

# Capacity Building for Disaster Readiness in Schools: A Study of Patna District, Bihar

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**Abstract-** The increasing frequency and intensity of natural and man-made disasters pose significant risks to school communities, especially in vulnerable regions like Patna district, Bihar. This research paper examines the current state of disaster preparedness in schools and explores the role of capacity building as a critical component in enhancing disaster resilience. The study is based on primary data collected through surveys and interviews conducted with students, teachers, and administrative staff across a representative sample of government and private schools in the district.

Findings reveal that while awareness of disaster risks is present, there exists a considerable gap in practical preparedness, including the availability of safety equipment, frequency of mock drills, and training of school personnel. The paper emphasizes the importance of targeted capacity-building measures such as regular disaster safety training, community partnerships, student-led awareness campaigns, and collaboration with agencies like the Bihar State Disaster Management Authority (BSDMA). The study concludes with policy recommendations aimed at institutionalizing disaster readiness through school-level planning, inclusive participation, and sustained sensitization efforts. This research contributes to the broader discourse on safe schools and highlights the need for a robust, locally contextualized disaster management strategy in the education sector.

**Index Terms-** Disaster preparedness, Capacity building, Resilience, Sensitization

## I. BACKGROUND AND CONCEPTUAL FRAMEWORK

In an era marked by an increase in both natural and man-made disasters, the role of educational institutions in disaster preparedness has become pivotal. Capacity building refers to the process of developing and strengthening the skills, abilities, resources, and institutions that communities and organizations need to survive, adapt, and thrive in

the face of hazards. In the context of schools, it encompasses training for staff and students, infrastructure resilience, policy implementation, and awareness programs to reduce vulnerability and enhance response capabilities.

Key Components of Capacity Building in the context to disaster preparedness include:

- **Training and Awareness** - Regular training sessions and workshops for students, teachers, and non-teaching staff on emergency response protocols help them to be alert and well – prepared to combat the disastrous events. This exercise generally includes evacuation drills, basic first aid, fire safety, earthquake response, flood preparedness, etc.
- **Mock drills** - Conducting periodic mock drills enhances practical understanding and response capability. It also helps identify gaps in existing preparedness plans.
- **School safety plan** - Every school may develop and prepare a customized School Disaster Management Plan (SDMP) aligned with local risk assessments. This includes safe evacuation routes, emergency contact lists and designated assembly points.
- **Formation of Disaster Management Committees** – Schools may establish a Disaster Management Committee comprising the principal, teachers, students, and staff in order to oversee preparedness plans and coordinate with local authorities.
- **Assessment of existing infrastructure** - Regular inspections of school buildings must be carried out to assess and reinforce structural safety, more so in an earthquake-

prone area like Patna. Attention must be paid to electrical wiring, sanitation, and fire safety devices.

- recommend actionable strategies for enhancing disaster readiness at the school level

## II. REVIEW OF LITERATURE

Previous studies emphasize the integration of disaster risk reduction (DRR) in school curricula and infrastructure planning. UNISDR (2015) promoted the “Comprehensive School Safety” framework, advocating for a combination of safe learning environments, school disaster management, and disaster risk education. Indian studies, such as by NIDM (National Institute of Disaster Management), highlight gaps in awareness, training, and coordination among schools despite policy efforts like the Disaster Management Act, 2005.

## III. OBJECTIVES

The major objectives of the current study are to

- assess the current level of disaster preparedness in schools in Patna district
- evaluate the frequency and quality of training programs and drills conducted for staff and students
- analyse the presence and functionality of disaster management committees in schools

## IV. METHODOLOGY

This study is based on **primary data** collected through a structured field survey conducted in 73 schools across Patna district. Schools were selected through stratified random sampling to represent various zones (urban/rural, government/private). A standardized questionnaire was administered to school administrators, teachers, and selected students. The data was tabulated and analysed using descriptive statistics to highlight patterns and readiness levels.

## V. DISCUSSION AND ANALYSIS

Regular, sustained and participatory training is key to embedding disaster readiness in school culture (Geohazard Society, 2024). Considering the seriousness of the loss caused by various disasters and importance of personal capacity to combat the events, training to handle the calamities is essential both for teachers and students in a school. The Table – 6.1 presents the status of training exercise in disaster safety for teachers in the schools of Patna district covered by field survey.

**Table –1**

**Disaster Safety Training for Teachers in the Schools Under Review**

Training for Teachers/ Staff	Number	% Share
<b>Regularly</b>	20	27.4
<b>Sometimes</b>	42	37.5
<b>Rarely</b>	11	15.1
<b>Total</b>	<b>73</b>	<b>100</b>

**Source: Primary Field Survey, 2023-24**

Given Patna's vulnerability to natural and man-made disasters, including floods, earthquakes, and fires, the frequency of disaster safety training among school staff is a critical component of preparedness (Chowdhury, 2023). The findings of the current study indicate that only 27.4% of teachers and staff receive regular training, while a significant majority (72.6%) receive training only sometimes or rarely. This infrequent training is concerning, especially in light of findings from a study on disaster resilience in Patna schools, which highlighted gaps in infrastructure and preparedness measures. Moreover, while initiatives like the Chief Minister School Safety Program have been launched to

enhance disaster preparedness through training and mock drills, the irregularity of training sessions suggests a need for more consistent implementation. Schools now must maintain disaster management plans and conduct regular mock drills under the 2021 safety guidelines. SDRF and NDRF run targeted mock drills in schools of Patna covering earthquakes, fire rescues, and first-aid training (Business Standard, 2017). NSS/NCC-led civil-defence drills like blackout and evacuation exercises are also routinely held in many Patna schools. The current status of the same issue has been presented in the Table – 6.2.

**Table –2**  
**Disaster Safety Training for Students in the Schools Under Review**

Training for Students	Number	% Share
Regularly	31	42.5
Sometimes	37	50.7
Rarely	05	06.8
<b>Total</b>	<b>73</b>	<b>100</b>

**Source: Primary Field Survey, 2023-24**

The findings show high participation but low consistency. While over 93% of students receive at least some disaster training, only 4 in 10 (42.5%) are trained regularly. Occasional training may not sufficiently build retention or ensure readiness in actual emergencies. The 6.8% who are rarely trained signals that some schools may lack structured disaster education—potentially leaving blind spots in safety coverage. Some schools in the district have introduced initiatives like “Safe Saturday” and interactive training sessions initiated by BSDMA (Bihar State Disaster Management Authority) to boost awareness (The Telegraph, 2024). Yet, the student data shows that implementation may not be uniform across Patna’s schools. Most students receive some form of disaster safety training, and that is good to know. By increasing consistency, tracking sessions, and scaling innovative programs, schools in Patna can strengthen students’ disaster readiness—and truly move from “sometimes” to “prepared always.”

It is important to observe the frequency of the organisation of mock drills by some organised agencies like BSDMA, NDRF, etc in order to examine the consistency of disaster safety training programmes in the schools of Patna district. The same has been presented in Table – 6.3. The findings show a foundation of awareness—most schools are participating in drills to some degree. However, consistency is lacking: only about 4 in 10 schools conduct regular mock drills. To truly enhance disaster resilience in Patna’s schools, the state must move beyond policy, ensuring practical, routine, and evaluated preparedness efforts across the board. The majority (~82%) of schools perform drills at least sometimes, showing a positive inclination—yet inconsistency may lead to uneven readiness. Roughly 16% of schools either rarely (12%) or never (4%) conduct drills—these institutions may be significantly underprepared in emergency situations.

**Table –3**  
**Mock Drills by Organized Bodies in the Schools Under Review**

Frequency of Mock Drills	Number	% Share
Regularly	28	38.4
Sometimes	32	43.8
Rarely	09	12.3
Never	03	04.1
<b>Total</b>	<b>73</b>	<b>100</b>

**Source: Primary Field Survey, 2023-24**

The Bihar Education Project Council (BEPC) mandates disaster management plans and regular mock drills as per the “School Safety and Protection Guidelines – 2021”. Yet, the findings reveal that less than half of schools adhere consistently, suggesting a gap between policy and implementation.

**Table –4**  
**Disaster/ Crisis Management Committee in the Schools Under Review**

Committee in Functional State	Number	% Share
Yes	22	30.1
No	51	69.9
<b>Total</b>	<b>73</b>	<b>100</b>

**Source: Primary Field Survey, 2023-24**

Bihar’s “School Safety and Protection Guidelines – 2021” mandate that each school must maintain a disaster management plan and appropriate committees. When properly formed, these committees can include teachers, students, parents, local emergency services, and community leaders—fostering robust preparedness. Without them, schools miss vital support and local resource

coordination. 30% of schools under review have taken proactive steps by setting up functional committees (Table – 6.4) and that is a positive aspect. However, with nearly 70% of schools lacking a functional disaster management committee, planning, coordination, and accountability for emergencies are severely compromised.

**Table –5**  
**Projects/ Assignments on Disaster Related Topics in the Schools Under Review**

Projects/ Assignments Given	Number	% Share
Yes, on regular basis	17	23.5
Sometimes	48	65.7
Not given	08	10.8
<b>Total</b>	<b>73</b>	<b>100</b>

**Source: Primary Field Survey, 2023-24**

**Statistical interpretation of data**

For the better understanding and more authentication of data, the same have been interpreted with the help of statistical analysis. For this purpose and after the consideration of available data type, values have been assigned to the adopted variables. Mean weightages have been computed for statistical interpretation.

**Disaster Safety Training for the Teachers/ Staff**

Assigned values:

- Regularly = 2
- Sometimes = 1
- Rarely = 0

$$\text{Weighted Mean} = (20 \times 2 + 42 \times 1 + 11 \times 0) / 73 = (40 + 42 + 0) / 73 = 82 / 73 \approx 1.12$$

Interpretation: On a 0–2 scale, the mean score of 1.12 reflects moderate to low preparedness among teaching and support staff — a weak link in the disaster response chain.

**Disaster Safety Training for the Students**

Assigned values:

- Regularly = 2

- Sometimes = 1
- Rarely = 0

$$\text{Weighted Mean} = (31 \times 2 + 37 \times 1 + 5 \times 0) / 73 = (62 + 37 + 0) / 73 = 99 / 73 \approx 1.36$$

Interpretation: On a scale of 0 to 2, the mean score of 1.36 indicates a moderately good level of student training, better than infrastructural indicators like fire extinguishers (1.16), evacuation routes (1.04), and public address systems (0.49), but not yet optimal.

**Organization of Mock Drills**

Assigning values:

- Regularly = 3
- Sometimes = 2
- Rarely = 1
- Never = 0

$$\text{Weighted Mean} = (28 \times 3 + 32 \times 2 + 9 \times 1 + 3 \times 0) / 73 = (84 + 64 + 9 + 0) / 73 = 157 / 73 \approx 2.15$$

Interpretation: The mean score of 2.15 on a scale of 0 to 3 reflects a moderately strong preparedness level, the highest among all disaster preparedness indicators analysed so far.

### Projects/ Assignments on Disaster Related Topics

Assigning values:

- Regular = 2
- Sometimes = 1
- Not given = 0

$$\text{Weighted Mean} = (17 \times 2 + 48 \times 1 + 8 \times 0) / 73$$

$$= (34 + 48 + 0) / 73 = 82 / 73 \approx 1.12$$

Interpretation: The mean score of 1.12 reflects a moderate but inconsistent effort in promoting disaster awareness through academic assignments. There's room for strengthening school-level engagement in disaster education.

### VI. FINDINGS AND CONCLUSION

The findings indicate that capacity building and preparedness are integral aspects of disaster management and combating any kind of disaster. Subsequently this is very vital for the schools where a large number of stakeholders spend a considerable period of time. As far as capacity building in the schools of the study area is concerned, the findings do not indicate towards a desired satisfactory level. Rather in most of the cases the schools under consideration have shown moderate levels.

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