

Prevalence of Drowning Disaster in Mizoram

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Abstract— Drowning is defined as respiratory impairment from being in or under a liquid. It is further classified by outcome into death, ongoing health problems and no ongoing health problem. Unintentional drowning is the third leading cause of unintentional injury resulting in death worldwide, accounting for 7% of all injury relate death

Mizoram is one of the North Eastern States of India, located in 21°56' and 24°31' N latitude and 92°16' and 93 ° 26' E longitudes with the geographical area of 21,081 sq. km having population of 10,91,014. It is bounded by Bangladesh and Tripura state in the West and Myanmar in the East and South; Manipur state, India and Assam state, India in the North.

Mizoram is a land of rolling hills, rivers and lakes. As many as 21 major hills ranges or peaks of different heights run through the length and breadth of the state and are separated by 12 major rivers which flow either to the north or south creating deep gorges between the hill ranges; these rivers have major and minor tributaries. Drowning due to River accident is a common phenomena which result in the death of average 40 person every year in the state that is more than other hazards like landslide, cyclone, earthquake and fire that need to looked into the matters as the incident become more and more every year.

Index Terms— Drowning, Rivers, gorges, hill, tributaries, hazards.

I. INTRODUCTION

Drowning is defined as respiratory impairment from being in or under a liquid. It is further classified by outcome into death, ongoing health problems and no ongoing health problem. WHO defined Drowning as death from suffocation resulting from aspiration of water or other substances or fluid. Drowning occurs because the liquid prevents breathing. The lungs of a drowned person may contained very little water or other liquid. Drowning is the process of experiencing respiratory impairment from submersion/immersion in liquid. Unintentional drowning is the third leading cause of unintentional injury resulting in death worldwide, accounting for 7% of all injury relate death. Drowning itself is quick and silent although it may be preceded by distress which is more visible. A person drowning is unable to shout or call for help, or seek attention, as they cannot obtain enough air. Unintentional drowning is the third leading cause of unintentional injury resulting in death worldwide, accounting for 7% of all injury relate death.

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Mizoram is one of the North Eastern States of India, located in 21°56' and 24°31' N latitude and 92°16' and 93°26' E longitude. The geographical area is 21,081 sq. km with a width of 115 km approx. from east to west and a length of 285 km approx. from north to south having population of 10,91,014. It is bounded by Bangladesh and Tripura state in the West and Myanmar in the East and South; Manipur state, India and Assam state, India in the North.

Mizoram state is characterized by a number of hill ranges which run from north to south and are separated by rivers which flow either to the north or south creating deep gorges between the hill ranges. As many as 21 major hills ranges or peaks of different heights run through the length and breadth of the state with the highest peak 'Phawngpui (Blue Mountain) towering 2,065 metres above the sea level. The average height of the hills is about 1000 metre. The terrain has, perhaps, the most variegated topography among all hilly areas in this part of the country. The hills are extremely rugged and steep and precipitous, more steep on the western sides of the ranges as compared to the eastern sides which are somewhat gentler. Narrow valleys with only a very small portion of plains are found which are believed to have been formed from beds of silted lakes.

The configuration of the state has created many rivers, there are 6 major rivers flowing flowing mainly in northern or southern direction respectively, in addition these rivers have major and minor tributaries. The most important and useful rivers are the Tlawng (also known as Dhaleswari or Katakhal), Tut (Gutur), Tuirial (Sonai) and Tuivawl which flow through the northern territory and eventually join river Barak in Cachar.

The Kolodyne (Chhimtui) which originates in Myanmar, is an important river in the south Mizoram. It has four tributaries and the river is in patches. The western part is drained by Karnaphuli (Khawthlang tui) and its tributaries. A number of important towns including Chittagong in Bangladesh is situated at the mouth of the river.

All the rivers are fed by monsoon rains only. They swell rapidly during the rainy season and recede shortly after the rains. In winter and dry season the volume of water in the rivers is very small and many rivers are almost dry.

Since the human settlement in Mizoram are mostly on the top of the hillocks or hill ranges, floods normally did not affected the villages except few blocks and villages like Bairabi, Tlabung etc.

The people therefore has to either crossed the river or utilized the river current for their daily life like jhumming, transportation, washing, hunting and quarrying and sometimes for entertainment which often leads to fatal accident. The numbers of death due to river accident become a matter of concern for disaster managers as the casualty figure is high and remain so.

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II. METHODOLOGY

High Power committee on Disaster Management set up by Gov't of India identify more than 30 types of hazards that can affect India, and among those Mizoram is prone to Earthquake, Landslide, Fire, Cyclone, Hailstorms, Cloud burst, Thunder and Lightning etc. River Accident or drowning which claims a numbers of lives annually is rarely considered a hazard to reckon with. But, river accidents is a common phenomena which need to looked into the matters as not only it claims life but in custom and practices within Mizoram, one has to searched for seven days and night to find the death body, which consumed lots of time, energy, resources, of not only the families of the casualty but also the whole community as well. The four children Bravery Awardees of 2014 from Mizoram received their award due to saving of their friends life from drowning, showing the commonness of river accident in the state.

The Disaster Management Centre (DMC), Administrative Training Institute (ATI), Aizawl, Mizoram collected data and

maintain a records of the incidence as reported by a numbers of daily newspapers in Mizoram by subscribing major newspaper. If any incident of river drowning is reported, it is entered into a data registered book and if a known incidents are not published in the subscribed newspaper, then the events was collected from State Library. No doubt, some incidents happened but are not reported in any of the newspapers may be missed out and some reported incident may be missed out due to human errors. To avoid duplicity and to reduce omission, Newspapers from State Library were rechecked for the incidence. In the data bank, names of the victims, age, address, names of river or rivulet/stream and how the accident took place and also why they are in the water bodies are stored.

The number of casualties due to river drowning for 5 years (from 2011 to 2015) as recorded in the DMC, ATI data banks is shown in Table 1 :

Table 1 : Numbers of death due to Drowning/river Accident in a year.

Sl. No	River/Streams	2011 (Jan-Dec)	2012 (Jan-Dec)	2013 (Jan-Dec)	2014 (Jan.-Dec.)	2015 (Jan-Dec)
1	Tlawng	6	6	10	4	9
2	Tuirial	3	1	2	1	2
3	Tuivai	2		2		
4	Tiau	3	1	5	1	
5	Chhingtuipei	2	11	3	3	7
6	Khawthlang Tuipui	3	5	3	2	
7	Tuichang	2	2	1	1	
8	Langkaih	2		2	3	1
9	Tuiruang	3				
10	Mar	1	1	1	1	2
11	Tuivawl				1	3
12	Mat	1		1		2
13	Serlui B Dam			1	3	1
14	Tamdil Lake				1	

15	De	1	1			
16	Stream where only one person was drowned within 5 years		Khampa Lui, Vanva, Vawmlung kai, Zawlpui. i.e 4	Bulung, Lau, Ngengpui kai, Tuiphal, Vanva. i.e 5	Durlui, Tuichawng, Chiahte, Tuirivang, Hmawngva i.e 5	Suangsau, Holder Li, Thingzai lui, Tuitlawk, i.e 4
17	Stream where only two person were drowned within 5 years	Tuirini, Kurung Lui i.e 4	Muthi Lui i.e 2	Dialdawk i.e 2		
18	Tanky	1	2	1		1
19	Fountain/Ponds/ Pool	8	4	4	4	3
20	Artificial Depression			1		2
21	Flashflood			2	3	1
22	Unspecified		3	3	7	4
	Total	42	43	48	40	42

Flashfloods as one of the State specific disaster to be covered under State disaster Relief Fund under certain set of conditions.

DISCUSSION

1. It has been found that river accident is more in River Tlawng and River Chhimtuipui as they flows longer inside the state and there are more settlement along the rivers.
2. Drowning incident were more in Rivers like Tlawng, Chhimtuipui, Tuirial, Tiau, Khawthlang Tuipui, Tuichang, Langkaih and Mar
3. It may be noted that among major rivers and tributaries, river accident is rare in River like Teirei, Tut, Tuivawl and Khawchhak Tuipui.
4. Serlui B Dam was commissioned only in 2013 for Multi purpose project like Hydro electric Power generation, fishing etc, since then there are drowning case every year there.
5. Among smaller stream, there incidents were frequent in Mar, Mat and De
6. Ponds/Pool in Recreational centre contribute a lot of incident case, there has to be a proper regulation for maintenance of such centre.
7. River accident claims more life than common hazards like landslide, cyclone, fire and earthquake. While lost of lives due to other hazards like landslide, cyclone, fire and earthquake are very few, numbers of casualty figure due to river accident crossed 40 lives every year which shows that river accident has to be considered a major hazards of the states. Therefore the state Government of Mizoram notify

8. The annual average loss of lives for 5 year is 40 which is very high for a state having population of 10, 91, 014 only, which further means every month, about 3 people die from unintentional *drowning*
9. Unfortunately, almost all the rivers are un-navigable, rapid, turbulent, uneven river bed with many falls, cataract, invisible boulders that swell rapidly during the rainy season sometime carrying lots of debris; rescue and searching operation to take out the drowned body is extremely difficult and dangerous, in addition modern scuba gear are render useless due to these condition.

CONCLUSION

The main reason of river drowning are careless boating and swimming, intoxicating with alcohol, over confidants, poor maintenance of boats, over load, river swelling, sand quarrying in the vicinity of dwelling etc. In low income countries, people are regularly exposed to the dangers of water because of their livelihood. While it is difficult to prepared for river accident, it can be possible to prevent and mitigate the river accident by taking extreme precaution so that casualty figure can be reduce to minimum.

Mizoram State Police and NGOs release a request to the public that those who would like to entertained and organize public/family gathering/community service near Tlawng river must be reported to them for advice on the vulnerable area,

safe place, spot and area. Unfortunately, no one bother to report to them for advice and then accident happened.

In developed countries, there are life saving kits and full time Life Guards on duty on the vulnerable area, but the state did not afford those and the kits which worked well in the calm and still water did not work well in turbulent, fast current and uneven stream/ channels.

Therefore, to educate and aware the public on the proneness, prevalent and vulnerability of drowning incident in the area ; capacity building for community based disaster risk reduction, disseminate life saving skill including rescue operation in river accident and Cardio – pulmonary resuscitation technique, identification of vulnerable sites and water safety etc. for proper precaution, mitigation and prevention measures must be conducted so that loss of lives due to drowning is minimized.

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