Zone4solutions

To



Dated 15th Oct 2024

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Subject: Call for best practices for knowledge platform urban resilience

Dear Arvind,

Please refer to your call for best practices published through website and please find our best practice on school safety. This paper includes themes no 4 and 5 i.e. infrastructure resilience and socio-economic resilience.

Paper is attached below as per required format for your reference please.

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SOCIO-ECONOMIC AND INFRASTRUCTURE RESILIENCE THROUGH SCHOOL DM PLAN- CASE OF HOLY CHILD AUXILIUM SR. SECONDARY SCHOOL, VASANT VIHAR



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1. INTRODUCTION

Disasters are defined as a major disruption of the affected community's functioning caused by natural or anthropogenic hazards that result in human, economic, and environmental loss that exceeds the affected population's ability to cope. There are several elements that influence this, including age, which makes children one of the most susceptible populations during disasters. The continuation of education and general progress is hampered by disasters and school-based situations. The importance of school in our community cannot be underestimated. They empower the most active change-makers and raise societal awareness. A school's facilities and stakeholders' capacities are significant factors that affect a child's exposure to disasters. This makes school children one of the most vulnerable groups to disasters due to exposure, lack of structural and non-structural measures, inadequate preparedness measures, etc. Students spend the majority of their time at school, so ensuring their safety and well-being is extremely important.

In the 2013 floods, about 600 villages were damaged in Uttarakhand where schools were either damaged (fully or partially) or were used as emergency shelters. In the same year, cyclone Phailin caused damage to approx. 5825 schools in Odisha. In 2014, Andhra Pradesh was hit by the cyclone Hudhud, causing damage to 4 districts, 41,269 houses, and 455 buildings, including 317 schools. During and after the flood in Chennai City in December 2015, several schools were closed for more than a month to ensure the safety of the communities as did several schools in Srinagar, Kashmir, in 2014. Schools in Assam, Bihar, Madhya Pradesh, Uttar Pradesh, and Uttarakhand were closed due to flooding in 2016. Over 18 lakh people in 22 districts were affected by the flooding in Assam in 2016.

School buildings, schooling systems, and children are affected by natural disasters that cause havoc on human lives, property, and development parameters, as well as many other unseen factors such as psychosocial components. Direct or indirect effects on schools, education, and students may exist:

Physical	Economic					
Loss of life or injuries	• Unsafe/damages school beyond repair					
 Damages to the school premises 	triggering reinvestment					
	• Loss of income and shelter making					
	continuation of providing education					
	difficult					
Educational	Psychological					
 Increase in drop outs 	 Increased stress 					
 Decrease in quality of education 	• Loss of sense of continuity and hope in					
• Missing educational and	students					
administrative records						

Education is a universal human right. This right should not be ignored, sacrificed, interrupted or suspended as it results in everlasting socio-economic costs for students, their families, and communities. Since schools are the institutions for sharing knowledge and providing skills, it is

expected from them to be universal role models for disaster preparedness and thus, it is important to mainstream disaster management in educational planning including the safety of school buildings. We cannot completely avoid disasters but through community-oriented preparedness and preventive actions, we can reduce the impacts of associated risks to some extent.

1.1 Provision of safe school in Government Policies/Act

Few of the related National Policy Instruments are presented below:

Constitution of India (Article 21A)	As per the Indian Constitution, access to education is a fundamental right of each child in the country.			
National Policy on Children (2013)	Every person below the age of eighteen years as a child and that childhood is an integral part of life with a value of own, and long term, sustainable, multi-sectoral, integrated, and inclusive approach is necessary for the harmonious development and protection of our children.			
	It identifies health, education, child development and protection including disasters and emergencies as the key priority areas.			
National Disaster Management Act (2005)	It provides the institutional, legal, financial and coordination mechanisms for Disaster Management (DM) at the national, state, district and local levels and promotes safety awareness among schools especially teachers and students.			
National Policy on Disaster Management (2009)	It highlights the need of structural and non- structural measures in accordance with the building codes in schools and other educational institutions.			
	Section 6.4.1. identifies safe school building as significant, providing provisions for disaster smart designs for school premise including school building and campus.			
	Section 10.2.2. promotes the disaster management training in education institutions.			

Table 2: National Policy Instruments for School Safety

	Section 10.5.1. refers to National Cadet Corps (NCC) and scouts to guide them for disaster management related activities. Section 10.6.1. encourages the introduction of disaster management in the school curriculum through CBSE.
National Policy on Education (1968), Revised in 1992	Promotes 'child-centred approach' in primary education.
Right to Education Act (2009)	Guarantees free and compulsory education to all the children in the country till the age of 14 and promotes School Development Plan along with laying down the foundation of School Management Committee for planning the operational functioning of the school including infrastructure

Following are a few recent developments in school disaster management related to government initiatives:

- The NIDM conducts regular training programs for administrative functionaries,
- Contributing to the formulation of disaster management policies by NIDM.
- Inauguration of the National School Safety Plan (NSSP) by the NDMA,
- Disaster management for undergraduate students by the University Grants Commission (UGC).

However, for the protection of students, teachers, and administrative personnel, school crisis management should be advocated and implemented by the school itself.

1.2 School Safety

School Disaster Management is the continuous process of assessing and planning for preparedness, prevention and response capacity development for:

- Safety of students and staff from any harm during and post-disaster; minimizing disruption
- Ensuring continuity of education and other required services for all children amidst the disaster recovery
- Create and uphold the culture of safety

As being a part of educational continuity, school safety can be referred as a continuous process to initiate and manage the staff, students and teachers to ensure the safety of all during the emergencies. School disaster management reflects the individual, and family preparedness widening the extent of community disaster preparedness. Therefore, the goals of school safety can be described as:



Figure 1: Components of School Safety and Disaster Management

School disaster management comprises of the following steps: assess hazards, vulnerabilities, capacities and resources; understand, plan and implement actions for physical risk reduction, maintenance of facilities and services, Develop SoPs and training for disaster response; test DM plans and skills.

1.2.1 Need of SDMP

The school is a densely populated place with small children, one of society's most vulnerable groups. To reduce this vulnerability, particularly for schools, it is important to have a School Disaster Management Plan owned by the school authority and signed by a qualified Disaster Management Expert. Schools also have many resources and are community nodes. Therefore, a School also has a responsibility towards its immediate locality, just as the neighbouring community is linked to the school. In this context some benefits of the School Disaster Management Plan are as follows:



Figure 2: Benefits of School Disaster Management Plan

1.2.2. Preparing the School Disaster Management Plan

The Plan has two components as depicted in the following chart:



Figure 3: Component of School Disaster Management Plan

While preparing the plan selected school staffs tried to identify various hazards school is exposed to and accordingly prevention mitigation and response plan was developed with key roles and responsibilities including who were responsible for coordination, control and communication when responding to an emergency.

1.3 Steps in School Disaster Management Planning

The risks to school safety varies depending on the environment, location of the school, size of the schools, student age groups and mode of commute. Therefore, it is essential to develop school customized SDMP manual reflecting the local context. This includes three main themes: **preparation, protection and rebuilding** while preparing the plan to ensure a safe and secure environment for the staff and the students. Following steps need to consider for the same:





2. Development of DM Plan and conducting a structural audit of Holy Child Auxilium Sr. Secondary School, Vasant Vihar

2.1 Before Situation

Holy Child Auxilium School, New Delhi is a catholic Minority Institution established in 1970 is recognized by the Directorate of Education, Delhi Administration, and affiliated to the Central Board of Secondary Education, Delhi. School is known for its quality education, especially for the upliftment of girls. The school contacted Zone4solution in the year 2019 for the development of School DM plan training and mock drills. During the initial meetings, it was observed that although the school is doing well in education. However, not aware of various aspects of disaster management and making the learning environment safer for the students.

2.2 Implement of School Safety Activities

2.2.1 Sensitisation meeting for awareness amongst Teachers/ School

Management

A visit of Disaster Management Expert from Zone4solutions was made as the first step where they interacted with the school authority and the school management to understand their perception on school safety, knowledge of disaster management, and how prepared they are. This includes:

- Principal
- Vice Principal
- Administrative Staff
- All Teachers
- Head boy/girl
- Student Leaders (Head boy and girl, prefects, presidents of different clubs, house captains, etc.)

2.2.2 Hazard Hunt Exercise

The Hazard hunt exercise was conducted along with the concerned school members to understand school safety and the potential hazards a school can face in a better way. This includes:

- 1. Non-structural assessment (done practically by Zone4Soultions Expert team members);
- 2. Structural assessment;
- 3. Identification of hazards outside the school campus (Road Safety, Industrial Hazard, Chemical hazard, open drain flooding etc.);
- 4. Database of past disasters/accidents which have affected the schools;
- 5. Identification of vulnerable locations within the school campus;
- 6. What preparations a school should do for disaster management;
- 7. Why the school should do this preparation;
- 8. And how can they do it.

2.2.3 Formation of the School Disaster Management Committee (SDMC)

Under the leadership of School principals School Disaster Management Committee was established. The committee was made up of teachers, administrative personnel, parents and students. The School Disaster Management Committee will be responsible for guidance, monitoring and coordination of the disaster management in the school. Specific duties are given below.

- Draft, review and implement a School Disaster Management Plan in consultation with qualified DM expert.
- Review budget and obtain funds for implementing the plan.
- Guide and monitor activities for reducing disaster effects.
- Guide and monitor action to remove or reduce problems outside the school.
- Guide and monitor action to remove or reduce structural problems inside the school.
- Guide and monitor action to remove or reduce non-structural problems inside the school.
- Delegate maintenance of equipment and tools.
- Assist in acquiring necessary awareness materials; integrate emergency preparedness into the curriculum.
- Guide and monitor awareness activities including training of task forces and conducting mock drills to check the DM plan.
- Coordinate and communicate with local authorities and the parents/guardians of students during emergencies.

2.2.4 Hazard Identification and Safety Assessment

The hazards and school-based emergencies that are threatening to strike the school was discussed with the members of the School Disaster Management Committee. Specifying the threat level of the danger as High (H), Medium (M), Low (L), or zero (0). The level of threat is a combined assessment of the frequency and damage potential of a danger. Listing the past disasters was useful to address the most recurring danger. The seasonality of hazards is essential to be listed so that the school is prepared to face it. The table below showcase the seasonality calendar of school.

HAZARDS	JAN	FEB	MAR	APR	ΜΑΥ	JUN	JUL	AUG	SEPT	ост	NOV	DEC
FLOOD												
FIRE)					
earthquake((

2.2.5 Identifying the Vulnerabilities

A Risk map was prepared by showing the various problems existing outside and in the school premises along with relative location. This risk map was useful to understand the existing dangers near or inside the school.

2.2.6 Rapid Hazard and Risk Assessment of the School

The building component scan be classified into structural and non-structural. Structural elements refer to the building elements like columns, slabs, foundation, etc. Non-structural elements are the components that do not carry the load of the structure like windows, doors, stairs, walls etc., it also contains the other contents of the building like furniture, bookshelves, other appliances and wiring.



Figure 5: Non-structural risks in school building



Ref No: HCA/G5/2023/001

12th December 2023

TO WHOMSOEVER IT MAY CONCERN CERTIFICATE OF COMPLETION

This is to certify that Zone4 Solutions has successfully completed the assignment of building structural stability of Holy Child Auxilium School, Vasant Vibar, New Delhi 1:0057 as per the guidelines of National Disaster Management Authority, Govt, of India. The school is structurally stable on the basis of calculation and inspection and it is safe for occupation for the intended purpose.

We wish you the best and hope to work with you again in the near future.

Thanks & Regards

ceid R Sr. Celine, A. Principal Principal Holy Child Auxilium School Poorvi Marg, Vasant Vit er New Delhi-110 057

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H. C. Auxilium School - New Delhi

Ref No: HCA/G5/2024/002

10th October 2024

TO WHOMSOEVER IT MAY CONCERN CERTIFICATE OF COMPLETION

This is to certify that Zone4Solutions, has successfully completed the assignment of development of Disaster Management Plan of Holy Child Auxilium School Vasant Vihar, New Delhi -57 as stipulated in the guidelines of National Disaster Management Authority, Govt. of India. This includes designing the Disaster Management plan along with skill development training and mock drill of selected staff members and students following the strict rules and safety protocols. All the work completed conforms to the terms of the work order.

We wish you the best and hope to work with you again in the near future.

Thanks & Regards

Sr. Maria Goretti Principal Principal Holy Child Auxilium School Poorvi Marg, Vasant Vihar New Delhi-110057 H.C. Auxilium School, Poorvi Marg, Vasant Vihar, New Delhi - 110 057 Address Tel. 40043789 🖂 hcauxiliumvv@yahoo.co.in Junior School : H.C. Auxilium School, Sector XII, R.K. Puram, New Delhi - 110 022 🗌 7428433153 🖂 hcauxil@gmail.com

A detailed situational analysis of the school was also carried out and demographic details along with demographic details, for instance:

- Number of class rooms in the school (Pacca RCC, Tiled)
- The staff room in the school
- The laboratories in the schools (physics, chemistry, biology, home science etc)
- The play grounds or open space within the school premises

2.2.7 Resource mapping

All the resources available within the school premises and outside the school were listed and complied. The facilities outside the school include fire stations, police station, hospital, etc. These facilities were decided depending on the hazards affecting the school and vulnerabilities of the school. The critical facilities available near the school was mapped along with evacuation and vulnerability map with the support of DM Expert. Resources within the school may include evacuation and shelter area, equipment and

Emergency Number

- 1. Disaster Management- 1077
- 2. District EOC-0261-2663200
- 3. Police Department- 100
- 4. Fire Department 101
- 5. Ambulance Services- 108
- 6. Commissioner of Rescue & Relief-1070
- 7. National Emergency Number-112

materials useful for disaster response, skill training, awareness materials, etc. The human skills should also be identified. Additionally, in resource map, safe places and evacuation route should also be marked. Material resources available in the school such as:

Stretcher	Thick ropes	First aid box
Fire extinguishers	Torch	Temporary shelters (tents and tarpaulins)
Ladders	Communication system	Open space in the school premises



2.2.8 Preparation of the School Disaster Management Plan (SDMP) document

In the case of an emergency or disaster, a School Disaster Management Plan comprises of rules and procedures created to enhance student safety, preserve school property, or control school operations. Before, during, and immediately after a threatened or real emergency or disaster, the SDMP was developed with below content:

- Basic details of School
- List and contact information of School Disaster Management Committee
- Demographic Details: Number of students in each classroom, number of students with disability, what type of disability, Number of Teachers, Staff
- Objectives of School Disaster Management Plan
- Methodology of developing the Plan considering phases of disaster management
- Hazards, Vulnerability, Capacities, Risks Map
- Mitigation Plan
 - Problems outside and inside school & solution.
 - o Structural and non-structural problems & solution
- Preparedness Plan
 - Facilities outside school
 - Evacuation Plan with self-glow maps
 - \circ Action Plan for equipment and tools, awareness materials, capacity building

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Review and updation of School Disaster Management Plan annually.

• Roles and responsibilities of stakeholders

2.2.9 Formation & Training of the Disaster Management Teams

The task forces listed below were formed and detailed training on life saving skills like first aid , fire safety and search and rescue were conducted:

- Awareness Generation Team
- Warning and Information Dissemination Team
- Evacuation Team
- First Aid Team
- Fire Safety Team
- Bus Safety Team (for each bus)
- Crowd Management Team

2.2.10 Conducting Mock Drill





Mock drills was held to train students and teachers, as well as to test the various aspects of the response plan to assess and improve it.

2.3 Impact after Implementation

Some of the obvious changes in non-structural risk were:

- The school authority is now aware of various provisions of national Disaster Management guidelines of the School Safety Policy (2016) and related components.
- The electric panel and live wire were placed properly.
- Obstruction in the escape route or objects that can fall got wall mounted.
- Fixing of Almirahs to the walls of the staff room and the library.
- Clearing of passage, and stairways which are to be used as evacuation routes.
- Safely storing the inflammable liquids/ chemicals and protecting against shattering.
- Regular inspection of water points.
- The medical room and First aid box be regularly checked and updated in view availability of medicines and other required items.
- Fire extinguishers are checked regularly given workability.
- Sands of fire buckets are replaced regularly.
- Detailed report audits were shared to take further steps to mitigate it.

3. Financial details

1.	Rapid Visual Assessment (RVA)of your	INR 50000/- GST Extra
	buildings and recommendation for	
	correction if any change required	
2.	Hazard identification (if any) in the	
	compound and recommendation to	
	mitigate the effect	
3.	identification of accident-prone areas and	
	recommendations to reduce the risk	
4.	Preparation of a self-glow evacuation	
	map floor wise block wise with	
	identification of location, assembly area,	
	and evacuation path to be followed	
5.	Plan the composition of different teams	
	and a task force	
6.	Documented disaster management plan	
	in two copies	
7.	Development of roles, and	
	responsibilities (SOPs) for team and	
	authorities	
8.	Development of the School Disaster	
	Management Committee	
9.	Training for staff to execute their role and	
	responsibilities in the plan	
10.	Test of the Disaster management plan (
10.	mock drill)	
Structu	ral safety audit of the building	INR 180.000 + GST Extra
1	Schmidt's rebound hammer test for	
	determining the concrete compressive	
	strength (20-25 Nos.)	
2	Illtrasound nulse velocity tests for	
2.	establishing the quality of concrete (20-	
	25 Nos)	
3	Taking out concrete cores preparing	
5.	specimen for lab testing performing lab	
	tost for compressive strength (5.6 Nec.)	
Л	Cover mater tests to determine thickness	
4.	of evisting concrete cover (15, 20 Nec.)	
C	Carbonation tost to determine	
э.	carbonation front ingress (F (Neg)	
ſ	La Donation n'ont ingress (5-6 NOS.)	
0.	nan ten potential tests to establish	
	probable risk of corrosion (5-6 Nos.)	

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