
POST EARTHQUAKE CHANGES IN ACADEMIC ENVIRONMENT OF PRIMARY SCHOOLS OF AJ&K

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ABSTRACT

Disaster such as an earthquake always tends to untangle the social structure of the society and expose its strengths and weaknesses. A descriptive research study was conducted to understand the post earthquake changes in the academic environment of primary schools in AJ&K. The study was carried out in Muzaffarabad, the capital city of AJ&K (an affiliated state of Pakistan). Muzaffarabad was one of the worst earthquakes affected district of AJ&K and being the capital city with crowded population and low spaced building infrastructure, it was devastated almost above than 90%. The study was aimed to assess the post earthquake changes in academic environment of primary schools by mean of teachers training, emergency drills and incorporation of disaster related information in syllabus of primary classes. The study employed a descriptive research methodology using quantitative approach. Two questionnaires and one observation schedule were developed to get quantitative data. After statistical analysis, it was found that no serious attempt was made by concerned authorities and primary teachers to implement any curricular changes based upon disasters management especially about earthquake preparedness. There is no or very little incorporation of disaster related information and earthquake preventive measures in syllabus / course of primary classes. It is recommended that a policy regarding the incorporation of disaster management especially the earthquake preventive measures in the course, textbooks or syllabus of primary classes must be developed. Moreover, earthquake preparedness training of teachers should also be done.

Keywords: *Academic Environment, Post-earthquake, Primary Schools, AJ&K*

INTRODUCTION:

Pakistan ranked 5th in the World Risk Index as it is frequently affected by natural disasters. The geographical location of Pakistan in the mountainous region (Himalaya) and above the junction of 2 to 3 tectonic plates leaves the country vulnerable to significant climate change impacts that exacerbate environmental hazards such as floods, heavy rains and earthquakes. Pakistan's population is equivalent to 2.65% of the total world population. Pakistan ranks number 6 in the list of countries (and dependencies) by population. The European Union's humanitarian report for Pakistan (2016) stated that this very high density exacerbates the impact of localised disasters. Continuing population growth and environmental degradation could further exacerbate the intensity of disasters in the future, contributing to a significant increase in humanitarian needs.

On October 8th, 2005, an earthquake of magnitude 7.6 struck the northern Pakistan and Pakistan's administered AJ&K state. It spread large scale destruction in few minutes leaving behind a great number of casualties and due to working day and morning time, majority of students in schools were proved as the easy victim of death and disabilities. The earthquake devastation and damages were estimated the death toll of about at least 73,000 lives, severely injured people were estimated about around 70,000, and some 2.8 million people were estimated as without shelter / damaged roof and were directly exposed to rain, snowfall and sunlight in winter season, the earthquake had affected 3.5 million people among them around 450,000 families were left as homeless, the unemployment was suddenly increased because this disaster leaves some 1.1 Million people jobless, destroyed almost all infrastructure which was estimated to reached at Rs. 36.6 billion.

This was happened because they were totally unfamiliar with this type of disaster and the preventive measures to adopt in this situation. This was really an alarming situation and revealed the bitter truth that before this accident, major population of our country was unaware of the preventive measures to be adopted during and after an earthquake. That disastrous earthquake creates a sense of knowing about the earthquakes and the preventive measures to be adopt in case of any emergency situation like an unwanted and sudden earthquake.

One of the main causes behind this destruction is lack of awareness and illiteracy towards the disasters and the preventive measures to be adopt during such disasters such as an earthquake. Later, it was found that even the teachers were totally unfamiliar with the skills to compete with any disaster and also unaware of any preventive measures. Remaining are the same basic factors behind each and every destruction and life loss i.e., poverty, bad governance, corruption and use of defective material.

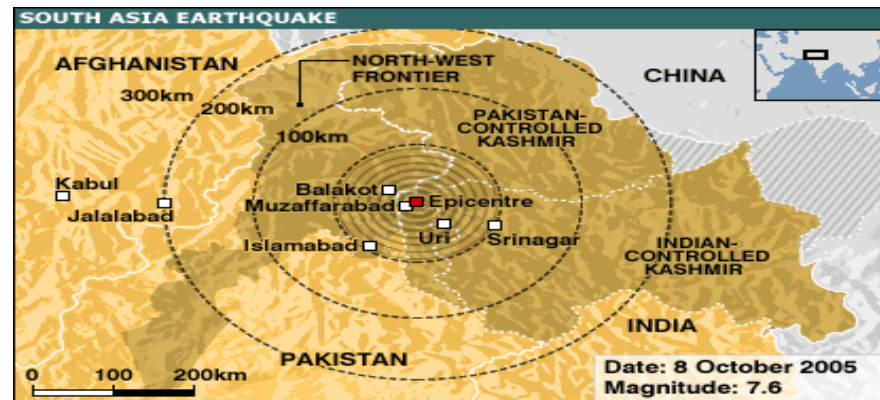


Fig.1: The intensity & epicentre of 2005 Muzaffarabad earthquake.

(Source: http://news.bbc.co.uk/2/hi/south_asia/5392908.stm)

Typically, more than 80% infrastructure in Muzaffarabad being a capital city of AJ&K was damaged. Specifically the educational infrastructure was proved the weekend one and was collapsed immediately as the independent online reported (ERRA, 2006) “the quake destroyed at least 96 per cent of the 1,500 schools and colleges in Muzaffarabad, and more than 10,000 across the quake zone. The need of the hour is that to spread awareness about such disasters and to train the people / locality and more specifically the teachers for spreading awareness among children as well as to teach them all the possible preventive measures through which one child could save his life by himself and in a better way. A most common preventive measure in case of any earthquake is about the 3 steps i.e., duck, cover and hold. But unfortunately, majority of our students and even teachers are unfamiliar with these preventive measures. No serious or meaningful action in this regard had been taken by

Pakistani government and as well as AJ&K's government. Instead of conducting disasters preparedness training, their focus was on early reconstruction, opening ceremonies and on photo shoots only.

Besides the teacher's training programs, another need is about the incorporation of disaster management related contents in the syllabus especially focusing on earthquake preparedness. Though the separate subject / textbook for disaster management is not possible for primary classes but at least 1 or more complete chapters / units must be included in the course / syllabus of primary classes.

Does the syllabus of primary classes has been incorporated with necessary amendments as per the needs of disaster preparedness in current scenario of the situation of Muzaffarabad which lies right above the junction of tectonic plates? Do the teachers of Primary schools of AJ&K trained enough to taught their students about earthquake preparedness. Answers to these questions are tried to be found in this research study by inquiring about the change in syllabus and curriculum, modifications in SLOs and earthquake preparedness training of primary teachers to compete with any emergency situation like an earthquake.

At the end, it is of quite importance and noticeable that whole Pakistan and especially the AJK and KPK regions are at risk because of the risk of future earthquakes as the biggest earthquake in the regions are expected to come in future as pointed out by the Mid-America Earthquake Centre. Further studies in this regard indicated that there is large amount of energy stored in the Himalayan arc which might imply a high possibility of several enormous earthquakes of magnitude greater than 8.0 in the future (University of Illinois, 2007). Therefore, this critical situation demands for future preparedness and awareness spreading among people as pointed out by Shaheen (2008) that “ So those who are reluctant to adopt disaster prevention plan and those who do not prefer to spend time, money and staff on the disaster management planning, I would simply say that the initial expenses are nothing as compared to the cost of response and recovery after a tragedy and that protecting our heritage and the memory is the only way, and our responsibility, to graciously prepare the future of our generations”.

There are so many research works on the earthquake of 2005 but when we go through the history we found out that no serious attempts were made to analyze the current academic situation of those reconstructed schools. It is the need of the hour to assess the environment of these schools by knowing their preparedness level, training of teachers, incorporation of earthquake preparedness content in syllabus and modification in SLOs etc. Hence, it is realized to assess the changes which were made after the earthquake either by training of teachers & students to develop the preparedness skill among them which help themselves to fight with any unwanted disaster or by incorporation of necessary earthquake preparedness related content in syllabus of primary schools of AJ&K. This research will definitely be helpful to assess the current environment of educational institutes in Muzaffarabad especially the primary schools i.e. the facilities, trainings & favourable teaching & learning environment provided to teachers & students.

Performance reports issued annually by ERRA Authority (2016) revealed that teachers training in 2007 in this regard was a good initiative by the Government of Pakistan but unfortunately this was not continued / repeated occasionally and with the adding of young blood into teaching cadre especially at the Primary Schools of Muzaffarabad in past 13 years, we are in dark about the awareness / preparedness level of our teaching faculty against the sudden occurrence of any earthquake. There is no research data available regarding the assessment of post earthquake academic training, modifications in syllabus and SLOs to face an unexpected earthquake anytime. This creates a niche and needs to be worked out on emergency basis.

The disastrous earthquake of 2005 is a great lesson for us to be prepared in that sense. Though the basic educational infrastructure is rebuilt by the concerned government departments but the issues of incorporation of earthquake preparedness contents in syllabus and training of teachers as well as students in this regard are still resolvable. Till 2008, after passing 3 years of that hilarious earthquake, various reconstruction / rehabilitation programs and suggestion have been given to government and relevant authorities by mean of annual reviews and performance reports of ERRA, NDMA, NESPAK and others such as world bank, USAID programs, UN reports

& FEMA etc. Therefore, to assess the current situation in primary schools of AJK, it is necessary and in the big interest of country to do a thoroughly and comprehensive research work for our safer future. Therefore, in this research study the researcher had investigated the Academic changes in the government primary schools of Muzaffarabad, AJK which are reconstructed after the earthquake of 2005. It has been investigated that either there are evacuation measures, practices and incorporation of disasters specifically like earthquakes related awareness and information in syllabus has been done or not. The overall study is aimed to assess the post-earthquake changes in academic environment of primary schools in AJK.

Objectives of the Study

The objectives of the study were to;

- 1- Investigate post-earthquake changes in academic environment of primary schools in Muzaffarabad, AJK.
- 2- Investigate post-earthquake changes in syllabus and activities of primary schools in AJK Muzaffarabad.
- 3- Suggest viable measure to improve academic environment of primary schools in AJK.

RESEARCH METHODOLOGY:

In this study, descriptive research design was applied and it was quantitative in nature. There are 4015 primary schools in AJK out of which about 456 primary schools are situated in Muzaffarabad city with a teaching strength of 4,050 primary teachers as per the Azad Jammu & Kashmir Statistical Year Book (2017). Hence, population of the study 4,050 teachers working in 456 primary schools. Cluster Random sampling technique has been used and 36 primary schools was selected. Here schools were the clusters. Therefore, our proposed sample size was 36 schools, and 150 primary school teachers along with the 300 number of students.

Instruments:

Further Survey method was adopted by using 2 separate questionnaires for teachers and students. An observation schedule was also added as an instrument. The questionnaire for primary teacher comprises of 2

components / basic ideas i.e. first portion of questionnaire deals with the curricular & extracurricular activities regarding disaster related contents and 2nd one is about the syllabus modification. The questionnaire for students is consisted of inquiring about syllabus modification and any curricular change. Questionnaires were designed to get the data in yes, no & other options. Besides these questionnaires, an observational schedule was also developed because it was realised that during the physical visits of researcher to site / study area, it is of worth more important to cross analyze / examine the facts stated by teachers and students.

The instrument was getting validated through repeated consultation with the supervisor and from the two experts. For piloting thirty primary teachers and thirty students of were selected from AJK for pilot testing of the study. Those participants who were selected for participation in pilot study are not included in sample of the study. Cronbach Alpha was calculated to check the reliability and the value for primary teachers was about 0.65 & for primary students it was calculated as 0.71. The whole study is being set in the premises of Tehsil and District Muzaffarabad, AJK state.

Findings

Results concluded from primary teachers and students alongwith observations noted by researcher in observation schedule were as followed:

Results concluded from the opinion of Primary teachers

Table 1 was about the questions asked from primary teachers about the evacuation related plan, facilities for evacuation and conduction of drills to practice emergency management including quick and safe evacuation purpose.

Table 1

Primary teachers' opinions about evacuation plan, measures and facilities.

Sr. No.	Statement	Yes	No
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1	Does your school have any evacuation plan?	27.1	72.9
2	Does this plan cover the earthquake preparedness goal?	50	50
3	Does these evacuation plans regularly being practiced / rehearsed etc. by mean of emergency drills?	4.2	95.8

The results shown in table 4.1 represent the following results as per the serial number of statements and questions. Only 27.1 percent of primary teachers confirms about having any evacuation plan in their schools while majority of them i.e. 72.9 percent of them denies of having any evacuation plan in their schools. Fifty percent of the total respondents were of the view that their emergency evacuation plan doesn't cover the earthquake preparedness goal while remaining fifty percent of respondents think that their evacuation plan covers the earthquake preparedness plan. About 95.8 percent of primary teachers revealed the fact that no drills were performed in their schools to made the students aware of what to do in case of any earthquake emergency or same.

Table 2

Primary teachers' opinion about their training

Sr.No	Statement	Yes/Govt	No/Private
1	Are you well trained to quickly enforce & act upon the school's emergency evacuation plans?	37.5	62.5
2	Do you think yourself able enough to lead the whole class for safer evacuation in any emergency condition?	64.6	35.4
3	Does any teacher training in relation with the earthquake preparedness ever conducted for you & other staff?	54.2	45.8
4	If yes, then what was the source of that training?	69.8	30.2

5	If yes (to Q.3), do you think that was very helpful to develop awareness among the teachers regarding their responsibilities in case of any unwanted emergency like an earthquake?	81.3	18.7
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62.5 percent of the respondents were not found well trained to act upon the school's emergency evacuation plan, while only 37.5 percent were found well trained. 64.6 percent of school teachers think themselves able to evacuate all students safely in case of any emergency situation whereas, 35.4 percent didn't think themselves able enough. 54.2 percent of respondents claimed that there was some teachers training conducted for them and other staff while remaining 45.8 percents claimed that there was no such training had conducted for them. About 69.8 percent of respondents claimed that the training was under some government departments while 30.2 percent claimed it by some private departments and NGOs. About 81.3 percent of respondents claimed that training very helpful while remaining 18.8 percent of them don't think it beneficial. When asked from primary teachers about syllabus i.e. whether the syllabus of primary education is fulfilling the needs to create basic awareness among the students related to earthquake preparedness or not? Their opinion in this regard was not satisfactory as shown in table 3.

Table 3

Primary teachers' opinion about the syllabus

Options	Frequency	Percentage
Yes	18	18.8
No	68	70.8
May be	10	10.4
Total	96	100

Majority of the respondents' i.e., 70.8 percent said that the syllabus of primary education is not fulfilling the needs to create basic awareness among the students related to earthquake preparedness.

Table 4

Opinion of primary teachers about change in syllabus

Sr.	Statement	Yes / No	No / Social studies / Grade 4	General knowledge / May be / Grade 5	None
1	In which subject, the incorporation of disasters related awareness contents in syllabus has been made?	1	4.2	4.2	90.6
2	In which grade / class, the incorporation of disasters related awareness contents in syllabus has been made?	0	4.2	5.2	90.6
3	Are you satisfied with this percentage / ratio of disasters related awareness contents in syllabus?	8.8	90.2	1	0

It is noteworthy that about 90.6 percent of total respondents claimed that nothing has been included in syllabus of any grade and in any textbook while remaining 9.4 percent of respondents pointed out some subjects among which 4.2 percent thinks it in social studies and same number of respondents thinks that it is in general knowledge subject while only 1 percent claimed it in urdu i.e. in language subject. Similar results were shown as in above case, i.e. about 90.6 percent of respondents stated that the Incorporation of disasters related awareness

content in syllabus has not made in any subject of any grade / class whether other 9.4 percent of respondents thinks that it has been incorporated in syllabus of 4 & 5th grade / classes. Majority of the respondents' i.e. 90.2 percent stated that this ratio / weightage are not satisfactorily.

Table 5

Percentage share / weightage of disaster related awareness contents in primary class syllabus.

Sr. No	Inclusion / incorporation level	Percent
1	1 complete chapter / unit in 1 subject	4.8
2	more than 1 chapter / units	2.5
3	a few paragraphs	7.7
4	None	85
Total		100

About 85 percent of respondents stated that nothing is included in subjects of primary classes while 4.8 percent claimed the incorporation of disaster related material / contents of about one complete unit or chapter, 2.5 percent of respondents claimed its incorporation of about more than 1 complete unit or chapter while 7.7 thinks that it is of only few paragraphs or lines.

Table 6

Teacher's opinion about needs of change in syllabus as per disaster management needs.

Statement	Mean	St. Dev
If none is included in syllabus, then do you think that government should focus on it and it is the need of the hour to improve & increase the ratio / weight in the syllabus based upon the disasters related preparedness among the students?	3.85	1.19

The results of table 6 showed that a high mean score of 3.85 with standard deviation value 1.19 depicts the views of respondents that government should focus on it and it is the need of the hour to improve & increase the ratio / weight in the syllabus based upon the disasters related preparedness among the students. Majority of the primary school teachers were aware of the fact that in case of an earthquake they should instruct the whole classroom to evacuate instead of continuing the lecture or announcing leave hurry and close the school.

Results concluded from the opinion of students of primary schools

Table 7

Earthquake related awareness / information of primary students.

Sr. No.	Statement	Correct / Yes	Incorrect / No
1	An earthquake is the sudden shaking of earth.	93.7	6.3
2	An earthquake can cause severe loss of life including building collapse.	91.1	8.9
3	Do you aware of all doors & possible evacuation ways in case of any sudden earthquake?	70.9	29.1
4	Do you textbooks have information about natural disasters including earthquakes?	77.2	22.8
5	Does some drills conducted in your school to practice / exercise these preventive measures?	12.7	87.3
6	Did you participate in all these drills?	5.1	94.9
7	Do you know about the preventive measures to be adopting before, during and after an earthquake?	36.7	63.3

Results shown against the table 7 represents the following findings; 93.7 percent of students were aware of the earthquakes i.e. what is an earthquake? However, a very little number of students' i.e. 6.3 percent were not aware of this. 91.1 percent of students choose right option when asked about the possible danger of an earthquake however, 8.9 percent of them didn't respond correctly. About 70.9 percent of primary students were found aware of the possible ways in their classrooms / school to be used for evacuation in case of any emergency like an earthquake.

About 77.2 percent of primary students confirmed that their course textbooks have information about natural disaster caused by environmental changes including the earthquake, while 22.8 percent of them denied of having or seeing such material in textbooks. When asked about the exercise of these preventive measures in the form of evacuation drills, duck cover and hold etc, majority of them i.e. 87.3 percent stated that no, they had never exercised them in their schools while only 12.7 percent of them stated that yes, some drills have been conducted in their school often. When asked about their participation in these drills and exercises, majority of the students i.e. 94.9 percent stated that they didn't participated in any such activity however, only 5.1 percent of them stated that they had participated in these drills and exercises. When asked about the preventive measures & steps to be adopted during an earthquake, majority of the students i.e. 63.3 percent of students stated that they don't know about these well however, 36.7 percent of them stated that yes they are fully aware of them.

A mix result was found when asked about their experience of facing any earthquake throughout their life and 27 percent said that they never had face it, 69 percent confirmed that they had faced an earthquake once, twice and frequently. Only 4 percent of them respond that they even don't remember about their experience of earthquakes.

When asked about the source of information related to earthquake about 64.6 percent of students replied that they get it from textbooks and from teachers while 13.9 stated that they had hear about it from home & 21.5 percent of them were of the view that they know about it from TV, internet & print media etc.

Table 8

Incorporation of disasters management related information responded by primary students.

Sr.	Statement	Yes / Lang subj / 1 para	No / S.St / 1 unit	G.K / > 1 unit	Sc / few lines	None
1	Does your course textbook have awareness / information regarding earthquake safety and preventive measures?	72.2	27.8	-	-	-
2	If yes, then in which subject it is included?	8.9	64.4	1.3	1.3	24.1
3	How much this earthquake related awareness contents and preventive measures are incorporated in your syllabus and textbooks?	53.2	20.3	5.1	21.4	-

72.2 percent of primary students respond that yes their course textbooks have information regarding preventive measures to be adopted during an earthquake. While 27.8 percent of them were unaware of this and said that there is nothing in their course textbooks related to preventive measures during an earthquake. A mix result was found as the respondents were from different grades so they were gone with the relevant choice. 8.9 percent said that the earthquake & its preventive measures related information is in English / Urdu subjects, 64.4 percent of them stated that it is in social studies and geography subject, 1.3 percent said it is in General knowledge and same percentage said it is in General Science, while 24.1 percent of them stated that there is no such information in any subject. When asked about the weightage of such information in their subjects 53.2 percent said that it is comprising of about one paragraph, 20.3 percent stated that it is about one whole unit / chapter or

a topic, while 5.1 stated that it is about more than 1 unit or topics however, 21.5 percent stated that it is very less or none.

Results obtained from Observation schedule

An observational schedule was designed to note down the results based on some geographical facts.

Following are the results based upon the findings of observational schedule.

Table 9

Teachers training, curricular changes and drills conduction observed by researcher.

Statement	conducted once	twice in year	quarterly	Never
Teachers training / trained / aware of their role?	19.4	-	-	80.6
Awareness campaigns / walks / zero periods as curricular activity?	11.1	-	-	88.9
Conduction of earthquake drills in school?	11.1	-	-	88.9

Results from table 4.9 represents that About 80.6 percent of teachers were found un-trained but only 19.4 percent of them stated that they had such type of training but some year ago, some said that it was done in 2007 by ERRRA and state government of AJK. About 88.9 percent of schools visited were observed that not participated in any earthquake related awareness spreading campaigns, walks or conduction of zero period, however, only 11.1 percent of these schools mostly in city area have occasionally conduct zero period and participated in annual anniversary held on 8th October each year. About 88.9 percent of schools didn't conduct any earthquake or other disasters related preparedness / action drills. However, only 11.1 percent of these schools had conducted these drills or participated in these drills.

Table 10

Earthquake related contents in syllabus observed by researcher.

Statement	One complete chapter	One or more paragraphs	few lines	Only intro	Nothing
Inclusion of Earthquake related contents in syllabus?	-	-	11.1	-	88.9

Table 10 represents that when asked about the earthquake preparedness related material in textbooks, almost nothing was found (about 88.9 percentage) in syllabus regarding earthquake and its preventive measures which means this is highly neglected by concerned authorities and state government of AJK. Though in social studies book, a brief introduction of 8th October, 2005 earthquake was included, similarly in the Urdu book of class 4th, few lines were given about that disastrous earthquake and 1 fill in the blank question.

CONCLUSIONS

This research study was aimed to assess the post earthquake changes in the academic environment of primary schools in Muzaffarabad, AJ&K. Frequent tours of Muzaffarabad city were made by the researcher. It was expected that being an affected area, all the primary teachers of government schools are well trained or trained enough regarding earthquake preparedness, but it was found that no one was trained in this regard. Almost all of teachers claimed about having well knowledge about earthquake preparedness measures but no one was able to explain his/her leading role during and after an earthquake. The results of the study showed that majority of head teachers and primary teachers claimed about positive and earthquake preparedness directed curricular change in their schools but later on it was also found that majority of schools didn't even participate in awareness campaigns, walks, seminars or even conduct the zero period for disaster preparedness. The main and must do work is regular conduction of earthquake drills on quarterly, biannually or annual basis. Which were not

performed in these schools and no data about proper training for teachers and students in this regard was found. These drills even should be must to do for every citizen at least on 8th October every year (the anniversary day of disastrous earthquake) just like it is practicing in Nepal in the memory of 1934 earthquake. Next was to assess about the amendments in syllabus and SLOs in subjects /course of primary classes. A mix result was concluded from the data gathered from primary teachers and students, and it was observed that as per the thinking of teachers and students, little information / contents were being incorporated in the syllabus but during the observation schedule, it was noted by researcher that the amount / weightage of disaster preparedness related contents was much less and even equal to almost none level. It is also a remarkable fact that state government of AJK and concerned education department of AJK were responsible for curricular changes, amendments in SLOs and syllabus of primary classes to fulfil earthquake preparedness goals, but both governments were seemed failed in this matter.

Recommendations

- This research also suggests some regular and periodic training of primary teachers for making them able to take right and effective immediate decisions during the emergency conditions. It may be about the disasters management skills and especially about the earthquake preventive measures.
- Change in syllabus as per the current disaster management needs is also recommended along with the amendments in SLOs and implementation of curricular changes by school heads to practice the earthquake drills in all primary schools on regular basis i.e. quarterly preferably.

The academic environment of the primary schools studied under this research was found not as per the needs of current post-earthquake environment. Government and other relevant educational authorities may take it serious because this research study claims very less or even no incorporation of disaster management or related topics, information in primary level. Being the most innocent, dependent to their teachers and unaware of basic

emergency safety techniques, students of primary schools are the easy target of such hilarious and sudden disasters, therefore, it is the responsibility of government to conduct periodic drills in all primary schools on regular basis preferably on monthly basis otherwise on quarterly basis at least.

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