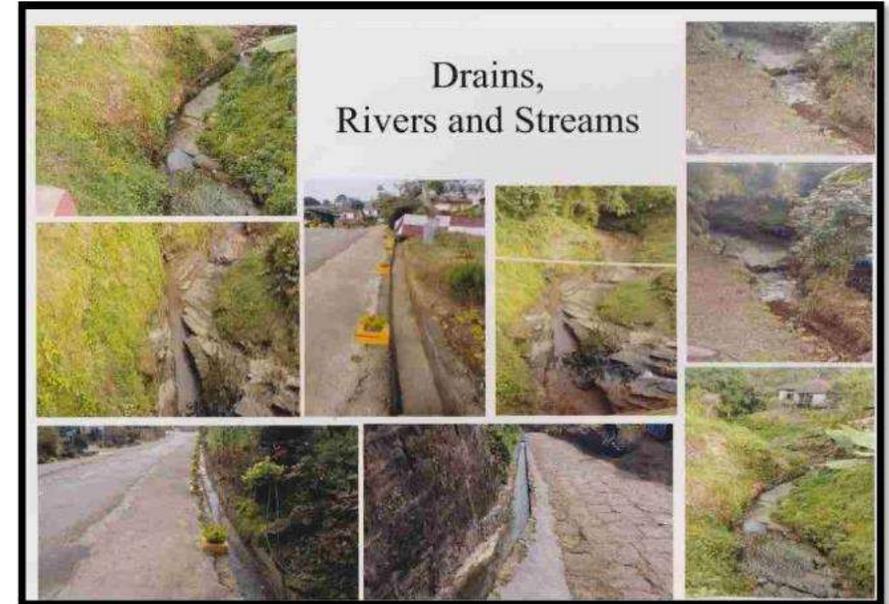
- 100% Sanitation coverage with all households having sanitary toilets.
- All educational institutions, churches, community halls are with sanitary toilets.
- Each individual household owns composting unit.
- Received a number of Awards on cleanliness at state and at National level.
- Separate waste bins for wet and dry waste at each household and for community.
- Garbage truck procured by Gram Panchayat from prize money of state and national awards and from sanitation fees collected from community.



### 3. Biate, Khawzawl District (Urban)

- Biate has been declared as the cleanest urban town in Mizoram for 5 (five) consecutive years.
- Reuse non-biodegradable waste for beautification of the town in the most colorful and attractive manner.
- First to achieve 100% segregation at source in the state.
- First to identify land for treatment of waste in the state.
- All wet wastes are used for organic fertilizers.
- 100% individual households having sanitary toilets.
- 100% door to door collection of waste achieved .
- Management of solid waste run by community through public contribution.
- Completely eliminated malaria for the past 12 (twelve) years.
- Recycled plastic waste are converted into decorative tiles

***(Separate video profiling the cleanliness of Biate town is attached)***



Plastic waste used for town decoration

# Best practices in the State

- Plastic Wastes collected are shredded and used in road construction.
- MoU signed by Govt. College Khawzawl with District Authority for elimination of Single Used Plastic.
- Introduced Ecobrick i.e., plastic Bottle packed with used plastic to set density. Used for building blocks and various items, including furniture, garden walls and other structures.
- Practice Garbage fencing to eliminate throwing/dumping of solid wastes in places other than Solid Waste Management Centers.



Ecobrick



Garbage fencing



Plastic waste in road construction

# Best practices in the State

## Distribution of household garbage bins



## **7. Public Participation in Solid Waste and Sewage Management**

# People's Participation – the backbone

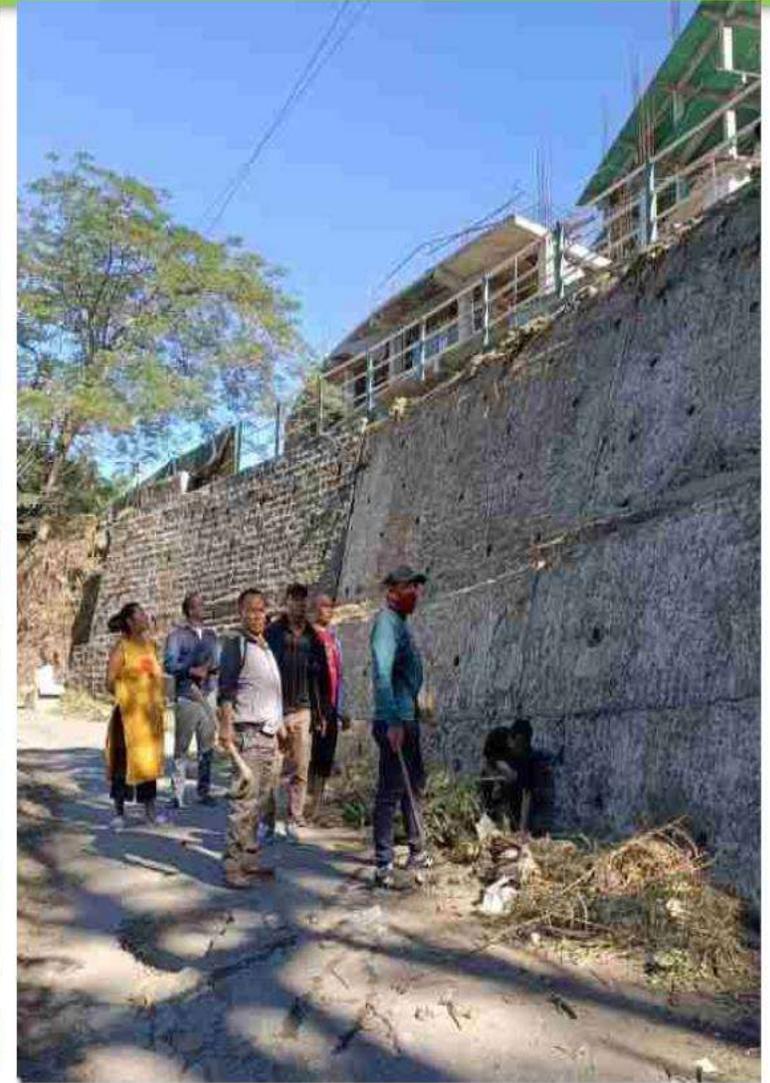
All 817 Village Councils and 83 Local Councils are actively engaged in waste management by way of:

- **Hnatlang:** Held at regular interval in each village and locality; contribution of one's labour for the welfare and good of the community.
- **'Tlawmngaihna'** prevails, a spirit of altruism wherein one dedicates oneself for others.
- **Public contribution** to the transport of solid wastes: This is coordinated by the local authorities (VCs and LCs) and logistic arrangements at the local level are made by them.
- **Use of eco-friendly materials:** Villages in Mizoram have started use of eco-friendly material for collection of garbage so as to reduce the environmental and pecuniary cost of solid waste management in rural areas

# Public Contribution 2022-23 for SWM in Mizoram

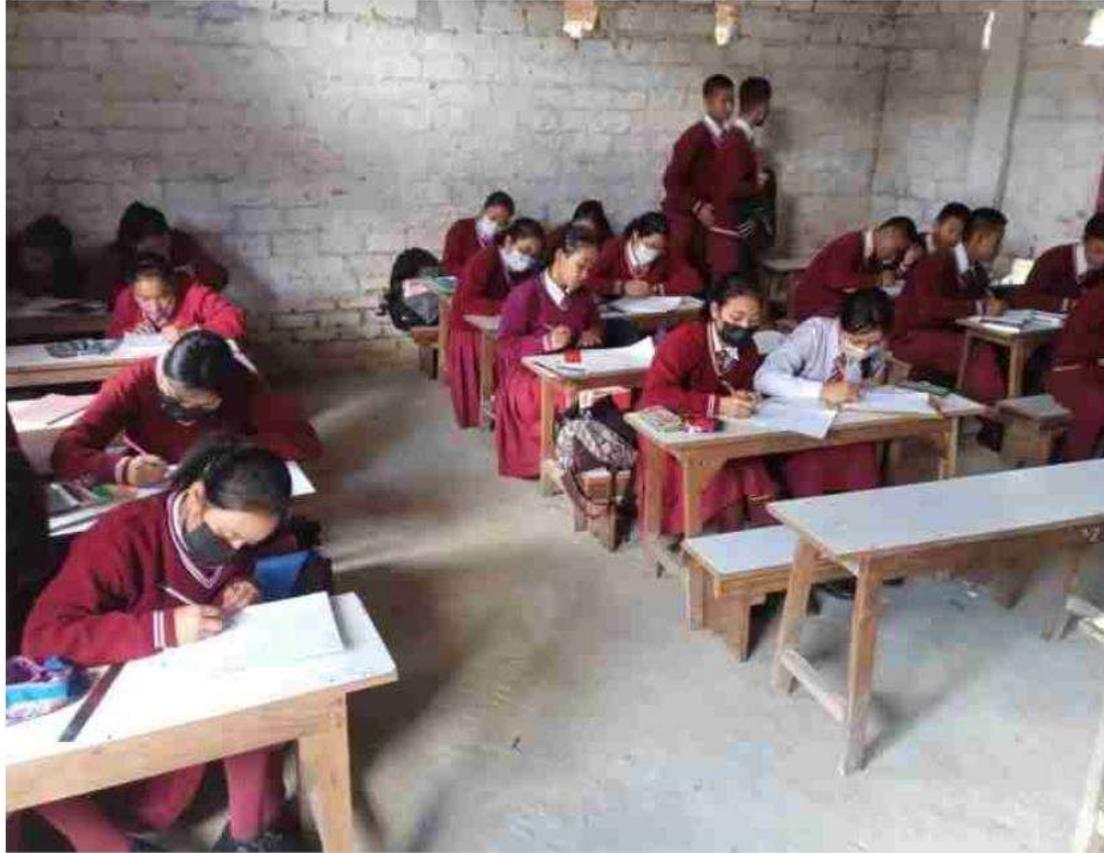
| Sl. No | Name of District | Average Monthly Expenditure for Solid Waste Management (Rs.) | Total Amount of Public Contribution per month (Rs.) | Actual Monthly Contribution per Household (Rs.) | Percentage of Public contribution to the total Expenditure |
|--------|------------------|--|---|---|--|
| 1      | Aizawl           | 31,34,000  | 8,85,041  | 100-200   | 28.24%   |
| 2      | Lunglei          | 1,65,000   | 71,000  | 50  | 43.10%   |
| 3      | Champhai         | 9,14,400   | 2,14,400  | 30  | 34.40%   |
| 4      | Kolasib          | 10,000   | 59,015  | 50  | 60.00%   |
| 5      | Serchhip         | 50,000   | 8,500   | 20  | 17.00%   |
| 6      | Siaha            | 6,21,000   | 1,24,200  | 50-200  | 20.00%   |
| 7      | Lawngtlai        | 1,80,000   | 25,000  | 30  | 13.33%   |
| 8      | Saitual          | 9,42,500   | 6,59,050  | 50  | 70.00%   |
| 9      | Khawzawl         | 92,467   | 69,350  | 25  | 75.00%   |
| 10     | Hnahthial        | 86,000   | 74,500  | 50  | 86.00%   |

# Glimpses of Public participation



Street & Public toilet cleaning through voluntary public participation

# Glimpses of Public participation



Essay writing competition on Solid Waste Management at School



Use of plastic waste for construction of retaining wall and Eco friendly community garbage bin



## **8. Commitment of Government of Mizoram for Management of Solid Waste and Sewerage**

## Funds already allocated during 2022-23

| Sl No        | Purpose  | Amount ( Rs. In cr) |
|--------------|--|---------------------|
| 1            | Construction of SWMC, Champhai                                     | 4.08                |
| 2            | Construction of SWMC, Hualngohmun, Aizawl                          | 16.64               |
| 3            | Construction of SWMC, Lunglei                                      | 6.00                |
| 4            | Aizawl Municipal Corporation for treatment of waste in Aizawl      | 10.25               |
| 5            | Sanitation in semi urban and rural areas                           | 30.90               |
| 6            | Construction of toilets, compost pits and soak pits in rural areas | 20.38               |
| 7            | Construction of Common Bio-medical waste treatment plant at Aizawl | 8.00                |
| <b>TOTAL</b> |  | <b>96.25*</b>       |

\* STPs – Additionally, Small Bore Sewer System (Capacity: 3.5 MLD, costing Rs. 12 crs ) and Faecal Sludge Treatment Plant (Capacity: 0.3 MLD, costing Rs. 2 cr) at Aizawl is proposed to MoHUA under AMRUT 2.0

# Commitment of the State Government for FY 2023-24

| S.No         | Particulars   | Total<br>(Rs. in cr) |
|--------------|---|----------------------|
| 1            | SWMCs at District HQs   | 87.50                |
| 2            | SWMCs at Other Notified towns                                 | 52.75                |
| 3            | Remediation of old dumpsites                                  | 4.00                 |
| 4            | Annual Maintenance of SWMC & up-gradation of existing Centers | 15.75                |
| 5            | Revenue Expenditure for O&M and Environmental clearance       | 3.00                 |
| <b>TOTAL</b> |   | <b>163.00</b>        |

The State Government has committed to set-up SWMCs in all the towns. In this regard, approval of the Hon'ble Chief Minister (i/c Finance Department) has been received to prioritise these projects under the relevant schemes of the Central and State Governments. Once the budgetary allocations are made in the coming financial year, same would be ring-fenced to finance the projects in order to fill the gaps in solid and sewage management.