



## Senhri Journal of Multidisciplinary Studies

A Journal of Pachhunga University College  
(A Peer Reviewed Journal)

<https://senhrijournal.ac.in>

DOI: 10.36110/sjms.2019.04.01.009

ISSN: 2456-3757  
Vol. 04, No. 01  
Jan.-June, 2019  
*Open Access*



# INTEGRATION OF THE URBAN LOCAL BODIES FOR DISASTER MITIGATION IN AIZAWL CITY

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## ABSTRACT

*Local government plays an integral part in the mechanism of Disaster Management in Mizoram. The local bodies are the direct representatives of the local community and the local community places their full trust in them. Post disaster measures such as mock drills, training of search and rescue teams, physical and economic relief and rehabilitation are not something new to us, yet the aspect of disaster mitigation is something which has not bred familiarity among the Mizos. The need for sensitization of the public on the importance of Disaster Mitigation is a necessity. The saying 'Earthquakes do not kill people; buildings do' is pertinent in urban areas. Urban areas are congested and more prone to disasters. High rise buildings, squatter settlements due to high densities and low availability of land has endangered not just the lives of the public but has also caused a massive disturbance of the ecological system. The paper covers certain Acts and Regulations of the Aizawl Municipal Corporation dealing with structural mitigation and the detection of illegal construction, unsafe buildings, and encroachments on municipal and public properties. At the local level, the councillors are involved in making, unmaking and carrying out these rules and regulations, with direct bearing on the local people. The paper also gives an account of the need of reimplementing to generate awareness, knowledge and education on Disaster Management to the people of Mizoram.*

**Keywords:** *Urban Settlement, Local Government, Structural Engineering, Awareness*

## Introduction

Disaster management is a broad and evolving subject and includes the concept and framework of disaster mitigation, prevention, preparedness, and response and

recovery strategies, administered by community participation, the civil society and all the stakeholders under the aegis of the government. Traditionally the term 'Disaster Management' was used to connote the response, relief, recuperation and

management activities after a disaster has occurred, and mitigation measures were not given due importance. Of late, there has been a paradigm shift in the perception of disaster management relating to mitigation efforts. Emphasis has shifted to the mitigation aspect as it is now understood that mitigation plays a vital role in proper management of disasters. The first phase of Disaster Management cycle is Disaster Mitigation (Pandey 2014. p. 63). It entails principles that seek to remove or decrease the catastrophic shock of hazards through proactive and predetermined actions. Although the essence of the term mitigation is prevention, disasters can never be prevented but initiatives to reduce the effectiveness of such disasters can be most effective. The probability of occurrence and the exact timing of disasters can never be determined. The Urban Local Bodies in Aizawl have made maximum effort on mitigation strategies, identification of potential threats in all the localities and to take all obligatory actions to prevent major calamities as well as reduce the consequences of disasters.

The existing institutions of local government in Aizawl are the Aizawl Municipal Corporation (AMC), the Ward Committees and the Local Councils. The rule of the Chieftainship in Mizoram came to an end and on 19<sup>th</sup> November 1953, the Lushai Hills District Council passed the Lushai Hills District (Village Councils) Act. The Village Council system continued for a number of decades in Aizawl until The Mizoram Municipalities Act was passed by the State Legislature on 29<sup>th</sup> March 2007. The authority of civic administration of

Aizawl city is held by the AMC ever since. Presently, the AMC is composed of 19 elected councillors representing 19 wards of the city and other members appointed by the Governor of Mizoram. Section 15, Chapter III (Local Council), The Mizoram Municipalities (Ward Committee and Local Council) Rules, 2010 states the constitution of Local Councils for every locality in the ward by holding elections to be conducted by the State Election Commission. Currently there are 83 Local Councils in Aizawl City. Section 23 of Chapter III (Municipal Authorities) Mizoram Municipalities Act, 2007 provides for a Ward Committee in every ward, where the elected councillor from that ward acts as the Chairman. The Ward Committee which is a representative of the Corporation works in close proximity with the Local Council. The other members of the Ward Committee include two Local Council members selected from the Local Council within the ward. Besides this, the Chairman shall appoint three members from amongst the prominent citizens of the Ward, one of which shall be a woman. To begin with, the Councillor in each Ward is allotted a sum of Rupees 1,00,000 as emergency funds to be used in their respective wards at the time of disasters.

### **Disasters in Mizoram in the Present Scenario**

A field study conducted purposively for the paper has revealed that landslides account for 68.60 % of the disasters that take place in Mizoram. The topography of Mizoram is composed of steep hills so the occurrence of landslide is widespread. 27.17 % of the disaster on the other hand is caused by fire disasters. These are fire disasters

arising from domicile fire accidents and from bush fires particularly during the first quarter of the year when cultivators have to slash and burn their fields. 3. 87 % of the disasters are caused by cyclones and the remaining 0.36 % is caused by flood and other reasons. Cyclonic winds have been felt by Mizoram in the past but with small intensity. The low lying areas in Mizoram have experienced flooding during Monsoons. According to the official record maintained by the Department of Disaster Management and Rehabilitation, Government of Mizoram, there was no record of loss of lives and massive disasters arising from the consequences of flood until July 2019. As reported in the Mizo daily *The Mizoram Post* on 16 July 2019, 700 houses from 32 villages have been submerged due to flood in Tlabung in Lunglei district and more than 100 houses have been inundated by flood at Chawngte in Lawngtlai district. More than 500 families have been affected out of which 3 people have lost their lives. Apart from Lunglei and Lawngtlai district, flood has hit Serchhip and Mamit district where the heavy downpour of the monsoon rains has not only caused floods but also triggered landslides in different parts of the area. On 2<sup>nd</sup> July 2019, the Basic Service for Urban Poor (BSUP) Complex in Durtlang in Aizawl District faced a devastating disaster when 3 buildings collapsed due to a massive landslide triggered by heavy downpour killing 3 residents and injuring 11 others. And on 26<sup>th</sup> July, 2019, 16 families had to be evacuated from their homes as a result of a massive landslide in the area of Bawngkawn in Aizawl district.

The Local Councils have the widest involvement in the local administration which is further enhanced by their power to call a *Hnatlang*. Though *Hnatlang* is a customary practice the Local Councils are entrusted with the power to enforce *Hnatlang* in their own locality in the interest of the public whenever an occasion demands. Section 26, Chapter IV (*Hnatlang*), The Mizoram Municipalities (Ward Committee and Local Council) Rules, 2010 defines *Hnatlang* as the customary practice of the Mizo people which is meant for the common service for the common good of the people which all the household should render, either together at one time or one after another, as and when called for. The Local Councils even have the power to impose a fine on any household that does not comply with the *Hnatlang* order at a fixed rate. It is through the practice of *Hnatlang* coupled with the spirit of *Tlawmngaihna* that the Local Councils have increasingly taken initiatives in disaster management and prevention in local settings. *Tlawmngaihna* may be defined as a virtue of selflessness and self sacrifice for the service of others. Since the olden days, the Mizos have survived on the practice and spirit of *Hnatlang* and *Tlawmngaihna* in times of distress and events of disasters. The collective labour and contribution of each citizen is indispensable for the successful disaster management and preparedness plan in each locality.

### **Local Government in Disaster Management and Mitigation**

Although the national and provincial governments commit their resources to disaster management, it is the local bodies

who are the effective mechanisms in combating and countering disasters through early warning systems, mitigation apparatus, relief and medical assistance, and providing shelter to the victims. Any action that is discharged on a smaller scale is performed efficiently and effectively through the local bodies as they are grassroots institutions. To sum up, local government works in close proximity with the people, has a representative character and a natural familiarity with the local situations and possesses intimate knowledge of the needs, aspirations and means of the local community (Sahib & Swinder 2013. p. 15) Had there been no local government institutions, the central government or the provincial government would handle the local issues in their own conduct which would never be in conformity with the needs and requirements of the local people.

Whenever a calamity or disaster occurs or there is a threat of disasters in a locality, the first unit to be contacted is the Local Council members and not the Councillors nor the Corporation. This is because the Local Council has direct contact with the community which makes them a very valuable agent of administration in the local context. Whenever there is a threat of disasters in a locality, the Local Councils after making a visual evaluation will decide if the situation can be dealt with *Hnatlang* (community labour) or if it should be taken over by the trained personnel. Every monsoon, the Local Council carries out vigilant patrol of any probable situations in the locality that could lead to any event of disasters and report back to the concerned departments to take up preventive measures.

It is mandatory for them to attend Mock Drills and Disaster Management training courses organized by the State Government which are later imparted by the Local Councils to the community. They also act as agents for disseminating disaster-related information to the public and building the knowledge, attitude and skills of the community to cope with the effects of disasters. As the Local Councils and communities are the first responders in any crisis situation, community participation becomes a special component for disaster management.

The AMC does not perform the multifarious functions like the state government does over disaster management. The role played by the AMC in Disaster Management can be interpreted mostly in terms of developmental works. Yet, they have the authority to inspect, control or even curtail any developments that could lead to an occurrence of disasters.

### **The Aizawl Municipal Council Building Regulations, 2012**

Aizawl is the capital and the largest city of Mizoram. It covers an area of 3,576.31 in Square Kilometres with the Tropic of Cancer cutting across the region in Aizawl district at the southern periphery of Aizawl (Pachau 2009. p. 24). As of 2011, Aizawl has a population of 293,416 with 144,913 males and 148,503 females making it the most populous city in the state. A field study has revealed that amongst all the district capitals in Mizoram the threat of disasters due to urban growth and urbanization is the highest in Aizawl (82 %) which may be a result of the rise of

population and urban settlement. The reason for this is either residents stay in high rise buildings or in squatter settlements due to high densities and low availability of land. The saying 'Earthquakes do not kill people; buildings do' is pertinent in urban areas. 80% of deaths in earthquakes are from collapsed buildings. Inappropriate construction, planning and design and defective buildings are great risks that cannot afford to be looked over by the local government. The Aizawl Municipal Council Building Regulations was enacted on 12<sup>th</sup> December, 2012 for mitigating disasters emphasising on structural and non-structural strategies. This is because the most common disaster to happen in Aizawl is landslides and it is imperative to create regulations which would prepare for damage or loss of lives or infrastructure. Mitigation strategies in disaster management can be classified into two types, namely structural mitigation and non- structural mitigation (Pandey 2014. p. 64) Structural mitigation deals with construction projects, which are designed to reduce the economic and social impacts of disasters. Non- structural mitigation deals with land use regulations, hazard zoning, and building codes and constructions. The regulation provides that any person who intends to make any material structure or erect or re- erect any structure shall attain a building permit by submitting an application to the AMC. This excludes any person or any structure that is related to the Defense Ministry, Government of India. The application for permission of any type of building should be accompanied by information on Ownership title, NOC (No Objection Letter) from the concerned Local Council. Receipt of latest property tax

paid and a certificate of structural soundness of the existing building in case of proposed addition is also required. In the case of concrete buildings, additional information on building plans, structural drawing, specifications and a NOC from the Local Fire Station is required for buildings above 15 metres. No permission is required for vertical extension of a building if the maximum height of the construction is 3 metres. This includes water tanks, green house and other building services. In case of horizontal extensions, the extension should be between two adjacent columns, and a maximum of 1.82 metres (Section 4, Chapter 1, (Definitions and Administrations), *The Aizawl Municipal Council Building Regulations*, Government of Mizoram, 2012).

If the AMC by law identifies any building that is of a ruinous condition which is likely to collapse, it may request the occupier or owner of the building, to make a fence or a proper hoarding to be put up within a given time for the safety of the public. The AMC will set up a technical committee to examine the condition of the building. After the committee has made its written report on the findings and recommendation, the AMC shall give direction to the owner or occupier to complete the repairing work within a stipulated time. If necessary, the police may assist the AMC to get any unsafe building evacuated at any time. And if the circumstance demands, the AMC may order the owner to demolish the buildings within a specified time as per their written notice. If the owner fails to adhere with the notice within the prescribed time, the Corporation

may initiate action by demolishing the building or make the fence or hoarding themselves. The owner or occupier of the buildings shall pay all the expenses incurred. The expenses shall be made recoverable in the same mode as an amount to be paid on account of a fee or a tax recoverable under this Act (Section 4, Chapter 1, (Definitions and Administrations), *The Aizawl Municipal Council Building Regulations*, Government of Mizoram, 2012).

For proposal of demolition of buildings, the owner of the building may submit an application to the AMC on plain paper which contains proof of ownership, grounds for proposed demolition, the building location, the proposed date for demolition, the possibility of damage which the proposed demolition may cause to the surrounding areas or any other consequence of the demolition within the locality. He should also produce from the Local Council a No Objection Certificate (NOC) of where the proposed demolition is to take place. For immediate demolishing or dismantling of a building due to landslide etc., the concerned Local Council may give permission for the demolition communicating to the AMC about the building's condition. In case of ordinary buildings except those situated alongside the motorable road, no permission shall be necessary for its demolition. In Aizawl city, the task of identifying old and ruinous buildings to be demolished is done in collaboration with the Public Works Department (PWD). This is because the AMC has not yet had high performing machinery and equipments that is needed for the identification of the state of the buildings.

### ***Structural Safety and Services***

The Aizawl Municipal Council Building Regulations, 2012 provide that for any structural development, the design of the foundation, concrete or timber shall be in conformity with the National Building Code of India, 2005. It also provided that not just the workmanship, but also the materials used for construction should conform to the standards laid down by the PWD, Government of Mizoram, the National Building Code of India, 2005 and the Indian Standards Specifications Codes and Safety, 1987. The materials used should be durable, affordable and of good quality and be suited to local context. The installation of lifts, escalators, proper water supply, gas supply, clean sanitation and drainage system should also follow the same norms (Section 31, Chapter III, (Structural Safety and Services), *The Aizawl Municipal Council Building Regulations*, Government of Mizoram, 2012).

### ***Precautions for Dangerous Structures and Erection of Communication Towers***

If any structure that is in a ruinous condition pose threat to any individual or to any other structure, the owner of such structure may be notified to repair, secure, take down or fence off the structure to avoid danger of any form. The same can be done for a tree or any branch of a tree which is likely to create a dangerous situation for any individual or a structure. The tree or its branch may be cut down by the owner to avert danger on the orders of the executive officer. A notice may also be given to remove, repair, protect or enclose to any owner of a pond, dam, bank, stream, well or

tank if it causes any danger to any individuals. If the situation demands, the executive officer himself may carry out temporary measures even before notifying the owner and the recovery of the cost from the owner shall be done in the same mode as the recovery of a tax arrear. Since a lot of towers are erected in residential areas in Aizawl, for the interest of public safety, the AMC has made it mandatory that a certificate of structural soundness of a tower which is to be put up along with certificate of structural soundness of the building on which the tower is to be placed is to be produced. The certificates should be obtained from a licensed Structural Engineer of the AMC and should be produced prior to the erection of the tower. They should be erected by trained and competent workers. Provision for lightning conductor and fire extinguisher at the tower for lightning and fire safety is also mandatory (Section 44, Chapter VII, (Erection of Telecommunication Towers), *The Aizawl Municipal Council Building Regulations*, Government of Mizoram, 2012).

### ***Prevention against Fire Disasters***

If any firewood, timber or other combustible materials is stored for personal use, the owner may be asked by the executive officer to take precautionary measures to prevent any outbreak of fire. If there exists any structure, area or booth that is fully or partially composed of cloths, garments, dry leaves, grass and other highly inflammable materials, the executive officer may request the owner for their removal to prevent outbreak of fire.

In recent building structures the AMC has undertaken steps to include fire escape in all newly constructed buildings. The Aizawl Municipal Council Building Regulations have recommended that in addition to the main stairs there should be at least one fire escape in any building with three stories including ground floor. The fire escape/ exit should be made from non combustible material and should be free of obstruction at all times. The fire escape should be directly attached to the ground. The Act provided that “the flights of the fire escape should not be less than 75 cm wide with 20 cm tread and riser not more than 19 cm. The limited number for risers should be 16 per flight”. A fire escape is not necessary for a floor of a house having a separate entrance (Section 29, Chapter II, (Building Requirements), *The Aizawl Municipal Council Building Regulations*, Government of Mizoram, 2012).

The AMC has also regulated that fixed fire fighting gears should be appropriately located in all buildings indicated by clearly illuminated signs. This is not required in residential buildings which do not exceed 15 metres in height. Safety of life from fire, flames, and smoke, should be upheld by every building. The accepted standards and recommendations of the National Building Code of India, 2005 should be upheld by the fire protection and extinguishing system of every household.

### ***Safeguard against Electricity Lines***

The AMC has clearly defined the line of demarcation between any building and electricity lines as it poses a dangerous threat in outbreak of fire. The distance

should be maintained in order to prevent any cause of fire hazard. As per the Indian Electricity Rules, 1956 “no roof of a building or a verandah or a balcony shall be allowed to be erected or re-erected or new addition or alteration made to a building within the distance of an electricity wire as specified in their regulations” (Section 24, Chapter II, (Building Requirements), *The Aizawl Municipal Council Building Regulations*, Government of Mizoram, 2012). The distance from electricity lines provided in the Indian Electricity Rules, 1956 are as below:

Sl. No.	Distance from Electricity Lines	Vertically	Horizontally
1.	Low and Medium Voltage lines and service lines.	2.5 metres	1.2 metres
2.	High voltage lines up to and including 33.000V.	3.7 metres	2.0 metres
3.	Extra high voltage lines beyond 33.00V	3.7 metres (plus 0.3m for every additional 30.000V or part thereof)	2.0 metres (plus 0.3m for every additional 30.000V or part thereof)

**The Aizawl Municipal Corporation Site Development and Slope Modification Regulations, 2017**

Site development and slope modification is a precondition in any building development in Aizawl as the city has experienced numerous landslides, rock falls, sinking areas, debris flows, tremors, undue settlement and flooding which has caused numerous loss of lives and property. For this reason, the Aizawl Municipal Corporation Site Development and Slope Modification Regulation was enacted on 4<sup>th</sup> April, 2017. Besides the unstable angle of the slopes in Aizawl, human activities such as slope cutting, filling, increasing the amount of groundwater penetrating into slopes, and disposing of sewerage and drainage onto slopes can greatly contribute to slope instability which poses a dangerous condition for infrastructures and the environment. If any construction is to take place on a slope that is a 60 degree angle or greater, the slope will require an assessment by a Geologist from the AMC and the Geology and Mineral Resources Department, Government of India. The investigations are done on soil formation and stability, structural stability and, sub soil investigation. This shall ensure not only safety and prevention of disaster, but also the control of natural resources including topography and vegetation.

For effective disaster mitigation plans, hazard maps are necessary to point out the safe and risk- prone zones so that activities are not carried out in any of the risk areas. The hazard maps are useful tools that help save lives and property. The AMC has developed a Landslide Hazard Map which has sorted out all site developments into two categories. All site developments that take place in mapped zones of

moderate, high or very high landslides hazard are designated as “Engineered Site Development”. All site developments that take place in mapped zones of low landslide hazard are designated as “Regular Site Development”. The Landslide Hazard Maps is still under development and any site developments that are not yet mapped and has the average slope greater than or equal to 24 degrees will be grouped into the “Engineered Site Development”, and any site developments that area not yet mapped and has the average slope less than 24 degrees will be grouped into the “Regular Site Development”. During monsoon season, where there is an increase in landslides, erosion hazards and other disruptions, the AMC makes exceptional restrictions and additional measures in site development where in some cases site developments are halted until the end of the monsoon. Any new development in any risk prone area should be discouraged.

### **Inspection**

The AMC has composed a team of Engineering Geologist, Geotechnical Engineer, Civil Engineer, and a Building Official to identify any structural defects or mishaps and to come up with reinforcement strategies. The permit for a site development shall be first inspected by the Building Official. The Engineering geologist shall report on the bedrock excavations of the development. Professional inspection shall be provided by the Geotechnical engineer including observation of fill placement and compaction tests. The Civil Engineer shall provide professional inspection, observation and review of the establishment including development of proper drainage system. The

permit holder is the chief coordinator between the construction workers, labourers and any professional consultants involved and in seeing that all necessary precautions are taken to prevent endangerment of life and property that may result from the construction of the site development work (Section 16, Chapter I, (Definitions and Administration), *The Aizawl Municipal Corporation Site Development and Slope Modification Regulations*, Government of Mizoram, 2017).

### **Conclusion**

Although the AMC is an integral part of the mechanism of Disaster Mitigation in Aizawl, the AMC does not have a separate Disaster Management committee or division. It lacks a powerful body to tackle disasters through mitigation strategies, relief distribution and providing shelter to the victims. The devolution of powers and finances to the Ward Committees and the Local Councils is inadequate which has led to the failure of maximizing their potential and influence to achieve optimal disaster management goals and objectives. The AMC has failed to see the potential of the Local Councils in influencing a large workforce to attain maximum outcome. The devolution of powers and the coordination of the urban local bodies are also greatly thwarted as a result of the different political party orientation in each of the local government bodies.

The AMC has no official affiliation (written or unwritten) with the Aizawl District Disaster Management unless the Deputy Commissioner calls for a joint investigation or a joint developmental

activity. This has greatly hindered the unification of mobile resources and basic standards of assistance. Further, in recent events the Councillors can do only so much as the allocation of a sum of Rupees 1,00,000 as emergency funds and the distribution of tarpaulins to disaster stricken areas and the victims of disasters or participation in post- disaster investigation and committees. Therefore the enactment of the Building Regulations is the sole apparatus for the prevention of disasters for the AMC. The field study has revealed that the rate of compliance of the people to building regulations and guidelines is very low. Apart from the disobedience and ignorance of the people, the rules are not complied with because the decisions of the authorities are not binding on the owners of the buildings. It is necessary to create stricter rules that will have the power to punish offenders. Section 29, Chapter II of the Aizawl Municipality Council Building Regulations, 2012 specifically states the inclusion of fire exits in newly constructed buildings with three stories including ground floor. The reservation of room space for building a fire escape is a concept new to the Mizos and is received reluctantly. There are hardly any three storied buildings in Aizawl which has a fire escape.

The Inspection of site developments by a team of experts of the Engineering Geologist, Geotechnical Engineer, Civil Engineer, and the Building Official as envisioned in the Site Development and Slope Modification Regulations has not been properly enforced as the concerned officials have not yet bred familiarity with the process as of present. The AMC has not

yet possessed in its name high performing tools and equipments that are required to determine the state of any structure. This has obstructed their capacity to take measures in prevention and reduction of disasters. Moreover the equipments they have are outmoded and needs to be upgraded with newer models.

The course of psychological recovery of disaster victims is as important as material and physical relief. The Disaster Management and Rehabilitation Department, Government of Mizoram has only one record of psycho- social care training conducted in the last 5 years, a training which was conducted on 22<sup>nd</sup> November 2017. If the AMC could take up the challenge of inclusion of components of mental health and the treatment of the affected persons as a part of disaster management, as the nodal department is overburdened with other responsibilities and functions.

The AMC should take effective measures to generate awareness, knowledge and education on Disaster Management and on the importance of structural engineering to the people of Mizoram. The study has shown that the majority of the people are unaware of Mizoram lying within the Seismic zone V which has highest risk zone of earthquakes intensity. If the public is not aware of such relevant information, then building the capacity to prepare and respond to the extremities of disastrous events is not a possibility.

In the midst of their shortcomings, the urban local bodies are the crucial agents for the implementation of programmes and

plans relating to disaster management in Aizawl. To fulfill such a role, their programmes on disaster mitigation, preparedness, relief and rehabilitation are updated from time to time. There has been a rise in health hazard, pollution and environmental threat as a result of improper waste generated from households every day. To curb this problem, the urban local bodies have executed an integrated effort on solid waste management. Accordingly, as stipulated by the Aizawl Municipal Corporation Plastic Waste Management Bye- Law 2019, a new law banning single use plastics and plastic bags of below 50 micron came into effect within the municipal area from 1<sup>st</sup> August 2019. In such a close-knit and friendly Mizo society the urban local bodies have the capability to persuade the community in performing shared tasks. In the execution of any disaster management policy, they play a pivotal role as they influence and strengthen the commitment of citizens to realize the goals of a disaster resilient society.

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