

Integrated and Sustainable Risk Reduction in Education Sector- A Step towards Home-To-Home Safety of School Children in India

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Abstract – Disasters do not discriminate it affect across all sectors equally when strike. School children are one such vulnerable sections of society who got constantly hit by the adverse impact of disasters especially when they are in schools as it is one of the most densely populated place during day time.

Some of the international forum vehemently emphasized upon safety of community in view of increasing risk of most vulnerable section of society. The Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters, adopted at the World Conference on Disaster Reduction, highlights knowledge and education as one of the five main priorities of action. Attention was accorded and support given to efforts targeting school children and youth with the aim of making people more aware of the threat of hazards and of the need and possibility to become better prepared before disasters strike. Millennium Development Goal-2 indicate about ensuring universal and primary education but it has often notices that Disaster-hit families fail to send children to school, while schools may be closed down by earthquakes or floods. Sustainable Development Goal -4 also ensure inclusive and equitable quality education and promote lifelong learning opportunity for all but Disaster often hit education infrastructure and children often denied education during disaster phase and also post disaster phase be it natural or man-made disaster. Thus, an holistic integrated attention must be provided for mainstreaming Disaster Risk Reduction in education sector so that a safe learning environment may be provided to all the school going students.

Keywords – School Safety, Disaster Risk Reduction, Mainstreaming and Integration

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1. INTRODUCTION

Placing heavy demand for reconstruction and rehabilitation disaster always destroy the decades of human efforts and investment towards development. One of the most vulnerable section to be hit by these disasters are children unskilled and unaware of fact what to do in such conditions. There are ample examples like Gujarat Earthquake 2001 where 971 children lost its lives, fire incident at DAV School in Dabwali, Sirsa Haryana in 1995 during annual function took lives of 540 people 170 of them were schoolchildren. Similar, incident happened at Kumbakonam, Tamilnadu at in 2004 which took 93 lives which is enough to ascertain the fact that it is utmost importance that every school must have a sound Emergency Response Mechanism in place in order to deal effectively with the natural and human induced disasters (such as earthquake, fire, stampede, terror attack and gas leak etc.).

It is however, also observed that emphasizing in isolation on the concerned sector in terms of training of Task forces, capacity building of school disaster management team, school Disaster Management plan development and mock-drill would may not lead to mainstreaming of disaster management in the education sector. A strategic intervention in terms of considering various areas may be develop from inserting DRR in school curriculum through department of Pedagogy, Ministry of Human Resource Development, hazard resistant schools construction as indicated in School Development plan of Sarva Shiksha Abhiyan, through public work department. Issues related to basic health, sanitation and hygiene to be maintained inside the school in general for all students and during implementation of mid-day meal programme in view of increasing disaster, climatic and man-made risks. It is thus, prerequisite for the programmes to involve different stakeholders if "home - to- home" safety of school

children is to be ensured considering all natural hazards and man-made risks.

2. DISASTER AND DEVELOPMENT

Since time immemorial, disasters have been constant companion of human and recurring phenomena. Natural and man-made hazards continue to strike unabated and without notice turning into disasters due to lack of preparedness. Natural disaster is a high impact phenomenon, which has potential to wipe out years of development in a matter of few minutes or hours or over an extended period. Although occurrence of any natural hazards cannot be prevented but its impact can be certainly reduced with better preparedness, planning and mitigation strategies. That may ultimately save the life and livelihood of the people vulnerable to the risk of disasters. Thousands of people in more than 100 countries are periodically exposed to at least one event of earthquake, tropical cyclone, flood or drought. As a result of disasters triggered by these natural hazards, more than 184 deaths per day are recorded in different parts of the world (CBDRM, ADPC). Natural disasters are perhaps the most “unexpected” and costly overall in terms of loss of human lives and resources. In the last few years, natural disasters have claimed 100,000 lives costing above 140 billion US dollars (EMDAT). Some of the World deadliest disasters in known history are given in the Table 1 as below:

Table-1

World's Ten Deadliest disaster

Sl. No.	Name of Event	Year	Country and Region	Fatalities
1	Earthquake	1556	China, Shaanxi	830000
2	Earthquake	1731	China	100,000
3	Cyclone	1737	Calcutta, India	300000
4	Yellow River flood	1887	China	900,000–2,000,000
5	Messina Earthquake	1908	Italy	123000
6	Earthquake	1920	China, Gansu	235000
7	Great Kanto Earthquake	1923	Japan	142,000
8	Great Chinese Famine	1958-1961	China	15,000,000–43,000,000
9	Bhola Cyclone	1970	West Bengal, India & East Pakistan (now Bangladesh)	500,000
10	Tangshan Earthquake	1976	China	242,419

(Source Disaster Management in India, Ministry of Home Affairs GoI, 2011)

2.1 People around the world constantly seek ways to reduce the disaster risks. Disaster Risk Reduction entails measures to curb the disaster losses by addressing hazards and people's vulnerability to them. Good disaster risk reduction happens well before disasters strike, but also continues after a disaster, building resilience to future hazards (DFID). Disaster risk reduction is thus defined as: “The concept and practice of reducing disaster risks through systematic efforts to analyze and manage the causal factors of disasters, including through reduced exposure to

hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events”(Turnbull et.al, 2013).

2.2 With increasing natural and manmade hazards, risk of population exposed to various hazards are also increasing in absence of adequate preparedness that required to be addressed to reduce the vulnerability and enhance the capacity of community to minimize the impact of disaster. “Hazard” is a physical event that can potentially trigger a disaster. If not coped with well, it becomes a disaster. “Vulnerability” is the degree to which communities are susceptible to loss or damage of life or property in the event of a disaster. “Capacity” is the resources/skills of communities to cope with a threat or resist the impact of a hazard and “Risk” is the probability/likelihood of a disaster happening. Thus, Disaster risk reduction is viewed as the systematic development and application of policies, strategies and practices to minimize vulnerabilities and risks throughout a society to avoid (prevention) or limit (mitigation and preparedness) the adverse impact of hazards, within the broad context of sustainable development (UNISDR 2002). Disaster reduction policies should have a two-fold aim:

- To enable societies to be resilient to natural hazards;
- To ensure that development efforts do not increase vulnerability.

Increasing frequency of Disasters hold back development and progress as disasters are rooted in development failures. This is the core rationale for integrating disaster risk reduction into development. Natural Disaster Risk is intimately connected to processes of Human Development. Disaster losses may setback social investments aiming to ameliorate poverty & hunger, provide access to education, health service, safe housing, drinking water and sanitation or to protect the environment as well as the economic investments that provide employment & income. Disasters do not just happen – largely, they result from failures of development and proper planning which increase vulnerability to hazard events.

Non-risk informed Policy for development and institutions governing development can be found at all levels, from local and national institutions weakened by skills shortages increasing the rate of occurrence of disasters. Thus, both disaster management and development are interconnected and there is a symbiotic relationship between disaster and development as indicated in the table given below:

Table-2

Symbiotic relation Ship between Disaster and Development

Disaster limit or destroy development	<ul style="list-style-type: none"> • Destruction of physical assets and loss of production capacity, market access and input materials. • Damage to infrastructure and erosion of livelihoods and savings. • Destruction of health or education infrastructure and personnel. • Deaths, disablement or migration of productive labour force.
Development causes disaster risk	<ul style="list-style-type: none"> • Unsustainable development practices that create unsafe working conditions and degrade the environment. • Development paths generating inequality, promoting social isolation or political exclusion.
Development reduces disaster risk	<ul style="list-style-type: none"> • Access to safe drinking water and food and secure dwelling places, which increase peoples resilience. • Fair trade and technology can reduce poverty, and social security can reduce vulnerability. • Development can build communities and broaden the provision of opportunities for participation and involvement in decision making, recognizing excluded groups such as women, enhancing education and health capacity.
Disasters creates development opportunities	<ul style="list-style-type: none"> • Favourable environment for advocacy for disaster risk reduction measures. • Decision makers more willing to allocate resources in the wake of a disaster. • Rehabilitation and reconstruction activities create opportunities for integrating disaster risk measures.

(Source: UNISDR 2004)

3. INTEGRATING DISASTER RISK REDUCTION IN DEVELOPMENT PROGRAMME

DRR refers to the measures used to reduce direct, indirect and intangible disaster losses. The measures may be technical, economic or social. DRR encompasses the two aspects of a disaster reduction strategy: 'mitigation' and 'preparedness'. Mitigation refers to measures aimed at reducing the risk, impact or effects of a disaster or threatening disaster situation, whereas, preparedness refers to the measures undertaken to ensure the readiness and

ability of a society to forecast and take precautionary measures in advance of imminent threat, and respond and cope with the effects of a disaster by organising and delivering timely and effective rescue, relief and other post-disaster assistance. 'Mainstreaming DRR' describes a process to fully incorporate the concerns of disaster preparedness, prevention and mitigation into development and post disaster recovery policy and practice. It means completely institutionalizing DRR within the development and recovery agenda.

DRR integration has three purposes

- To make certain that all the development programs and projects that originate from or funded by the Government are designed with evident consideration for potential disaster risks to resist hazard impact.
- To make certain that all the development programs and projects that originate from or are funded by the Government do not inadvertently increase vulnerability to disaster in all sectors: social, physical, economic and environment.
- To make certain that all the disaster relief and rehabilitation programs and projects that originate or are funded by the Government are designed to contribute to development aims and to reduce future disaster risk.

4. DISASTER MANAGEMENT – INDIAN SCENARIO

The Disaster Management Act 2005 articulates the need for mainstreaming DRR into development planning. It mandates the Disaster Management Plans at the national and state levels to include measures to be taken for the integration of mitigation measures in the development plans at the respective levels. The Act also mandates every ministry/department at national and state levels to prepare disaster management plans and integrate disaster risk reduction elements in the ongoing development schemes.

4.1 The Legal Context

There has been paradigm shift in the approach to disaster management with the enactment of **The Disaster Management Act, 2005** from the erstwhile relief centric response to a proactive prevention, mitigation and preparedness-driven approach for conserving development gains and to minimize loss of life, livelihood and property. Subsequently, a three-tiers structure was created to manage disaster at national, state and district level.

The Act also prescribes for preparation of State, District and Local Disaster Management Plans and for incorporation of measures, suggesting as to how mitigation shall be integrated into development plans and projects.

The National Policy on Disaster Management 2009 seeks to build a safe and disaster resilient India. It categorically states that the NDMA will ensure the mainstreaming of disaster risk reduction in the development agenda of all existing and new developmental programs and projects which shall incorporate disaster resilient specifications in design and construction.

For the first time **a separate chapter on disaster management was included in the Tenth Five Year Plan (2002-2007). The Eleventh Plan (2007-2012) as well as Twelfth Plan (2012-2017)** reiterated the need for investing in prevention and mitigation which is economically and socially more beneficial than incurring expenditure in relief and rehabilitation.

The Ministry of Finance issued Guidelines in 2009, advising all Ministries / Departments of the central government that if the project involves creation or modification of structural/ engineering assets, including land reclamation or changes to existing land use plans, the cost involved in prevention/ mitigation of disaster(s), natural and man-made, would need to be included fully in the project cost.

Guidelines have been issued by the **Ministry of Finance in January 2014 making provision for 10% flex-funds within Centrally Sponsored Schemes (CSS) to be utilized inter alia for mitigation/restoration activities** in the event of natural calamities in accordance with the broad objectives of the CSS in the respective sectors. The purpose of providing flexi-funds is to enable the state governments to address DRR concerns in developing schemes.

The Planning Commission has included DRR in the long-term restoration/recovery in different sectors by bringing the convergence of CSS, central plan and state plan while approving Uttarakhand disaster (June 2013) recovery package.

5. SCHOOL SAFETY FOR SAFE LEARNING ENVIRONMENT

"School Safety" has been defined as the creation of safe environments for children starting from their homes to their schools and back. This includes safety from large-scale 'natural' hazards of geological/climatic origin, human-made risks, pandemics, violence, as well as more frequent and smaller-scale risks like fires, road accidents and other emergencies, and environmental threats that can adversely affect the lives of children (**Ahmedabad Action Agenda for School Safety, 2007**).

The agenda of school safety, as is visible in India today aligns well with **Sarva Shiksha Abhiyan (SSA)** which is the current flagship programme of the government, designed to further the Right to Education in the country. The mandate of SSA goes beyond the provision of education per se rather it aims to provide 'useful' and 'quality' elementary education to all children in the 6 -14 age group. Besides the much desired efforts to improve the curriculum and provide the necessary training to different stakeholders involved in the process of education, about 33% funds of SSA are spent on civil works including construction of schools, additional classrooms, Block Resource Centres (BRCs) and Cluster Resource Centres (CRCs). SSA actively hinges on community ownership of school based interventions by the involvement of womens' groups, Village Education Committee (VEC) members and members of Panchayati Raj institutions and includes a community based monitoring system. The programme recognises a 'Habitation as a unit of planning' and is operationalised through the District Elementary Education Plans prepared by the district administration to indicate available funds/resources for various components under schemes like Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), Area fund of MPs/MLAs, State Plan, foreign funding and other resources generated in the NGO sector.

5.1 National School Safety Programme

In 2011, the **National School Safety Programme** was launched by the National Disaster Management Authority in partnership with the Ministry of Human Resource Development, covering two districts in each of the 22 seismically vulnerable states of India. The Vision of the programme is "To promote a culture of disaster preparedness in the school" through Policy level changes for ensuring safe school environments and sensitisation and capacity building of children and the school community and other stakeholders on disaster preparedness. The project also includes non-structural mitigation measures as well as demonstrative structural retrofitting in select schools. In parallel, several NGOs and INGOs have been working on school safety initiatives that have provided many useful lessons in developing the substantive aspects of the agenda.

5.2 Sarva Siksha Abhiyaan

Development of a Policy paper of school safety.

- ✓ Introducing school safety as a part of the guidelines of SSA which is currently focusing on inclusive development.
- ✓ Developing model structurally safe designs for schools.

- ✓ Introducing School Safety in the Teacher's Training Curriculum.
- ✓ Training of Rural Engineers appointed under SSA Scheme as well as the SSA State Coordinators.
- ✓ Training of masons in rural areas.
- ✓ Construction of Technology Demonstration Units.
- ✓ Community Awareness.
- ✓ Frequency of training and mockdrill is to be enhanced.
- ✓ Poor implementation of Disaster Management Plan at school level.
- ✓ Proper safety measures with adequate measures are not taken by the schools.
- ✓ An integrated approach for connecting all the measures taken at district administration is not implemented properly.

5.3 Other initiatives

Whole School Development Plan (WSDP) is a document developed by MHRD is a **master plan** and **base document** for school educational and infrastructure work as well as its development in phases. Above manual has a chapter on "**Ensuring Safety and Reducing Vulnerability**" for Structural Mitigation. This manual may be referred for providing more information on structural safety in School.

An order has been issued by Directorate of Education, Delhi to all the schools for obtaining NOC on Fire Safety in School from Fire Department and conducting Mock drill in Schools through prescribed Standard Operating Procedure of Fire Department.

The State Policy on School Safety developed by Government of Haryana on Safety Measures for Government, Private Aided and unaided.

6. CRITICAL ANALYSIS

Since the enactment of The Disaster Management Act 2005 and initial interventions of UNDP with Government of India under GoI- UNDP Disaster Risk Reduction programme (2002-2008) covering 169 districts of India process of institutionalization of DRR took shape in India. One of the important area of concerns of that programme was "School Safety". Gradually few of the other INGOs, NGOs, bilateral and multilateral agencies also started joining DRR with school safety an important sector of concerns.

However, it is observed that even though different stakeholders are putting varied efforts for making school safer in India and provide safe learning environment. Cases of children getting affected on daily basis may be noticed from all over the countries because of following reasons:

- ✓ Lack of awareness and training among school authority.

An integrated approach for school safety may be implemented to ensure safer learning environment for the children from home-school-home.

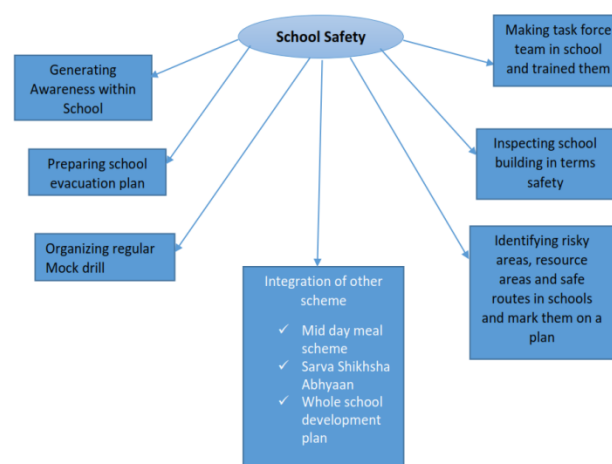


Fig: 1 Integrated approach for School Safety Programme in India.

7. BEST PRACTICES IN INDIA SCHOOL SAFETY PROGRAMME IN DELHI NCR

Super Highway Lab, Popularly known for its product Shuttl an Application based office bus initially in association with Disaster Management Cell(DMC) Noida initially was organizing School Safety programme in Schools of Gautam Budh Nagar District. Initially officials of Shuttl and DMC Noida went schools and tried our best to convince head of institutions to organize the School safety programme. After a long fight Army public School, Noida agreed to organize the programme and thereafter there were flood of request came from different schools of Noida. (<http://www.thehindu.com/todays-paper/tp-in-school/safety-first-workshop-organised/article8562256.ece>) there after we organized 9 more programmes in different schools District. It was thought that whenever earthquake will strike it will certainly not strike school wise and hence our all schools of a region should be ready to evacuate in case of an earthquake.

Encouraged with the response, need and success of School Safety Programmes/ Evacuation Drills, we planned “a Mega School Earthquake Evacuation Drill in 101 Schools in the Noida, Greater Noida & Yamuna Expressway of the Gautam Budhha Nagar district On the Same Day at the SameTime”, simulating that an earthquake of Richter 6.5 scale or above has occurred and how to safely evacuate the classroom. After initial Planning and discussions, on March 14, 2017; a meeting presided by the District Magistrate was held with the school principals and their resource personnel where in the final dates for this mega event was decided to be held on April 27, 2017 at 11:00 AM onwards.

Purpose of this Mega-Event was to send a message across the Country, how important is the School Safety Programmes/ Evacuation Drills in DRR activities, to safeguard our future, the children. This was unique, first of its kind, School Evacuation Drill on such a large scale, to be conducted in the Country and probably around the World as well, by a Local Authority.

7.1 Objectives of the Mega School Earthquake Evacuation Drill are as below:

- √ Enable students to safely evacuate the schools/ classrooms in case of any emergency and or disaster, especially during the earthquake and fire.
- √ To initiate policy level changes for ensuring safe school environment.
- √ To sensitize children and the school community on disaster preparedness and safety measures.
- √ To motivate direct participation of key stakeholders in activities that would help improving coordination towards a disaster resilient community.
- √ To promote capacity building of officials, teachers and students.
- √ To carry out Information, Education and Communication (IEC) activities in schools and associated environment.
- √ To enhance conceptual understanding of all the stakeholders especially the Children on various aspects of DRR and School Safety from an inclusive perspective.
- √ To develop competencies of the participants to undertake DRR measures in schools and in day to-day hazards including road accidents.

- √ To enable the participants to develop the School Disaster Management Plan as per Govt of India template.

7.2 Strategies for implementation

- i. Organizers in association with the district authorities listed out 110 schools (both Govt. and private schools) in the Noida, Greater Noida and Yamuna Expressway of Gautam Budhha Nagar District.
- ii. Each school was requested to nominate a coordinating personnel/ floor marshals. After finalizing the same, a Table-Top Exercise along with small scale mock drills with the school representatives/ floor marshals between March 28 to April 3, 2017 to make the processes and methodologies clear to them.
- iii. About 150 number of resource persons/ volunteers from various disaster management communities, non-governmental organizations and also some of the best volunteers get trained by organizers through the Table Top Exercises.
- iv. Thereafter the school representatives/ floor marshals were advised to do a few rehearsals in their respective schools in association with the resource persons/ volunteers pre trained by the organizers
- v. Different whatsapp groups were created by the Disaster Management Cell, Noida for resource personnel/ volunteers, school's resource personnel/ floor marshals, principals of the participating schools, core group members to keep flow of information dissemination among teacher.
- vi. Organizers approached (NDRF) to provide 110 competent personnel at least one at each of the participating school as an observer and also a few personnel at the command and control centre.
- vii. Competent personnel from National Disaster Management Authority (NDMA) & National Institute of Disaster Management (NIDM) were also invited as observers for this Mega School Earthquake Evacuation Drill.
- viii. All emergency services like police, fire, health departments were send advisories prior to be prepared and put on high alert to deal with any eventuality, if occurred, during the final drill.
- ix. For the successful conduct of the drill a command and control centre was

established in Emergency Operations Centre (EOC) of Disaster Management Cell, Noida.

- x. Two-way parallel information management system was established to conduct the final drill and efficiently handle any exigency during the drill. One volunteer/ resource personnel of Disaster Management Cell Noida was deployed at each of the participating school and similarly one NDRF personnel was also deployed at each school.
- xi. For each group of 10 volunteers/ resource personnel an Area Manager was decided and made responsible to coordinate with them and report to the Incident Commander. Similarly, on each of the 10 NDRF personnel deployed in Schools one Team Commander was made responsible to coordinate with them and report to the Incident Commander at the Command & Control Centre
- xii. After successful completion of Table-Top Exercises and rehearsal drills and setting up of an efficient command and control centre, the Final Mega School Earthquake Evacuation Drill was conducted as per pre-defined processes and methodology on April 27, 2017 at 11:00 hrs in 110 schools in which more than 80,000 people participated including students, teachers, resource personnel, volunteers and observers from NDRF, NDMA & NIDM.

The drill was exactly started at 11:00 AM in all the 110 schools and after 10 minutes of do's and don'ts about various disasters and how to safely evacuate the classroom. Students returned to their classes and routine school life started. At 11:20 AM emergency bell of schools rung indicating that an earthquake has occurred. Students immediately practiced Drop, Cover and Hold for 10 seconds (as the simulated earthquake was for 10 seconds). After the tremors stopped, students safely evacuated the classroom without any stampede, and assembled in the safe and open area. Head counts were done by the respective class teachers /heads in presence of the resource personnel/volunteers and NDRF personnel.

7.3 The Final Drill

Thereafter, emergency team of schools searched for trapped students, if any. After announcement of situation of normalcy by the Principal, students returned to their classes and routine school life began again. The total drill lasted for 45 mins to one hour depending on strength of student in the school. Safe and methodological evacuation taken minimum time and about 4200 students evacuated the school barely in 4 mins in Apeejay School Noida.

The Mega Earthquake School Evacuation Drill conducted successfully on April 27, 2017 on the Same Day and at the Same Time by the Disaster Management Cell, Noida without any eventual mishap in which 110 Schools and more than 80,000 students, teachers, faculty, resource personnel, volunteers and observers of NDRF, NDMA & NIDM participated; claims to be Country's and World's largest School Earthquake Evacuation Drill conducted by any Local Authority towards achieving a disaster resilient regime and safe schools.

8. CONCLUSION

The ability of the community to accelerate the safety process for children begins with its efforts from home to school and back to home that includes pre-disaster preparedness, capacity building and mitigation. These efforts result in resilient community including children with an improved ability to withstand, respond to and recover from disasters. A successful school safety process can be implemented by understanding of risks and vulnerabilities that might endanger school and accordingly plan for mitigating the risk with an integrated approach of all sectors. School safety provides a platform for multidimensional process guided by development principles and seeks to build sustainable development opportunity for minimizing the risk of children towards various hazards.

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