

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL,

PRINCIPAL BENCH AT NEW DELHI

MISCELLANEOUS APPLICATION NO 843 OF 2015

IN THE MATTER OF:

Almitra H Patel

... Petitioner

Versus

Union of India and Others

... Respondents

REPLY AFFIDAVIT ON BEHALF OF RESPONDENT No. 23

(THE STATE OF MIZORAM)

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ADVOCATE FOR RESPONDENT No. 23: PRAGYAN SHARMA

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New Delhi
Dated: ____ . 10.2015

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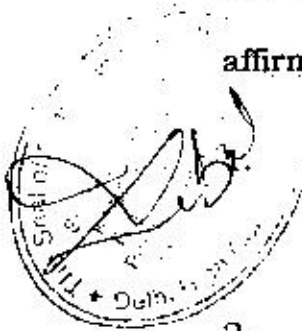
Versus

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REPLY AFFIDAVIT ON BEHALF OF RESPONDENT No. 23

(THE STATE OF MIZORAM)

I, Ranbir Singh, Resident Commissioner, Government of Mizoram aged about 51 years, S/o Sh. Balwant Singh R/o 4, Old Type - V, Jal Vihar New Delhi 110014, do hereby solemnly affirm and declares as under:



1. That I am duly authorized to swear this affidavit on behalf of State of Mizoram.
2. That I am well conversant with the facts and circumstances of the case and as such competent to file the Counter Affidavit on behalf of the State of Mizoram on the basis of records made available to me.
3. I state that I have read and well understood the entire Synopsis, list of Dates, facts and grounds of the Writ Petition.

4. That the petitioner herein filed a Miscellaneous Application being M. A. No. 843 of 2015 before the Hon'ble Tribunal seeking prayers as:

(a) Direct the Union of India, Respondent No. 1 to immediately Constitute a National Technology Mission for Improving Solid Waste Management Practices in the Country within Five Years with the role, Objectives and composition as specified in Chapter 10 of the SWM Committee Report 1999, and for considering immediate Ratification by India of the "Dhaka Recommendations - 2004 on Solid Waste Management in the SAARC Region"

(b) Redirect all the Respondents including the four new states formed after 1996 to comply with the directions dated 28.07.1997 of this Hon'ble Court for immediate waste stabilization and to submit their action taking reports to this Hon'ble Court, and also pass directions restraining raw waste being deposited in new or existing waste-processing sites or in landfills without first stabilizing the waste in wind-rows or by bio-methanation,

(c) Direct immediate compliance by all Respondents and new States with the mandatory declaration of Buffer Zones of No New Development around waste-processing sites as per Sch III sec 9 of the MSW Rules 2000 and Sec 3.16.6 of the SWM Report, by Notification of Buffer Zones around waste processing and disposal sites, and to formulate policies to compensate through economic instruments those

villages hosting waste-processing sites and those properties falling within their Buffer Zones,

(d) Direct the Central and State Governments to ensure the application of urban funding as a first priority for statutory end-point waste stabilization, processing and disposal before finding upstream aspects of waste handling and not to release or permit payment of Tipping Fees except for land filling of compost rejects (upto maximum 20% of total raw waste) only after commissioning of compost-plants and development of lined landfill-sites at the composters's expense and not to fund the Capping of old waste heaps and unlined landfills instead of biomining,

(e) Direct the Union of India (Respondent No. 1), CPCB and BIS to consider the issue of proactive Notifications, Rules and/or Regulations to Minimize Waste and Prevent its Pollution, e.g. for use of unrecyclable plastic in roads, use of Low-Mercury Fluorescents, Lead-Free Paints and Pigments, Low-Phosphate Detergents, phas-out of short-life PVC products and Expanded Ploystyrene Packaging, sale of fully-compostable Garbage Bags as suggested in the present application.



That the State of Mizoram is relatively a clean state, compared to many other parts of the country. It may be highlighted that under the ongoing flagship programme of the Government of India, Swachh Bharat Mission the State of Mizoram has secured the 35th position in the All India Swachh Bharat Mission

ranking; and among the capital cities of India it has also secured 9th position. This is due to the combined efforts of the Government, NGOs and General Public. In the capital city of Aizawl where there is a Municipality, the Municipality administers collection of community and municipal waste and garbage in designated locations in association with Local Councils, which is an important Government agency at the local level. These municipal solid wastes are disposed of at a designated location. In like manner, in all the district headquarters the same method as practiced in the capital of Aizawl is replicated. This task is spearheaded by the Department of Urban Development & Poverty Alleviation, Government of Mizoram in Lunglei, Champhai, Kolasib, Mamit and Serchhip district headquarters; in Lawngtlai and Saiha District Headquarters this task is carried out by Lai Autonomous District Council and Mara Autonomous District Council respectively. However, the method of disposal adopted at this juncture is open dumping at designated sites.

6. That presently on pilot basis, about 10% of solid wastes are composted and are taken up on segregation at source and green wastes are composted in partnership with private agencies. In other places, the current system adopted for disposal is open dumping by directly transporting wastes from their collection to the dumping sites. However, these vices are expected to be slowly done away with. In Aizawl City, the



recently approved detailed project report of Municipal Solid Waste Management System for Aizawl City is expected to be commissioned in the year 2017 in compliance with Municipal Solid Waste (Management & Handling) Rules, 2000. For the other cities and towns also, detailed projects reports are being developed and will be taken up in phase manner.

7. That the Government of Mizoram has been taking up various policy measures for collection and disposal of garbage in the State. The Government of Mizoram already has its own policy framework for solid waste management, "The Mizoram Urban Sanitation and Solid Waste Management Policy, 2011" under which various activities for making the urban areas clean and tidy and scientific management of wastes are clearly laid down. However, resource constraint of the State Government has stood in the way to make a proper headway in this direction. The Government has taken every effort to mobilize internal resources to take up various activities enshrined in the Policy. The recently launched Scheme of Swachh Bharat Mission (Urban) will be of great help in taking up scientific management wastes. The issue of solid waste treatment, insanitary latrines and provision of public latrines are some of the critical challenges that the State Government and ULBs would need to address effectively.



The copy of The Mizoram Urban Sanitation and Solid Waste Management Policy, 2011 has been marked and annexed hereto as **Annexure - R1**.

8. That in Aizawl city, where there is a municipality, collection of solid wastes is mainly done by deploying trucks at assigned locations at specified frequency. There is a strong participation of public at the grass-root level. The local councils are important agents of the Government as they play a key role in the administration of solid waste management in the capacity of Aizawl. Similarly, in places where there are no urban local bodies, the Village Councils play the same role as that of the local councils'.

9. That there is also strong participation from NGOs in the State like Young Mizo Association, Youth Adventure Clubs etc. in the management of solid wastes. In all villages there are Sanitary Committees and in some localities Clean Committees to take up various sanitation activities like sweeping of streets, cleaning of gutters, spreading awareness are set up for their respective areas. Moreover, the State Government has been observing cleanliness week every year in the month of October since 1977 to create mass awareness. The combined efforts of Government and NGOs make Mizoram relatively a cleaner state.

That the Petitioner herein has sought prayer on issues relating to passing directions restraining raw waste being deposited in new or existing waste processing



sites or in land-fills without first stabilizing the waste in windrows or by bio-methanation, it is stated here that the State Government in association with the general public and NGOs have put in immense efforts not to dump new wastes at random. A more proper method of disposal of wastes in urban areas has been explored and discussed at the Government level, which is expected to bear fruits in future. Besides, the prayer seeks a scientific treatment of wastes, which could not be fully carried out by the State Government and ULBs due to financial constraints. The State Government is actively considering scientific treatment of wastes in which stabilization of wastes in wind-rows or bio-methanation will be adopted for safe treatment of wastes.

12. That the Petitioner herein has sought prayer for the mandatory declaration of Buffer Zones of No New Development around waste-processing sites as per Sch III sec 9 of the MSW Rules 2000 and Sec 3.16.6 of the SWM Report. It is hereby stated that the State Government of Mizoram has not, at this juncture, taken any steps towards mandatory declaration of buffer zones of No New Development around waste-processing sites. However, this issue may be tabled for consideration by the State at the earliest. In respect to this, the State of Mizoram has prepared the "Model Action Plan for Municipal Solid Waste Management for the State of Mizoram" and will be working on this subject accordingly as per the model.



The copy of Model Action Plan for Municipal Solid Waste Management for the State of Mizoram has been marked and annexed hereto as **Annexure - R2**.

13. That the Petitioner herein has sought prayer for commissioning of compost-plants and development of lined landfill-sites. It is submitted that at present, there is no scientific management system of municipal wastes in place in the State of Mizoram. However, the State of Mizoram is contemplating to implement the Solid Waste Management Project for Aizawl City. This project will adopt scientific method in the management of solid waste in Aizawl City. Once this project takes off as a pilot project, the same could be replicated in other towns. A full scientific centre for Aizawl City is to be taken up under the assistance of Asian Development Bank under the Scheme of "North-Eastern Region Capital Cities Development Investment Programme (NERCCDIP)" The project will soon be implemented, with the following major components:

- 1) Name of Project : Solid Waste Resource Management Centre at Aizawl City
- 2) Project Cost : Rs.3308.80 lakhs
- 3) Project components will be:
 - a. 2 resource centres (37 MTD each).
 - b. 2 vermi compost plant (11 TPD).
 - c. 1 mechanical compost plant (50 TPD).
 - d. 20000 sq mtr sanitary landfill.
 - e. Procurement of 54 nos. of SWM Vehicles.



This project will commence shortly and the projected completion year is 2018. Once this project is completed, major issues relating to sanitation in the capital city will be addressed.

The copy of Final Submission on Collection, Storage and Disposal of the Municipal Solid Waste in the State of Mizoram, issued by the Government of Mizoram, Urban Development & Poverty Alleviation Department has been marked and annexed hereto as **Annexure - R3**.

14. That at present in the State of Mizoram, urban wastes are dumped at designated locations only as the general public are highly aware of cleanliness, and that dumping of wastes are done mostly in designated locations as far as practicable. Moreover, collection and disposal of garbage is wholly or partly funded by the State Government.

15. That the State of Mizoram would like to make following averments on the "Action Plan for Solid Waste Management" drawn up by the Central Pollution Control Board:

(a) Generation, Composition and Management of MSW - Segregation of Wastes at Source (Para 3) -

In the State of Mizoram segregation of waste at source is yet to be taken up in a large scale, covering the whole city/town or for the whole State. This will need to be linked with the overall waste management



system, without which segregation may not serve any useful purpose.

The State of Mizoram has taken up piloting of waste segregation at source in 5 localities out of the 83 locations in Aizawl City. The segregated green wastes are then processed for composting, in a tie-up between the Aizawl Municipal Council and a Private Partner, Vermizo having a scientific composting centre at Lenglui, around 30 kms from the City. The piloting has been a successful venture. The Scientific Centre for Solid Waste Management at Aizawl City, being taken up under the ADB-assisted NERCCDIP (project cost of 35 crore) will take care of the funding requirements for setting up of a full scientific centre at Tuirial, Aizawl. The project is likely to be commissioned in 2017, and the entire wastes of the city will be segregated at source, and scientifically treated as already successfully piloted. In rest of the other towns of the State, the same practice is being taken up for implementation, through the funding support of Central Government and the State Government of Mizoram through the Scheme of Swachh Bharat Mission (Urban) which is being implemented throughout the country.

(b) Regional/Cluster-Based Approach for Common Waste Processing & Disposal Facilities (para 9) –

In the State of Mizoram, where there is relatively small population in the towns, establishment of separate

waste management centres may not be feasible and hence this issue is worth considering. A collection/cluster of 3/4/5 towns with common centre could be feasible from the management perspective of the Mizoram State.

The State High Powered Committee under SBM (Urban) is in the process of finalizing the Action Plan under SBM and this issue of cluster-based approach may be duly considered while finalizing the Plan, as recommended by the Central Pollution Control Board.

(c) Indicative Action Plan (para 10 and 11) –

The Government of Mizoram will work out on management and processing of wastes in line with Indicative Action Plan drawn up by the CPCB as per paragraph 10 and 11 of this plan.

16. That the Government of Mizoram and the ULBs in the Cities/Towns are committed to providing clean environment through proper handling of wastes. The Central and State Government funding through the Swachh Bharat Mission for Solid Waste Management, and the Clear Action Plan laid down by the Central Pollution Control Board will pave the way for moving the matter forwarded.

17. That the question in respect of any impediment does not come in the way of implementation of directions, if any issued by this Hon'ble Tribunal and the present answering Respondent will implement the directions, if



any issued by this Hon'ble Tribunal in its true letter and spirit.

18. That no new facts which were not pleaded before the Tribunal below have been pleaded in the affidavit.



DEPONENT

(RANJAN SINGH, IAS)
Resident Commissioner
New Delhi

VERIFICATION

I identify the deponent who has signed in my presence

15 OCT 2015

Verified at New Delhi on this the day of October, 2015 that the contents of the above affidavit are true and correct to the best of my knowledge and belief. No part of it is false and nothing material has been concealed there from.

15 OCT 2015

DEPONENT

CERTIFIED THAT THE DEPONENT
Sh./Smt./Mn. Ranjit Singh
S/o W/o D/o Ramesh Singh
Mentioned Ramesh Singh
has solemnly sworn before me at Delhi
on
that the contents of the affidavit which
have been referred to him, are
true and correct to his knowledge.

(RANJAN SINGH, IAS)
Resident Commissioner
New Delhi



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NOTIFICATION

No.B.13616/15/2007-UD&PA(SAN), the 30th August, 2011. The following Policy "The Mizoram Urban Sanitation and Solid Waste Management Policy, 2011" is hereby published for general information.

R.L. Rinsama,
Commr. & Secretary to the Govt. of Mizoram,
Urban Development & Poverty Alleviation Department.

**THE MIZORAM URBAN SANITATION
AND SOLID WASTE MANAGEMENT POLICY**

1. Introduction:

For the purpose of this policy statement, sanitation covers the basic issues of environmental sanitation such as solid waste management, sewerage and drainage, industrial and other hazardous/ specialised waste apart from management of human excreta.

One of the most pressing gigantic problems faced by any urban centre today is Solid Waste Management. Management of solid waste includes collection, transportation, disposal and treatment. Rapid urbanisation and changing lifestyles have led to the generation of huge amounts of garbage and waste in the urban areas, so much so, over the past few years, just the handling of solid waste has assumed the proportion of a major organisational, financial and environmental challenge. In the present scenario, the Government is struggling to provide effective services despite its resources being stretched to the limit for urban sanitation and waste management.

An unfortunate fallout of rapid urbanisation without adequate infrastructure back up is that disposal of waste is done indiscriminately, leading to clogged drains, unhealthy environment, spread of disease, offensive odour and sights in streets, open drains and other public places. The process of collection, transportation and disposal of solid waste is unregulated and unsystematic in our city/ towns, with all the garbage collected disposal in open dumps without subjecting to further treatment. This is posing a serious environmental and health hazard. In addition, the contamination of solid waste by bio-medical and industrial hazardous waste is also a growing concern.

The disposal wastes is being carried out in an unscientific manner, with crude open dumping on hill slopes and cliffs being the prevalent practice. The results of these are foul smell, breeding of flies, rats and other pests that spread diseases, and generations of liquid run-offs (leachate). Similarly, scientific method of disposing septage (septic tank sludge) and waste water is practically non-existent. All these have extensively contributed to environmental degradation and are posing a constant threat to public health. The communication programmes for effective sanitation and solid waste management have not been given adequate importance. As the responsibility of sanitation and solid waste management has been assumed by the State Government, participation of the other stakeholders (waste generators, NGOs, private entities) is so far limited. The overall sanitation and solid waste management service delivery has to be invigorated, strengthened and remodeled, and there is an urgent need to revise, develop, and implement appropriate strategy for effectively handling solid waste.

2. Mandate

2.1 National Urban Sanitation Policy

The Government of India has adopted the National Urban Sanitation Policy with the following vision:

'All Indian cities and towns become totally sanitised, healthy and liveable and ensure and sustain good public health and environmental outcomes for all their citizens with a special focus on hygienic and affordable sanitation facilities for the urban poor and women.'

The overall goal of this policy is to transform Urban India into community driven, totally sanitised, healthy and liveable cities and towns. The Government of India is ready and willing to extend support to State Governments in achieving the Urban Sanitation Policy goals.

2.2 Municipal Solid Waste Rules

In view of the serious environmental degradation resulting from the unscientific disposal of solid waste, the Ministry of Environment and Forests (MoEF), Government of India, has notified the Municipal Solid Wastes (Management & Handling) Rules, 2000 (popularly known as MSW Rules), stipulating all municipal authorities to scientifically manage solid waste.

Compliance criteria for each and every stage of waste management- collection, segregation at source, transportation, processing and final disposal-are

- i) Open dumping of solid waste is not acceptable.
- ii) The bio-degradable waste has to be processed by means of composting, vermi-composting, anaerobic digestion or any other appropriate biological processing for stabilisation of wastes.
- iii) Mixed waste containing recoverable resources should be recycled.
- iv) Other technologies for treatment such as pelletisation, gasification, incineration etc. require clearance from Pollution Control Board before planning and implementation.
- v) Landfilling should be the waste disposal method for non-biodegradable, inert waste and other waste that is not suitable either for recycling or for biological processing.

2.3 Constitutional Provision and Supreme Court Directives

Article 47 of the Constitution of India provides that *the State shall regard the raising of the level of nutrition and the standard of living of its people and the improvement of public health as among its primary duties and, in particular, the State shall endeavour to bring about prohibition of the consumption except for medicinal purposes of intoxicating drinks and of drugs which are injurious to health.* Sanitation and waste management are without doubt among the basic services for improvement of public health, and it is the constitutional duty of the Government to provide these services to its citizens.

The Supreme Court of India in *Amrita H. Patel vs. Union of India & Ors.* in the W.P.(C) No. 888 of 1996 and in the case of *Dr. B.L. Wadhwa vs. Union of India*, (1996)2 SCC594, emphatically pronounced that the authorities are under statutory obligations to scavenge and clean the city and that 'it is mandatory for these authorities to collect and dispose of the garbage/waste generated from various sources in the city.' It was further observed that 'non-availability of funds, inadequacy or inefficiency of the staff, insufficiency of machinery, etc. cannot be pleaded as ground for non-performance of their statutory obligations. The court on various occasions has also declared in unequivocal terms that maintenance of health and preservation of sanitation falls within the purview of Article 21 of the Constitution as unsanitary environment adversely affects the life of the citizens and amount to slow poisoning and reducing the life of the citizen because of the hazards it created. The court has also declared that it is the primary, mandatory and obligatory duty of

the authorities to remove rubbish, filth, night soil or any noxious or offensive matter. In other case too, the Supreme Court has time and again declared that right to life under Article 21 encompasses right to live with human dignity, quality of life, and decent environment. Thus, pollution free environment and proper sanitary condition in cities and towns, without life cannot be enjoyed, are integral elements of right to life.

3. Objective

The goal of effective sanitation and solid waste management services is to protect public health, the environment and natural resources. Effective services can be achieved only by improving the efficiency of sanitation and solid waste management activities, leading to reduction of waste generation, separation of solid waste and recyclable material, and recovery of compost and energy.

The objectives of this State Urban Sanitation and Solid Waste Management Policy are:

- i) Providing directions for carrying out sanitation and solid waste management activities in a manner which is not just environmentally, socially and financially sustainable but is also economically viable.
- ii) Establishing an integrated and self-contained operating framework for Urban Sanitation and Solid waste Management, which would include the development of appropriate means and technologies to handle various waste management activities.
- iii) Enhancing the ability of the Government functionaries/ ULB/ local authorities to provide effective waste management services to their citizens.
- iv) Providing at least basic sanitation services to every urban dweller.

4. Guiding Principles

4.1 The guiding principles, which will govern future approach of sanitation and solid waste management services, include, but not limited to, the following:

- i) Pollution free environment and proper sanitary condition are integral elements of right to life, and every citizen has the right to clean environment;
- ii) Promoting awareness of sanitation and waste management principles among citizens and other stakeholders;
- iii) Assignment of institutional responsibility, resources and capacities to ULB/ Local authorities;
- iv) Provision of enabling legislation for effective and efficient control and management of environmental sanitation of urban areas;
- v) Minimizing multiple and manual handling of waste, and designing a system to ensure that solid waste does not touch the ground till treatment and final disposal;
- vi) Defining the roles and responsibilities of various stakeholders and putting in place and operating framework, which would include appropriate contractual structures;
- vii) Encouraging local authorities and voluntary organisations/ self-help groups/ local sanitation or clean committees, etc. to manage their own waste and provide them financial and logistic support in their engagement in sanitation and waste management activities;

- viii) Developing systems for effective resources utilisation and deployment.
- ix) Promoting recovery of value from solid waste, developing treatment and final disposal facilities, which, while adhering to the statutory requirements, are sustainable, environmentally friendly and economical.
- x) 'Polluter pays' principle, which basically means that the producer of goods or items should be responsible for the cost of preventing or dealing with any pollution that the process cause, will be adopted and applied to the extent practicable.
- xi) Adopting participatory approaches to community sanitation, and rational planning for appropriate, adequate and sustainable sanitation for floating population, institutions and public place workers.

4.2 Stakeholder Involvement

Sanitation and solid waste management depends, as much upon organisation and co-operation between households, communities, NGOs and ULB (where applicable)/ local authorities and voluntary organisations, as it does upon selection and application of appropriate means and technical solutions for various waste management activities. Towards enhancing the stakeholders' involvement in Urban Sanitation and Solid Waste Management, the following innovations are proposed:

- i) Directing the waste management initiatives to the waste generator level, and entrust the responsibility of source segregation and primary collection to the relevant community based organisation/ voluntary organisations/ self-help groups/ local sanitation or clean committees, etc.
- ii) Developing and maintaining details of the Information, Education and Communication (IEC) activities and awareness programs.
- iii) Utilising the services of non-governmental organisations (NGOs)/ voluntary organisations/ self-help groups/ local sanitation or clean committees, etc. in order to propagate the awareness program, the IEC campaign, and to provide support to the informal sector (rag pickers, waste recyclers, etc.).
- iv) **Defining the role of NGOs:** The MSW Rules, 2000, stipulate for extensive involvement to the community in solid waste management. In order to educate the community and bring awareness regarding the re-modeling and modernisation of solid waste management programme, the involvement of an intermediary, by way of a Non-Governmental Organisation is highly essential NGOs would help in the effective propagation of the complete awareness regarding sanitation and solid waste management among various stakeholders so that these would take place as per the State Policy. The Government will lay down terms and conditions for carrying out IEC activities.
- v) ULB/ Local authorities can be allowed to enter into contracts with private operators for various waste management activities under specified guidelines and structure.

5. Information, Education & Communication Activity (IEC)

IEC is the key to the successful implementation of sanitation and waste management. Awareness amongst community and different stakeholder to meet the demands of new system for a cleaner environment

requires a detailed and thorough understanding at every stage. Involvement of community will form the main thrust of the program. The IEC activity will involve participation of leading NGOs/Voluntary Organisation who would be identified after a careful selection process. Materials required for the IEC campaign like manuals, flipcharts and other media communication will be prepared by the Government.

6. Primary Collection of Solid waste

Where Primary collection or first stage collection is concern, the principle of reducing manual handling and doorstep collection would be promoted. For this purpose, the various activities proposed include the following:

- i) Residents would be encouraged to segregate, store and deliver the solid waste to primary collection staffs as per procedures set out by the Government.
- ii) Arrangement would be made to enable doorstep collection (residents would be encouraged to deliver waste at doorstep at a pre-specified time)
- iii) "User fee" would be charged from the residents and other generators, the amount of which would be based on need and affordability criteria.
- iv) Bulk waste/commercial or market waste generators will be required to make their own arrangement for collection and transportation of their waste in accordance with the rules/regulations laid down by the state Government.

7. Street Sweeping and road side drain cleaning

Plans for efficient and effective street cleaning include:

- i) Provision of adequate implements for street sweeping
- ii) Street sweeping to include roadside drain cleaning
- iii) Deposition of the refuse swept from the street directly into the transportation system.
- iv) Classification of streets into different categories according to the frequency needed for cleaning.
- v) Entering into appropriate contractual agreements with private operators (preferably on lumpsum basis) for carrying out the activities.

8. Collection and Transportation of solid wastes

- 1) Littering shall be prohibited. Doorstep or house-to-house collection on regular and pre-informed timing will be organized by ringing of bell or other means of information
- 2) Market and commercial wastes, hotel waste, construction or demolition waste etc. shall be collected separately in a manner specified by the Government;
- 3) Wastes from slaughter houses, meat and fish markets, fruits and vegetable markets, which are biodegradable in nature, shall be managed to make uses of such wastes;
- 4) Bio-medical wastes and industrial wastes shall not be mixed with municipal solid wastes and such wastes shall follow the rules separately specified for the purpose;

- 5) Collected waste from residential and other areas shall be transferred to final treatment or disposal site, and manual handling of wastes shall be restricted to the bare minimum under proper precaution with due care for safety of workers in the process;
- 6) It shall be the responsibility of the generator of waste to avoid littering and ensure delivery of waste in accordance with the collection and segregation system;
- 7) Vehicles used for transportation of wastes shall be covered. Waste should not be visible to public nor exposed to open environment, and their scattering shall be prevented. The following criteria be met, namely:-
 - i) The storage facilities set up by the authorities, if any, shall be daily attended for clearing of wastes. The bins or containers wherever placed shall be cleaned before they start overflowing;
 - ii) Transportation vehicles shall be so designed that multiple handling of wastes prior to final disposal, is avoided.

9. Segregation of municipal solid waste

As per Asim Barman Committee recommendation for the Modernization of Solid Waste Management in Class I Cities in India, segregation of waste will be carried out by keeping recyclable waste material separate from food waste, in a separate bag or bin at the source of waste generation, by having a two bin system for storage of waste.

The Local Bodies shall direct households, shops and establishments not to mix recyclable waste with domestic food / bio-degradable waste and instead keep recyclable / non-biodegradable waste in a separate bin or bag at the source of waste generation.

The Local Bodies shall actively associate resident associations, trade & industry associations, CBOs and NGOs in creating awareness among people to segregate recyclable material at source and hand it over to a designated waste collector identified by the NGO.

10. Storage of municipal solid waste

Storage facilities or 'bins', *if provided*, shall be 'easy to handle' design for handling, transfer and transportation, and maintained in such a manner that they do not create unhygienic and insanitary conditions around it. The following criteria shall be taken into account while establishing and maintaining storage facilities, namely:-

- i) Storage facilities shall be created and established by taking into account quantities of waste generation in a given area and the population densities. A storage facility shall be so placed that it is accessible to users;
- ii) Storage facilities shall be so designed that wastes stored are not exposed to open atmosphere and shall be aesthetically acceptable and user-friendly;
- iii) Storage facilities or 'bins' shall have 'easy to operate' design for handling, transfer and transportation of waste. Bins for storage of bio-degradable wastes shall be painted green,

those for storage of recyclable wastes shall be painted white and those for storage of other wastes shall be painted black;

- iv) Manual handling shall be carried out under proper precaution with due care for safety of workers.

11. Treatment and Landfill Operation

- i) Pursuant to the Supreme Court guidelines and the prevalent market constraints, composting would be the preferred method of treatment.
- ii) Landfill, as required under prevailing statutes, would need to be developed to dispose non-biodegradable matter and compost rejects.
- iii) Development of these facilities, either individually or as integrated unit, could be done under appropriate contractual arrangement (management contract/ BOT contracts, etc).
- iv) In case of private participation the government would enter into contractual arrangement on a tipping fee basis.

12. Provision on Sewerage and Drainage

i) Strategically planned and sustainable sewerage and drainage system will be developed and maintained to support development of communities and to protect the environment. Connection to the public sewerage system will be promoted and regulated in a manner to be specified by the Government.

ii) All septage and waste water emanating from households and other sources shall be required to flow to the public sewerage system for treatment and further disposal as far as practicable. In individual cases where connection to the sewerage system is not possible, care should be taken to ensure that all such septage and waste water so produced are disposed of hygienically.

13. Individual Toilet and Community Toilet

- i) Dry latrine and open defecation shall be strictly prohibited, and every urban household should have at least a basic sanitary latrine. If space does not permit construction on individual toilet for a single household in a given locality, then a community toilet to be shared by such number of families as may be practically required shall be constructed jointly by the user families;
- ii) Urban poor families may be provided financial support for construction of toilets through Centrally Sponsored Scheme like Integrated Low Cost Sanitation Scheme or through the state's own programmes like services to the urban poor, etc. or through a combination of both.
- iii) Community toilets for the floating population, institutions, public place workers and the public at large shall be of sanitary and aesthetic design, and constructed and maintained in such a manner as to ensure its sustainability.
- iv) Community participation shall be encouraged through participatory approaches and other stakeholders in the planning, implementation and management of the projects.

14. Implementation Plan

14.1 In accordance with and as per the guidelines of the MSW Rules 2000, compost plants and landfill sites shall be developed for management of solid wastes. Feasibility of sub dividing urban areas into smaller operational areas with independent compost plants and landfill sites will be explored. In areas where compost plants are not feasible, only suitable engineered landfill sites with controlled tipping will be set up to begin with, and these would be progressively upgraded to sanitary landfill with treatment facility.

14.2 State Sanitation Task Force at the State Level, and City/ Town Sanitation Task Force at the City/ Town level, would be constituted which will be responsible for providing overall guidance in the process of planning, implementation, monitoring and evaluation of sanitation programmes at the state level and the city/ town level respectively.

15. Way Forward

Flowing from the principles outlined here, long-term management strategy and action plan for the state would be developed based on the experiences and addressing the following aspects:

- i) Assessment of waste generation at city/ towns and identification of the best possible means for managing the same.
- ii) Setting operational targets for each of the waste management activities and indicating the means of achieving the same.
- iii) Setting out roles and responsibilities of stakeholders under various contractual arrangements.
- iv) Developing IEC material and promotional/ awareness campaigns.
- v) Developing resource utilisation guidelines.
- vi) Setting out operational guidelines for the procurement of equipment and services.

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MODEL ACTION PLAN FOR MUNICIPAL SOLID WASTE MANAGEMENT FOR THE STATE OF MIZORAM**A. Background:**

The rapid urbanization and spurt in consumerism has resulted in an increase in generation of municipal solid waste (MSW) which is a major environmental issue the globe as well as in own Country/States of India. Concerted efforts have been made by Government Departments/ Local bodies/ non-government organizations to address the issue. The Urban Development & Poverty Alleviation through the only Municipal body in the State of Mizoram, Aizawl Municipal Council (AMC) for Aizawl City, Trade & Commerce Department (market waste) and Local Administration Department of the State of Mizoram are responsible for collection, transportation and disposal of MSW. The growth in production of MSW has not been matched by development of the concerned departments and organization capacity of the ULBs leading to severe strain on them and deficiencies in the execution of this vital function. There is now a need to have an integrated approach involving all the stakeholders (Government Departments/Agencies, private parties, non-formal sector, waste producers, public, households, corporate and institutions etc) to tackle this huge piles of MSW before it suffocates our City and towns in line with the Municipal Solid Waste Management & Handling Rule, 2000, recommendations of National Urban Sanitation Policy and recommendations of the Task Force constituted by Planning Commission, 2014.

The National Green Tribunal had given the direction in its order dated 3rd November, 2014 and 2nd December, 2014 that the State should file the time bound action plan for the purpose of implementing the Municipal Solid Waste Management and Handling Rules, in Original Application No. 199 of 2014 (Almitra H. Patel & Anr. - Vs - Union of India & Ors.). In pursuance of the direction of the National Green Tribunal and also in compliance of the statutory obligations under the Municipal Solid Waste Management and Handling Rules, 2000, it is required to have an Integrated Action Plan for Management of Municipal Solid Waste for the State of Mizoram.

The Action Plan is expected to manage the MSW issue both for the short term and the long term. This will give a basic frame work upon which the entire MSW source segregation, collection, transportation, secondary segregation for resources, composting, treatment efforts for the State in a comprehensive and integrated manner will be built upon, developed and evolved as per requirements. This plan will examine the present status, develop local strategies and evolve in a time bound manner to ensure that MSW issues are effectively managed in a scientific, cost effective and proactive manner in time. This plan will also formulate timetables along with targets so that the MSW growth projections are anticipated well in advance and proactively tackled.

B. Objectives, Challenges and Guiding Principles:

The objectives are:

- a) Segregation of waste at sources for bio-degradable and non-bio degradable waste
- b) 100% door to door collection of the MSW from households by 2016;
- c) Replacement of existing open vehicle fleets with special designed vehicle fleets for transportation.
- d) Secondary segregation of non bio-degradable waste for recycle, reuse, recovery etc for resources.
- e) Mechanical and Vermi-compost plant.
- f) 100% scientific treatment and disposal of MSW with sanitary landfill, as per service level benchmarks by 2016;
- g) Provision of personal protection equipment
- h) Awareness and community participation in MSW management by 2015;
- i) Involvement of private parties and Informal sector in MSW management by 2017;
- j) Closure of existing dumping site.

C. Challenges of Solid Waste Management:

- a) Lack of resources, man power, machinery and expertise for proper MSW management in Government agency/ULBs;
- b) Lack of awareness among the urban public to handle MSW issues with its objectives and understanding;
- c) Lack of policy framework at the State level for dealing with MSW;
- d) Negligible participation of private sector in MSW management;
- e) Need to motivate and synchronize the informal sector in the MSW management;

D. Guiding Principles of MSW Management:

To ensure proper municipal waste management by adhering to Municipal Solid Waste Management Rules and other relevant Legislations through the following steps:

- a) Putting in place an operational framework with clearly defined roles of various stakeholders;
- b) Strengthening institutional mechanism for planning, technical, financial and implementation support;
- c) Encouragement of community participation in MSW management;
- d) Promoting private sector and informal sector involvement in the effort;

E. Present Status:

Population & City/Town Administration in Mizoram:

The State of Mizoram is divided into 8-Districts with 23 towns including Aizawl, the Capital City. The Census, 2011, declared the population of Mizoram is 10,

97,206 souls. Of this, the rural population is 5, 25,435 and the urban population is 5, 71,771. The urban population constituted almost 52% of the total population of Mizoram. As a result of the rapid growth of the urban population coupled with the changing life styles of the people, the Municipal Solid Waste generated daily has increased. Hence, Solid Waste issue cannot be ignored for long; and will have serious ramifications on the health and hygiene of the public along with associated environmental risk. Therefore, there is an urgent requirement to have a systematic and scientific plan to tackle this issue.

There is only 1 (one) Urban Local Body (ULB) in Mizoram in the capital city of Aizawl, newly established Aizawl Municipal Council (AMC). The remaining 22 towns with 7-District Headquarters have population ranging from 10,000 to 70,000. Details are given in the **Table below**. The Aizawl Municipal Council area alone generates 138 to 150 MTD of MSW. Other towns generate below 5 MTD of MSW.

District	Name of ULBs/Towns	No. Of Ward	No. Of HH	Population as per 2011 Census
Aizawl	Aizawl * (Aizawl Municipal Council)	19	66094	293416
Lunglei	Lunglei**	-	11581	57011
Champhai	Champhai**	-	6756	32734
Saiha	Saiha**	-	4607	25110
Kolasib	Kolasib**	-	5142	24272
Serchhip	Serchhip**	-	4085	21158
Lawngtlai	Lawngtlai**	-	3910	20830
Champhai	Saitual	-	2457	11619
Champhai	Khawzawl	-	2306	11022
Kolasib	Vairengte	-	1931	10564
Mamit	Mamit**	-	1673	7884
Kolasib	N. Kawnpul	-	1726	7732
Serchhip	Thenzawl	-	1440	7259
Lunglei	Hnahthial	-	1548	7187
Aizawl	Sairang	-	1308	5950
Lunglei	Tiabung	-	976	4554
Kolasib	Bairabi	-	863	4320
Aizawl	Darlawn	-	796	3769
Mamit	Zawnuam	-	784	3733
Serchhip	North Vanlaiphai	-	766	3602
Aizawl	Lengpui	-	735	3282
Champhai	Khawhai	-	515	2496
Champhai	Biate	-	491	2277

*- Phase-I

**Phase-II

All other towns in Phase-III

F. Management Strategy:

The State is aiming on integrated Solid Waste management system based on the waste management hierarchy. All the State Government Agencies/ULBs will aim at the 4R approach (Reduce, Reuse, Recycle and Recovery) which will ensure optimum management of Municipal Solid Waste from the households, commercial institutions, construction activities, medical facilities, etc. and other waste generators. The prime focus of the Government/ULBs will be for

minimization of waste production through active involvement of all the stakeholders in promoting use of reusable items in lieu of non-reusable items, recycling and composting at source wherever possible. This will reduce the cost involved in segregation, collection, secondary segregation, composting and treatment, handling and disposal cost and also the environmental cost.

In order to fulfil the objectives, the Government of Mizoram constituted Sanitation Task Force and learned good practice at various towns/cities within the country. The non-composted and inert component of the waste remaining will be converted to energy through appropriate technologies of incineration, RDF etc. The final remaining inert residual waste will be safely disposed at sanitary landfills.

G. Phasing Approach/MSW Management:

There are severe constraints on the State and the ULBs to create and operate solid waste treatment plants and sanitary landfills for every ULB, considering the size of the existing ULBs. Urban land is increasingly scarce and selection of a suitable site free from every encumbrance, without public objection and clear from every angle including environmental airport authorities is very difficult in Mizoram. The entire urban population of Mizoram is compressed within a small hilly area only. Further, there are financial constraints to operate solid waste plants in every Government agency/ ULB. Considering the shortage man power as well as the amount of Solid Waste generated is too small to merit establishment of solid waste treatment plant and sanitary landfills for concerned agency/ ULB.

In view of the above constraints, the Urban Development Department of Mizoram has adopted the Phasing Approach/MSW Management on District Headquarters/towns to manage the municipal solid waste. Aizawl, the state capital is proposed under Phase-I, other 7 District Headquarters shall be done in Phase-II and remaining smaller towns shall be taken up in Phase-III. The State's policy is to set up MSW treatment plants along with sanitary landfills for each city/town. It is the objective of the State to ensure time bound implementation of this Approach by 2020 for all the urban towns.

H. Existing Scenario:

The State Government had already piloted Municipal Solid waste Resource Management with funding from the Ministry of Urban Development, Government of India in the year 2014 and the DPR for Aizawl City has already been sanctioned (**copy of Approval Attachment-I**). While one of the District Headquarter, Serchhip town DPR is under consideration for appraisal by the Government of India. Project Proposal for other District headquarters is under preparation to replicate/adoption of the practices and technology proposed in Aizawl city. Presently, solid waste has been collected and dumped at suitable

location on the hill slope in all the urban towns of Mizoram. Therefore, for further improvement on the existing status is considered necessary and the State Government is contemplating development under the existing Swachh Bharat Mission.

The Mizoram Pollution Control Board after examining the proposal submitted by the Urban Development and Poverty Alleviation Department has issued authorisation for the newly Proposed Solid Waste Resource Management Centre And Treatment at Aizawl (NOC from Mizoram Pollution Control Board and Environmental Clearance as per Attachment-II, III & IV).

I. Incentives:

The Government of Mizoram will facilitate allotment of land at suitable site for setting up of Municipal Solid Waste Treatment Plants, waste resource management Centre and sanitary landfill. The State Government is also considering for payment of performance based subsidy to ULBs and participating private firms involved in management of Municipal Solid Waste. The State may also go for viability gap funding of those solid waste treatment plants which are economically not viable as admissible under Swachh Bharat Mission.

J. Capacity Development:

The State undertake initiatives to ensure capacity development of the State agencies/ULBs by providing adequate man power and financial assistance to manage their primary role of management of solid waste. These initiatives will be outcome oriented, role based and project based. These initiatives will range from

- a) Community Capacity Development
- b) ULB/Agency specific capacity development like training of available man power, requisition of extra man power where required, setting up of a municipal cadre, provision of adequate tools and vehicles and machinery etc;
- c) Fixation of goals and targets to be achieved by each Agency/ULBs along with suitable incentives and penalties in a time bound manner;
- d) Setting up of a model Solid Waste Treatment Plant with energy generation in Mizoram preferably through PPP model;
- e) Provision of adequate funds at the State level to ensure all the above initiatives are achieved in time.

K. Approach Steps for Management of Municipal Solid Waste in Mizoram:

1. Waste Segregation, Collection and Transportation:

- i. Collection of wet and dry waste separately from door to door by adopting 2-bin system from residential, commercial and institutional area will be the prime priority for effective solid waste management.

This will prevent public health hazards and also increase the aesthetic value of towns and cities.

- ii. The mode and frequency of collection will depend upon the size of the residential/ commercial/ Institutional area. It will be fixed by the concerned Agencies/ULBs taking the above into consideration.
- iii. Waste so collected from the door step shall be transferred directly to small covered mechanized vehicles having separate compartments of wet and dry waste.
- iv. The waste so collected shall be transferred to final disposal site for processing and final disposal.
- v. A well synchronized plan of collection i.e. from door to door to mechanized vehicle to final processing plant will be managed by the Agency/ULBs and NGOs jointly through road mapping. This will avoid container overflow and littering of waste on the streets.
- vi. Community participation in the form of local NGOs, elected Ward Commissioners, local associations and other stakeholders shall be ensured through arrangements of events, competitions, rallies, discussions, meetings etc. in the locality.
- vii. Informal sector participation will be encouraged in storage area/disposal site for recovering recyclable material.
- viii. Waste management in the chain will be done mechanically thereby reducing manual labour as far as possible. Adequate safety precautions, periodic health check up for workers involve in manual handling of MSW will be ensured through legislation and effective implementation and monitoring.
- ix. Private sector participation will be encouraged for service contract i.e. door to door collection and transportation waste to the processing and disposal site. The private firm will be paid from the user charges collected from the individual household, commercial plots, institutional household. The user charges will be fixed by the ULBs on the principle of "Polluter pay", and as per the proportion of waste generated. Different charges may be levied by the ULBs for households, commercial/institutional/industrial waste generators, bulk waste generators such as hotels, restaurants, industrial establishments etc. Subsidies in user charges may be given to the urban poor. The fees will be collected by the State Agencies/ULBs and paid to the private party on the basis of their performance and output.
- x. Monitoring on daily basis will be done by the Agency/ULB daily by collecting and analysing data for any shortfall in the system so that timely correction may be done.

2. Waste Minimization Strategy:

Waste reduction at source, recycling and reuse is the most cost effective strategy. It results in reduction of the amount and/or toxicity of the waste produced thereby reducing the cost associated with each handling and its

environmental impact. This will be achieved through the following interventions:-

- i. Policy intervention at the State level to enforce Extended Producer Responsibility (EPR), wherein the producer is held responsible for the post-consumer stage of a product for its collection, reuse, recycling, storage and/treatment. Promotion of eco-friendly products in packaging and product containers.
- ii. Encouragement of green procurement and take back programmes buy back policy of reusable and recyclable packing material in an organized form against the existing traditional and unorganized form by introducing suitable deposit system in each ward in consultation with Agency/ULB.
- iii. Promotion of concept of generating compost from household vegetable wastes at the household itself.
- iv. Source segregation of organic and inorganic waste and also domestic bio medical waste and other special waste at the point of generation to optimize waste processing and treatment methods.
- v. Exploration of Legislative and Executive means to ban/regulate certain non-recyclable products like plastic carry bags.
- vi. State Government will authorize Agencies/ULBs to frame rules and local bye-laws barring use or sale of certain types of products and packaging that cannot be reused, repaired, recycled or composted.
- vii. Promoting behaviour change in the community through awareness campaigns involving all stakeholders and especially targeting school children, street vendors, NGOs, women groups and business communities to minimise waste generation.

3. Collection and Transportation

- i. State Agencies/ULBs will conduct house to house collection of MSW at pre-informed timings (preferably early morning) whistling/special music.
- ii. The biomedical waste, industrial waste, construction and demolition waste etc shall not be mixed with the municipal solid waste, and these special wastes will be separately collected and treated/processed as per State/Central norms.
- iii. Vehicles used for transportation of waste will be covered to prevent scattering waste and polluting the environment. Such vehicles shall be so designed that multiple handling of waste prior to final disposal is avoided.
- iv. Agencies/ULBs will prepare a well synchronized primary and secondary transportation system along with primary collection centres where required with regular and well communicated operation timings to avoid overflow of waste containers, and littering of waste on the street. The waste will be collected by

- vehicles as well as hand-picking where vehicles cannot be accessed.
- v. Waste collected from sweeping of the streets and drains shall be separated through all stages of collection, transport and treatment from other municipal solid waste. This waste will be disposed off directly in the identified landfills.
 - vi. Agencies/ULBs will plan for an effective waste collection route to ensure maximum utilization of available resource. In hilly areas, waste collection should start at the highest point and proceed to lower levels.
 - vii. The frequency of collection will be on a daily basis for at least wet waste collection. For dry waste in isolated shops and establishment, the frequency will be determined by the Agencies/ULBs.
 - viii. The timing of collection of domestic waste should be in the early morning. Waste for commercial areas may be collected between 7 AM and 2 PM. Vegetable and other market waste should be collected in non-peak hours i.e. either early morning and late in the afternoon or at night.
 - ix. Municipal authority/State authorities will make concerted efforts to integrate the informal sectors of rag pickers, etc into regular waste collection operation through private sector, NGOs, CDOs, SHGs and RWAs so that they are provided PPE (Personal Protected Equipment) during their work and also to ensure that they are not exploited and discriminated. This will also ensure that they receive appropriate social benefit, medical healthcare and treatment.
 - x. Adequate bins will be provided in places where secondary collection of waste is required as per assessment of the Agencies/ULBs.
 - xi. Use of Dumper Placers (Skip Trucks) will be promoted for transportation of large quantities of construction and demolition debris and inert waste.
 - xii. Routing of secondary collection vehicles should be planned to ensure effective synchronization of primary collection, maximize operational efficiency and minimize environmental impacts of transportation. Transportation through environmentally sensitive areas should be avoided.
 - xiii. Agencies/ULBs will develop and use Management Information System (MIS) and Geographic Information System to have live information on waste generation and composition, staff position and requirements, current utilization of vehicles, pay and recovery of user's fee, location and condition of waste storage depots etc.
 - xiv. Agencies/ULBs will design a well planned system for street sweeping with adequate staff and proper protective equipments. The street sweeping in residential area may be carried out in two

spells, 5 hours. In the morning and 3 to 4 hours in the afternoon. The frequency of street cleaning will be designed by the Agency/ULB to suit the local conditions. The timing of cleaning of streets should not conflict with peak traffic conditions.

- xv. Necessary legal provisions will be introduced to provide for penal provision for littering in public places, streets, failure of service where contracts are awarded.

4. Processing, Treatment and Disposal of Waste:

- i. Selection and adoption of MSW processing technologies requires due diligence study by the Agency/ULB. This will require even external expertise to find out the most valuable solution depending upon the prevailing condition of the respecting Agencies/ULBs.
- ii. Waste treatment and disposal may be at central or specific location. Other landfills and other waste management facilities may be located at different locations depending upon the size of the waste and its products.
- iii. Processing units can also be decentralized at each municipal level considering the quantities waste generated.
- iv. State level MSWM Committee may be framed to co-ordinate different projects and plants in the State.
- v. Treatment of segregated waste to be done by adopting appropriate technologies based on the feasibility, characteristics and quantities of waste. The technology option may be composting, Biomethanation, waste to energy, RDF and any other option as endorsed by the Central Pollution Control Board (CPCB/SPCB).

5. Institutional Mechanism to Implement MSWM:

- i. The responsible ULBs/Agencies will have a separate SWM unit headed by an Environmental/Civil/Public Health Engineer. The exact size of this Department will be proportionate to the requirement.
- ii. Training and updation of the capacities of the staff and personnel involved in solid waste management.
- iii. Provision of adequate and appropriate equipment to the agencies/ULBs.
- iv. All ULBs/Agencies will be required to prepare comprehensive SWM Plan to tackle the issue both for the long term and short term.
- v. The State will endeavour to provide market linkage for the bi-products like compost and recyclables by creating market avenue through active involvement of allied departments like agriculture, horticulture, industries, private sector, informal sector etc to ensure the sustainability and profitability of the Solid Waste Management Project.

- vi. The State Government will issue model operational guidelines for procurement of equipments and services based on the size of town/cluster of towns and their population.

6. State Level Committee:

- i. There will be State level committee to monitor, supervise and develop the strategy for municipal solid waste management in the State.
- ii. The State designated Urban Development & Poverty Alleviation Department as the nodal agency for the purpose of identifying and enabling the development of regional MSW project. The agency will be headed by the Administrative Secretary/ Commissioner of Urban Development Department of the State.
- iii. Task Force shall be constituted for each city/town headed by designated administrative departments to co-ordinate and monitor activities of agency/ULB.
- iv. The State will prepare service level benchmarks for solid waste management service providers.
- v. For the purpose of identification of sites for setting up of processing and treatment facilities, sanitary landfills, preparation of PPP models for involving private parties, improvement of technologies and appropriate methods, examination of financing options, implementation and monitoring of the technical processes etc, there will be a State Technical Cell with experts drawn from the appropriate field.



R. Lalvena

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Secretary to the Government of
Mizoram
UD & PA Department
Govt. of Mizoram

FINAL SUBMISSION

ON

COLLECTION, STORAGE & DISPOSAL

OF

MUNICIPAL SOLID WASTES (MSW)

IN THE STATE

OF

MIZORAM

**GOVERNMENT OF MIZORAM
URBAN DEVELOPMENT & POVERTY ALLEVIATION DEPARATMENT**

1. URBAN SANITATION POLICY IN INDIA:

1.1 The National Urban Sanitation Policy:

The Government of India has adopted the National Urban Sanitation Policy in 2006 with the following vision:

'All Indian cities and towns become totally sanitised, healthy and liveable and ensure and sustain good public health and environmental outcomes for all their citizens with a special focus on hygienic and affordable sanitation facilities for the urban poor and women.'

The overall goal of this policy is to transform Urban India into community driven, totally sanitised, healthy and liveable cities and towns. The Government of India is ready and willing to extend support to State Governments in achieving the Urban Sanitation Policy goals.

1.2 Municipal Solid Waste Rules

In view of the serious environmental degradation resulting from the unscientific disposal of solid waste, the Ministry of Environment and Forests (MoEF), Government of India, had notified the Municipal Solid Wastes (Management & Handling) Rules, 2000 (popularly known as MSW Rules), stipulating all municipal authorities to scientifically manage solid waste.

Compliance criteria for each and every stage of waste management-collection, segregation at source, transportation, processing and final disposal- are:

- i) Open dumping of solid waste is not acceptable.*
- ii) The bio-degradable waste has to be processed by means of composting, vermi-composting, anaerobic digestion or any other appropriate biological processing for stabilisation of wastes.*
- iii) Mixed waste containing recoverable resources should be recycled.*

- iv) Other technologies for treatment such as pelletisation, gasification, incineration etc. require clearance from Pollution Control Board before planning and implementation.*
- v) Land-filing should be the waste disposal method for non-biodegradable, inert waste and other waste that is not suitable either for recycling or for biological processing.*

2. STATUS OF URBAN SANITATION IN MIZORAM:

2.1 Overall Scenario

Mizoram State is relatively a clean State, compared to many other parts of the country. While this could partly be attributable to the relatively slope topography of the State, it is also due to the combined efforts of the Government, NGOs and General Public, wherein community garbage are by and large collected and properly disposed of in designated locations. The general public also has a high degree of awareness in cleanliness and sanitation.

It may be stated that Aizawl city has secured the 9th position in being the cleanest city among capital cities in India. In addition to this Mizoram is also ranked 35th position among 476 cities across the nation. This ranking had been initiated by the Ministry of Urban Development as part of its Swachh Bharat Mission drive.

However, sanitation and waste management need to go far beyond cleaning of cities, streets and conspicuous places. It needs to address the overall waste management, starting from no-littering in the cities, collection of all household and commercial wastes and transportation and treatment of wastes. Final disposal of wastes of the cities and towns need to be on scientific lines so that the overall handling is environment friendly. Municipal wastes and garbage collected in the urban areas need to be scientifically disposed off to avoid environmental degradation and other negative fall-out on air and water pollution that could cause varied communicable diseases.

2.2 Sweeping of Streets:

The Government and its agencies take up general sweeping of streets in cities and towns of the State. Sweepers are deployed to physically clean the streets and collect the wastes. This activity covers city and selected towns to keep the city/towns clean. Besides sweeping of streets, garbage bins are placed at different strategic and convenient points to be utilised by the public at large. The general sense of awareness is worthy of mention as littering and dumping of garbage in public places is relatively minimal.

2.3 Efforts of NGOs:

Mizoram State is blessed with the presence of large and credible NGOs who are involved in various social activities. The biggest being the Young Mizo Association (YMA) with branches in almost all the villages and localities. They are taking up various sanitation activities, sanitation works and generation of awareness among the members.

There are also some other NGOs who are actively engaged in sanitation and cleanliness activities. They take up various sanitation activities and awareness generation among the youths. The activities of Youth Adventure Clubs are also very notable in various sanitation activities.

Moreover, since the Government takes up cleaning of streets only in the city and towns, NGO's particularly Young Mizo Association and Village Councils take up cleanliness drives at the village levels purely on voluntarily basis. This phenomenon is quite uncommon in other parts of the country.

2. 4. Efforts of General Public:

1) Sanitation Committees in Villages & Localities: There are Sanitation Committees in different villages and localities. Under the aegis of the Public Health Engineering Department, villages have Water & Sanitation Committees under the umbrella of the Village Councils. In Aizawl City also, Sanitation Committees are formed under the umbrella of the Local Councils. The Committee takes up various sanitation activities, including collection of fees, organizing social/voluntary works for cleaning of streets.

2) **Clean Committees:** Besides the Sanitation Committees constituted for the Villages and Localities, some villages/localities also separately constitute Clean Committee to take up sanitation and cleanliness of their areas. To cite an example include 'Clean Zarkawt Committee', a very active agency in Zarkawt Locality in Aizawl City.

3) **Sanitation Awareness:** The Departments, Agencies, Educational institutions and Churches also take up sanitation awareness at various forums and gatherings.

3. THE MIZORAM URBAN SANITATION AND SOLID WASTE MANAGEMENT POLICY, 2011:

Acknowledging the pressing need of systematic approach to urban sanitation in the State, and in keeping with the National Urban Sanitation Policy, the Government of Mizoram had, in the year 2011, announced a policy namely "**The Mizoram Urban Sanitation and Solid Waste Management Policy, 2011**" which lays down objectives and guiding principles in management of wastes by the State Government and its agencies in the State.

3.1 Objectives:

The objectives of this State Urban Sanitation and Solid Waste Management Policy are:

- i) *Providing directions for carrying out sanitation and solid waste management activities in a manner which is not just environmentally, socially and financially sustainable, but is also economically viable.*
- ii) *Establishing an integrated and self-contained operating framework for Urban Sanitation and Solid Waste Management, this would include development of appropriate means and technologies to handle various waste management activities.*

- iii) *Enhancing the ability of the Government functionaries/ ULB/ local authorities to provide effective waste management services to their citizens.*
- iv) *Providing at least basic sanitation services to every urban dweller.*

3.2 Guiding Principles:

The guiding principles, which will govern future approach of sanitation, and solid waste management services, include, but not limited to, the following:

- i) *Pollution free environment and proper sanitary condition are integral elements of right to life, and every citizen has the right to clean environment;*
- ii) *Promoting awareness of sanitation and waste management principles among citizens and other stakeholders;*
- iii) *Assignment of institutional responsibility, resources and capacities to ULB/ local authorities;*
- iv) *Provision of enabling legislation for effective and efficient control and management of environmental sanitation of urban areas;*
- v) *Minimizing multiple and manual handling of waste, and designing a system to ensure that solid waste does not touch the ground till treatment and final disposal;*
- vi) *Defining the roles and responsibilities of various stakeholders and putting in place and operating framework, which would include appropriate contractual structures;*
- vii) *Encouraging local authorities and voluntary organisations/ self-help groups/ local sanitation or clean committees, etc. to manage their own waste and provide them financial and logistic support in their engagement in sanitation and waste management activities;*
- viii) *Developing systems for effective resources utilisation and deployment.*
- ix) *Promoting recovery of value from solid waste, developing treatment and final disposal facilities, which, while adhering to the statutory requirements, are sustainable, environmentally friendly and economical.*
- x) *'Polluter pays' principle, which basically means that the producer of goods or items should be responsible for the cost of preventing or dealing with*

any pollution that the process cause, will be adopted and applied to the extent practicable.

- xi) Adopting participatory approaches to community sanitation, and rational planning for appropriate, adequate and sustainable sanitation for floating population, institutions and public place workers.*

4. MODEL ACTION PLAN FOR SOLID WASTE MANAGEMENT:

The National Green Tribunal had given direction in its order dated 3rd November, 2014 and 2nd December, 2014 that the State should file the time bound action plan for the purpose of implementing the Municipal Solid Waste Management and Handling Rules, in Original Application No. 199 of 2014 (Almitra H. Patel & Anr. - Vs - Union of India & Ors.). In pursuance of the direction of the National Green Tribunal and also in compliance of the statutory obligations under the 'Municipal Solid Waste Management and Handling Rules, 2000', it is imperative to have an Integrated Action Plan for Management of Municipal Solid Waste for the State of Mizoram.

The Action Plan is expected to handle municipal wastes laying down strategies both for the short term and the long term. This will give a basic framework upon which the entire MSW source segregation, collection, transportation, secondary segregation for resources, composting, treatment efforts for the State in a comprehensive and integrated manner will be built upon, developed and evolved as per requirements. This plan examines the present status, develop local strategies and evolve in a time bound manner to ensure that MSW issues are effectively managed in a scientific, cost effective and proactive manner in time. This plan also formulates timetables along with targets so that the MSW growth projections are anticipated well in advance and proactively tackled.

Salient features of the Action Plan are reproduced below:

4.1 Waste Segregation, Collection and Transportation

- (i) Collection of wet and dry waste separately from door to door by adopting 2-bin system from residential, commercial and institutional area will be the prime priority for effective solid waste management. This will prevent

public health hazards and also increase the aesthetic value of towns and cities.

- (ii) The mode and frequency of collection will depend upon the size of the residential/ commercial/ institutional area. It will be fixed by the concerned Agencies/ULBs taking the above into consideration.
- (iii) Waste so collected from the door step shall be transferred directly to small covered mechanised vehicles having separate compartments of wet and dry waste.
- (iv) The waste so collected shall be transferred to final disposal site for processing and final disposal.
- (v) A well synchronized plan of collection i.e., from door to door to mechanised vehicle to final processing plant will be managed by the Agency/ULBs and NGOs jointly through road mapping. This will avoid container overflow and littering of waste on the streets.
- (vi) Community participation in the form of local NGOs, elected Ward Commissioners, local associations and other stakeholders shall be ensured through arrangements of events, competitions, rallies, discussions, meetings etc. in the locality.
- (vii) Informal sector participation will be encouraged in storage area/disposal site for recovering recyclable material.
- (viii) Waste management in the chain will be done mechanically thereby reducing manual labour as far as possible. Adequate safety precautions, periodic health check up for workers involve in manual handling of MSW will be ensured through legislation and effective implementation and monitoring.
- (ix) Private sector participation will be encouraged for service contract i.e., door to door collection and transportation waste to the processing and disposal site. The private firm will be paid from the user charges collected from the individual household, commercial plots, institutional household. The user charges will be fixed by the ULBs on the principle of "Polluter pay", and as per the proportion of waste generated. Different charges may be levied by the ULBs for households, commercial/institutional/industrial waste generators, bulk waste generators such as hotels, restaurants, industrial establishments etc.

Subsidies in user charges may be given to the urban poor. The fees will be collected by the State Agencies/ULBs and paid to the private party on the basis of their performance and output.

- (x) Monitoring on daily basis will be done by the Agency/ULB daily by collecting and analysing data for any shortfall in the system so that timely correction may be done.

4.2 Waste Minimisation

Waste reduction at source, recycling and reuse is the most cost effective strategy. It results in reduction of the amount and/or toxicity of the waste produced thereby reducing the cost associated with each handling and its environmental impact. This will be achieved through the following interventions:

- (i) Policy intervention at the State level to enforce Extended Producer Responsibility (EPR), wherein the producer is held responsible for the post-consumer stage of a product for its collection, reuse, recycling, storage and/treatment. Promotion of eco-friendly products in packaging and product containers.
- (ii) Encouragement of green procurement and take back programmes buy back policy of reusable and recyclable packing material in an organized form against the existing traditional and unorganised form by introducing suitable deposit system in each ward in consultation with Agency/ULB.
- (iii) Promotion of concept of generating compost from household vegetable wastes at the household itself.
- (iv) Source segregation of organic and inorganic waste and also domestic bio-medical waste and other special waste at the point of generation to optimize waste processing and treatment methods.
- (v) Exploration of Legislative and Executive means to ban/regulate certain non-recyclable products like plastic carry bags.

- (vi) State Government will authorise Agencies/ULBs to frame rules and local bye-laws barring use or sale of certain types of products and packaging that cannot be reused, repaired, recycled or composted.
- (vii) Promoting behaviour change in the community through awareness campaigns involving all stakeholders and especially targeting school children, street vendors, NGOs, women groups and business communities to minimise waste generation.

4.3 Collection and Transportation

- (i) State Agencies/ULBs will conduct house to house collection of MSW at pre-informed timings alerting the community (preferably early morning) by whistling/bell ringing/special music.
- (ii) The bio-medical waste, industrial waste, construction and demolition waste etc shall not be mixed with the municipal solid waste, and these special wastes will be separately collected and treated/processed as per State/Central norms.
- (iii) Vehicles used for transportation of waste will be covered to prevent scattering waste and polluting the environment. Such vehicles shall be so designed that multiple handling of waste prior to final disposal is avoided.
- (iv) Agencies/ULBs will prepare a well synchronised primary and secondary transportation system along with primary collection centres where required with regular and well communicated operation timings to avoid overflow of waste containers, and littering of waste on the street. The waste will be collected by vehicles as well as hand-picking where vehicles cannot be accessed.
- (v) Waste collected from sweeping of the streets and drains shall be separated through all stages of collection, transport and treatment from other municipal solid waste. This waste will be disposed off directly in the identified landfills.
- (vi) Agencies/ULBs will plan for an effective waste collection route to ensure maximum utilization of available resource. In hilly areas, waste collection should start at the highest point and proceed to lower levels.

- (vii) The frequency of collection will be on a daily basis for at least wet waste collection. For dry waste in isolated shops and establishment, the frequency will be determined by the Agencies/ULBs.
- (viii) The timing of collection of domestic waste should be in the early morning. Waste for commercial areas may be collected between 7 AM and 2 PM. Vegetable and other market waste should be collected in non-peak hours i.e. either early morning and late in the afternoon or at night.
- (ix) Municipal authority/State authorities will make concerted efforts to integrate the informal sectors of rag pickers, etc into regular waste collection operation through private sector, NGOs, CDOs, SHGs and RWAs so that they are provided PPE (Personal Protected Equipment) during their work and also to ensure that they are not exploited and discriminated. This will also ensure that they receive appropriate social benefit, medical healthcare and treatment.
- (x) Adequate bins will be provided in places where secondary collection of waste is required as per assessment of the Agencies/ULBs.
- (xi) Use of Dumper Placers (Skip Trucks) will be promoted for transportation of large quantities of construction and demolition debris and inert waste.
- (xii) Routing of secondary collection vehicles should be planned to ensure effective synchronization of primary collection, maximize operational efficiency and minimize environmental impacts of transportation. Transportation through environmentally sensitive areas should be avoided.
- (xiii) Agencies/ULBs will develop and used Management Information System (MIS) and Geographic Information System to have live information on waste generation and composition, staff position and requirements, current utilization of vehicles, pay and recovery of user's fee, location and condition of waste storage depots etc.
- (xiv) Agencies/ULBs will design a well planned system for street sweeping with adequate staff and proper protective equipments. The street sweeping in residential area may be carried out in two spells, 5 hours. In the morning and 3 to 4 hours in the afternoon. The frequency of street cleaning will be designed by the Agency/ ULB to suit the local conditions. The timing of cleaning of streets should not conflict with peak traffic conditions.

- (xv) Necessary legal provisions will be introduced to provide for penal provision for littering in public places, streets, failure of service where contracts are awarded.

4.4. Processing, Treatment and Disposal of Waste:

- i. Selection and adoption of MSW processing technologies requires due diligence study by the Agency/ULB. This will require even external expertise to find out the most valuable solution depending upon the prevailing condition of the respecting Agencies/ULBs.
- ii. Waste treatment and disposal may be at central or specific location. Other landfills and other waste management facilities may be located at different locations depending upon the size of the waste and its products.
- iii. Processing units can also be decentralized at each municipal level considering the quantities waste generated.
- iv. State level MSWM Committee may be framed to co-ordinate different projects and plants in the State.
- v. Treatment of segregated waste to be done by adopting appropriate technologies based on the feasibility, characteristics and quantities of waste. The technology option may be composting, Biomethanation, waste to energy, RDF and any other option as endorsed by the Central Pollution Control Board (CPCB/SPCB).

4.5. Institutional Mechanism to Implement MSWM:

- (i) The responsible ULBs/Agencies will have a separate SWM unit headed by an Environmental/Civil/Public Health Engineer. The exact size of this Department will be proportionate to the requirement.
- (ii) Training and updation of the capacities of the staff and personnel involved in solid waste management.
- (iii) Provision of adequate and appropriate equipment to the agencies/ULBs.
- (iv) All ULBs/Agencies will be required to prepare comprehensive SWM Plant to tackle the issue both for the long term and short term.

- (v) The State will endeavour to provide market linkage for the bi-products like compost and recyclables by creating market avenue through active involvement of allied departments like agriculture, horticulture, industries, private sector, informal sector etc to ensure the sustainability and profitability of the Solid Waste Management Project.
- (vi) The State Government will issue model operational guidelines for procurement of equipments and services based on the size of the town/cluster of towns and their population.

4.6. State Level Committee:

- (i) There will be a State level committee to monitor, supervise and develop the strategy for municipal waste management in the State
- (ii) The State designated Urban Development & Poverty Alleviation Department as the nodal agency for the purpose of identifying and enabling the development of regional MSW project. The agency will be headed by the Administrative Secretary/Commissioner of Urban Development Department of the State.
- (iii) Task Force shall be constituted for each city/town headed by designated administrative departments to co-ordinate and monitor activities of agency/ULB.
- (iv) The State will prepare service level benchmarks for solid waste management providers.
- (v) For the purpose of identification of sites for setting up of processing and treatment facilities, sanitary landfills, preparation of PPP models for involving private parties, improvement of technologies and appropriate methods, examination of financing options, implementation and monitoring of the technical processes, etc. there will be a State Technical Cell with experts drawn from appropriate field.

5 ACTIONS ALREADY INITIATED TOWARDS SANITATION AND WASTE MANAGEMENT IN MIZORAM:

5.1 Collection of Households and Commercial Wastes:

Being a resource-deficit state, the Government could take up this activity in the capital city of Aizawl and other selected towns. The nodal Department/Agencies for collection activities are as given below:

- i) Aizawl City - Aizawl Municipal Council (AMC)*
- ii) 5 District Hqtrs. - UD&PA Department
(Lunglei, Champhai, Kolasib, Serchhip
and Mamit)*
- iii) Lawngtlai - Lai Autonomous District Council (LADC)*
- iv) Saiha - Lai Autonomous District Council (MADC)*

It is worth mentioning here that there is a strong participation at the grassroots level. The local councils that are functioning as a third-tier under the Aizawl Municipal Council are important agents of the Government as they play a key role in the administration of solid waste management in the capital city of Aizawl. Similarly, in places where there are no urban local bodies, the Village Councils play the same role as that of the local councils.

In Aizawl, the capital city of Mizoram, fees for disposal of community wastes are collected by the local councils from every household on monthly basis. The fees collected are supplemented by the Aizawl Municipal Council in Aizawl city to ease the burden of the public. In other district headquarters, the total cost of collection and transportation of garbage is borne by the State Government. With the fees collected from the households, and the grants provided by the Aizawl Municipal Council garbage trucks are engaged by the local council authorities and are made to make rounds on specified days and at specified points in the locality concern.

In the district headquarters, the same pattern is followed. These household and commercial wastes collected are transported and dumped to its

designated sites. The Government is making plans to collect user fees from households to make the whole management on sustainable path, and to cost recovery to a certain extent.

5.2 Transportation of Wastes at Designated Locations:

In this exercise, as practised in other states, the Government deploys a fleet of garbage vehicles and collects household and commercial wastes on routine at assigned collection points and transports them to dumping sites. In other towns where the government agencies could not deploy the fleet of vehicles, the local authorities deploy trucks and transport them to their dumping sites on public private (community) participation basis.

The present fleet of vehicles deployed and open trucks available in the local market. This is neither safe nor efficient. The actual weight of garbage loaded in one truck is very light in the absence of any compressing method. In line with the Action Plan drawn up by the State Government, the fleet of vehicles will slowly be replaced by the scientifically designed dumpers so that waste transportation is safe, and more efficient as wastes will be compressed before actual transportation.

5.3 Dumping Stations for Cities/Towns:

All the cities and towns have their designated locations for dumping/processing of wastes. They are managed by the State Government, ULBs and Local Authorities.

At present, and as already indicated, wastes are not treated and are dumped. The State Government has initiated various measures for treatment of wastes. For that purpose, the first step is to convert the dumping stations into scientific centres wherever possible. In cases where the existing centres are not suitable for conversion due to topography and other reasons, the Government had taken efforts to acquire alternative suitable plots of

land. The exercise was completed in Lunglei Town, Champhai Town and Serchhip Town.

5.4 Piloting of Composting of Wastes in Aizawl City:

Keeping the need to take up scientific management of wastes, the Government started piloting of waste segregation and composting of green wastes in 5 Localities (out of 83 Localities) in Aizawl City from 2014. Wastes are segregated and green wastes are composed at Lengpui (30 kms away from Aizawl City) in collaboration with Vermizo, a private firm. This experiment had been found quite successful in the City. This experience shows that we can expand it to the whole city, and also replicate it in other towns, subject to availability of suitable private firms for collaboration.

5.5 Piloting of Scientific Centre in Kolasib Town:

The Government acquired a suitable plot of land at Kolasib Town. With the available fund from State Government, the Department had taken up initiatives for making scientific centre, suitable to local conditions in Kolasib Town which will be a pilot scientific centre in the State.

5.6 Full Scientific Centre for Aizawl, the Capital City:

A full scientific centre for Aizawl City is to be taken up under the assistance of Asian Development Bank under the Scheme of "North-Eastern Region Capital Cities Development Investment Programme (NERCCDIP)" The project will soon be implemented, with the following major components:

- 1) Name of Project : Solid Waste Resource Management Centre at Aizawl City
- 2) Project Cost : Rs.3308.80 lakhs
- 3) Project components will be:
 - a. 2 resource centres (37 MTD each).
 - b. 2 vermi compost plant (11 TPD).

- c. 1 mechanical compost plant (50 TPD).
- d. 20000 sq mtr sanitary landfill.
- e. Procurement of 54 nos. of SWM Vehicles.

This project will commence shortly and the projected completion year is 2018. Once this project is completed, major issues relating to sanitation in the capital city will be addressed.

6 FINANCING OF WASTE MANAGEMENT:

6.1 State Government Funds

Lack of resources is the main problem faced by the State Governments and Urban Local Bodies in effective handling of wastes. Besides, there is also difficulty in collecting high level of user fees. To effectively address waste management, the State Government needs to provide sizeable funds for taking up various activities in waste management, particularly the capital investment costs.

The State Government has created a dedicated fund under the budget head 'Solid Waste Management' to provide funds for taking up various activities in waste management. While initial provision of funds is not much, this will be augmented by making more funds available from the State Government funds and streamlining financing of solid waste management in the State.

6.2 Municipal Funds

Municipal fund forms the major chunk of expenditure on waste management. ULB Fund forms the major investment in various activities in waste management, and they are primarily responsible for taking up various activities under it. However, given the overall position of municipal finances across the nation, it is hardly possible to assume the ULBs to fully finance all activities towards waste management in the cities.

6.3 Central Government Support

The Central Government has, for the first time, come up with a Scheme to address urban sanitation in the country. The Scheme of Swachh Bharat Mission (Urban) was launched in October, 2014 to make Indian Cities clean by October 2, 2019. This Scheme will be a great help to the State Government in financing our solid waste management activities.

The Scheme has a big component of Solid Waste Management to address waste management. In the first release of funds, the State Government of Mizoram was allotted approximately Rs. 8 crores for taking up waste management. The State Government and ULBs will utilise this fund for taking up waste management on scientific lines. The Waste Management Centre at Kolasib will first be taken up under this Scheme for which project development and sanctioning are in active progress.

6.4 Other Funds

The Government believes in citizen participation in waste management. For that matter, User Fees are collected from every household in Aizawl City. Plan is also afoot to fees in all other towns of the State. This fund could supplement the State Government's funds towards waste management.

It is the endeavour of the State Government to pull all the resources together for management of wastes and converge all the activities. This will help in optimal utilization of various activities in our waste management system.

7 CHALLENGES:

There are various challenges faced by the State Government and ULBs in waste management. Some of the peculiar problems faced are listed below:

1) Small Scale of the Waste Generation - Economic Unviability of Management:

The level of waste generation determines the economic and financial viability of taking up the projects in MSW. The scale of waste generation in Aizawl City and other major towns was already reported. This clearly shows that the

2) Topographical Difficulties and High Cost of Transportation:

Hill topography of the State poses various challenges and difficulties. It makes transportation costs high and lifetime of vehicles are shorted, resulting in higher investment costs. SWM Centres require high investments in land development and other activities.

3) High Rainfall and prolonged monsoon in the State:

High rainfall and prolonged monsoon in the State, lasting more than 6 months in a year poses challenges, as wastes are subjected to weather, and various stages in management are also dependent on weather conditions.

8 WAY FORWARD:

By saying that Mizoram is a relatively clean State does not mean that all is well in the area of cleanliness and sanitation practices. There is a lot to be done. Apart from the collection, transportation and dumping of wastes, the State Government and ULBs could not carry out the full process of scientific treatment, mainly due to lack of funds to take up such activities. The State Government's Policy, "The Mizoram Urban Sanitation and Solid Waste Management Policy, 2011" envisages various activities on Sanitation and Solid Waste Management which are being initiated actively, but with limited headway.

The Governments do agreed that the State Government needs to step forward and take up solid waste management and sanitation in accordance with the local requirement and approach. It is appreciated that Govt. of India has been proactive in tackling the menace of solid waste in recent years. However, in

order to effectively manage solid waste in cities and villages, a multi-pronged approach needs to be devised so that there can be greater participation on these fronts. It is necessary that every living being live responsibly. We have to learn to live in a more environmental friendly way and reduce generation of wastes in our every-day living. The public in urban areas and in the remotest places need to be made aware on how to be more friendly to our environment by not wasting energy and resources, minimize and reduce our wants and focus more on our needs so that a better future can be secured for the future generation.

Swachh Bharat Mission, launched by the Government of India will be of great help to the State Government, and ULBs to take up the challenge of scientific management of wastes. The issue of solid waste treatment, insanitary latrines and provision of public latrines are some of the critical challenges that the State Government and ULBs would need to address effectively.

The following issues will need to be the guiding principles in our waste management in the State:

- 1) Generate Mass Awareness through Public Participation
- 2) Improvement of Collection System
- 3) Enhancement of Transportation System
- 4) Scientific Management of Waste: Waste to Wealth/Waste to Energy
- 5) Take measures for Sustainability in Waste Management Collection of optimal User Fees.
