

Disaster Risk Management and the Sendai Framework



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Abstract

Natural disasters are the destructive forces of nature. Floods and Earthquake are the most frequently occurring natural disasters. The severity of a disaster is depends on loss of life, economic loss and the ability of population to rebuild. Disaster risk arises when hazards interact with physical, social, economic and environmental vulnerabilities. The Sendai Framework for Disaster Risk Reduction 2015-2030 [1] is the first major agreement of the post-2015 development agenda, with seven targets and four priorities for action which was adopted by UN Member States on 18 March 2015 at the third UN World Conference on Disaster Risk. We are living on a restless planet within both natural and manmade hazards. But we have the ability to reduce the devastating consequences of natural hazards. Early warning systems can reduce the damage and deaths caused by disaster even in poor countries.

Abbreviations: DRF: Disaster Recovery Frameworks; PDNA: Post Disaster Needs Assessments; DALA: Damage and Loss Assessment; HRNA: Human Recovery Needs Assessment; DRR: Disaster Risk Reduction

Mini Review

According to WHO disaster can be defined as “any occurrence that causes damage, destruction, ecological disruption, loss of human life, human suffering, deterioration of health and health services on a scale sufficient to warrant an extraordinary response from outside the affected community or area”. For defining any occurrence as a disaster episode International Red cross suggested at least one of the following criteria must be fulfilled [2,3]:

- 10 or more people reported killed (missing or presumed dead);
- 100 or more people reported affected;
- Declaration of a state of emergency; and/or
- Call for international assistance.

Sendai Framework for Disaster Risk Reduction (2015-2030)

The Sendai Framework for Disaster Risk Reduction (2015-2030) has seven global targets, 13 guiding principles and 4 priorities areas of action that includes [4]:

- Priority One:** It is focusing on understanding the disaster risk.
- Priority Two:** It is related to strengthening disaster risk governance to manage disaster risk

- Priority Three:** It is based on investing in disaster risk reduction for resilience

- Priority Four:** It is related to enhancing disaster preparedness for effective response and to “Build Back Better” in recovery, rehabilitation and reconstruction.

2017 Global Platform for Disaster Risk Reduction

Under the banner “From Commitment to Action,” the Fifth Global Platform for Disaster Risk Reduction has been conducted from 24-26 May 2017 in Cancún, Mexico. More than 5,000 delegates from over 170 countries representing governments, stakeholder groups including people with disabilities, UN partners, the private sector, national platforms for disaster risk reduction (DRR), regional organizations and academia attended the meeting [5,6].

The Key Issues include:

- Ensuring risk-resilient critical infrastructure
- Sendai framework monitor prototype consultation
- International cooperation in support of the Sendai framework implementation
- Risk transfer and insurance for resilience
- Risk information and loss databases for effective DRR
- Private sector’s engagement in DRR

- g. Accelerating efforts in building community resilience to disasters
- h. Contribution of science and technology to achieving the 2020 Sendai target
- i. Achieving the Sendai Framework and SDG's target at local level
- j. Inclusive and people-centered DRR
- k. Disaster ecosystems protection, management and resilient agriculture for reducing disaster risks
- l. Promoting land-use and spatial planning for DRR
- m. Cultural heritage and indigenous knowledge
- n. Health and disaster

The Sendai Conference and the “Build Back Better” approach

High levels of political commitment and strong institutional frameworks are the key components for an effective recovery and reconstruction programs. The Sendai Framework for disaster risk reduction offered the following recommendations to support “Build Back Better” approach:

- A. Building financial resilience:** To build greater financial resilience and predictability within government.
- B. Promoting post disaster assessments:** To promote the post disaster assessments and national recovery frameworks.
- C. Strengthening planning & efficient monitoring and evaluation:** To strengthen the capacity for recovery planning, efficient monitoring and evaluation at the national, local, and community level, and for all actors establishing a clear roles and responsibilities.
- D. Strengthening cooperation:** To strengthen cooperation in the following areas such as:
 - i. Sharing rosters of experts
 - ii. Capacity building
 - iii. Tools
 - iv. Bi-lateral support between countries
 - v. Progress monitoring; and
 - vi. Standardized approaches for post-disaster assessments and recovery planning frameworks.
- E. Policy making:** To develop national and international policy.
- F. Maintaining institutional continuum:** Maintaining an institutional continuum for sustainable development measures.

Post-Disaster Needs Assessment (PDNA)

For preparing Disaster Recovery Frameworks (DRF), the UN Development Group, the World Bank and the European Union together have developed the guide for Post Disaster Needs Assessments (PDNA). The PDNA Guide contains the main elements of the Damage and Loss Assessment (DaLA) method and the Human Recovery Needs Assessment (HRNA) approach that focus on the comprehensive assessment of damages, losses and needs. The PDNA tool is a powerful tool/methodology for assessment of the damages and losses caused by the disaster. For its comprehensive approach a number of countries are moving towards national level PDNA system [7].

The Core Elements of the PDNA

The PDNA contains the followings four elements:

- a. Baseline information:** Pre disaster context and baseline information.
- b. Disaster effects:** The assessment of disaster effects.
- c. Disaster impacts:** The assessment of disaster impacts.
- d. Recovery strategy & Recovery needs:** The Recovery strategy, determining sector recovery needs.

Disaster Risk Management at the National Level

Many developing countries have less capability to effectively cope with disasters because of their lacking to the administrative, organizational, financial, and political capacity. So the poor become particularly vulnerable. National governments need to show the key role in disaster risk management (DRM) [8].

Recommendations

The governments in the Asia and the Pacific region have given the following Recommendations on how to establish disaster risk governance for developing countries:

- a. Strengthening DRM coordination:** To strengthen the DRM coordination role at national level.
- b. Legal framework:** To create an effective legal framework.
- c. Focal point agency:** To establish a DRM focal point agency.
- d. Cooperation:** To create a flexible cooperation system in between the government and the other organizations.

Key areas for Developing countries

- a. DRM as a core element:** Placing DRM as a core element within the structure of the government.
- b. Policy making:** Mainstreaming DRM into policy, planning, and management in all relevant sectors.
- c. Public involvement:** Public involvement is a key issue.

d. Effective Coordination: Involvement of the wide range of stakeholders with their effective Coordination.

e. Multi-sectoral approach: Multi-sectoral approach such as urban development, infrastructure, water, education, health etc.

f. Inter-sector coordination

g. Strengthening linkages with local governments: It can be achieved by giving them proper guideline to promptly respond to disasters on the ground.

h. Collaboration with the international agencies: Involvement of the international development agencies to strengthen the capacity to cope with disasters.

Urban Disaster Management

The Key Issues for Urban Disaster Management

Urban Environment: The world is gradually becoming more urban and the urban poor are also increasing. Poverty is the main cause for urban vulnerability to disaster.

Housing: Earthquakes are usually associated with collapsing buildings. Quality construction is very important in relation to tropical cyclones.

Infrastructure: Urban societies depend on the infrastructure systems. After disaster this system are commonly disrupted and very costly to repair. In developing countries the infrastructure systems are poorly maintained which increase their vulnerability.

Land use planning and environmental protection: During urban developing planning flood plains, landslide prone areas, fault zones, coastal areas are needed to be mapped properly. So it will help to utilize safe location for people. In hazard zones sustainable management of environment can reduce the hazards. Such as retention of mangrove vegetation on the foreshore to reduce the storm surge effects and planting on hillsides to reduce the risk of landslides.

Recommendation for Urban Disaster Management

For sustainable human settlement development in an urbanizing World Bank has suggested the following recommendations that are required to take in account [9]:

Hazard Assessment: Assessment for hazard and vulnerabilities and using it for new urbanization programs.

Reviewing disaster risk: Reviewing disaster risk in urban areas and human settlements.

Hazards mapping: It should be focus on community based hazards mapping.

Shelter: Management of shelter.

Vulnerability reduction: Reducing the vulnerability of the urban infrastructures.

Poverty reduction: Reducing the poverty at urban level. Environmental management.

Improved early warning system: Improvement of the disaster warning system.

Improving public awareness program: Upgrading the public information and education programs.

Disaster management: Disaster mitigation, relief and reconstruction.

Policy making: Outlining the strategies and policies to reduce the risk. A policy of diverting urban growth may be required for hazard prone urban areas.

Program and Policies: Institutional strengthening programmes and legislations.

Community-based Disaster Risk Management (CBDRM)

“CBDRM is a process in which at-risk communities are actively engaged in the identification, analysis, treatment, monitoring and evaluation of disaster risks in order to reduce their vulnerabilities and enhance their capacities” [10].

The Steps: It includes the following steps

a. Selecting the community: It depends upon the followings key issues:

b. Vulnerability: It focused on the most vulnerable people.

c. Beneficence: Benefitted people from Disaster Risk Reduction (DRR) activities.

d. Community participation: Readiness of community to engage in DRR activities.

e. Poverty: The level of the poverty is critical.

f. Good Governance: Governmental priority of vulnerability.

g. Budget: Appropriate budget and availability in emergency situation.

h. Accessibility: Accessibility of the resources is crucial.

Rapport building and understanding: It can be defined as to understand the local social relationships and power structures, key economic groups and to build good informal relationship with the local people. For this purpose the local authorities need to take the following activities [11]:

a. Community based: To live in the community.

b. Transparency: To be transparent and open about their purpose.

c. Community Participation: To participate in daily life activities in the community, and cultural events.

- d. **Giving priority to the local people:** To listen to the issues and problems of local people.
- e. **Appropriate knowledge and skills:** To learn new skills from local people.
- f. **Implementation of the Strategies:** To perform local tasks.

Participatory disaster risk assessment

This activity usually conducted by the local authorities with the involvement of local people, community leaders and subject experts. It includes:

- i. Assessment of hazard.
- ii. Assessment of the vulnerability.
- iii. Assessment of the capacity.
- iv. Analysis and prioritization of the risks.

Community-based disaster risk management planning: This process has the followings activities:

- a. **Stakeholders Analysis:** Analysis of local stakeholders.
- b. **Resources Analysis:** Analysis of local resources.
- c. **Clarification:** Clarification of the Roles and responsibilities of the various stakeholders for implementation of activities.
- d. **Community managed implementation:** This is usually done through the community organization at community level with support from local authorities and technical and research institutions. For vulnerability reduction and hazard mitigation this process involves different structural and non-structural activities such as:
 - i. Community training
 - ii. Disaster response drills
 - iii. Community early warning systems
 - iv. Disaster resilient construction of houses
 - v. Forest plantations
 - vi. Mangrove plantation
 - vii. Diversification of crops
 - viii. Rainwater harvesting
 - ix. Construction of dykes, bridges etc.

Monitoring and evaluation

Monitoring and evaluation usually done by the local community, development agencies and other stakeholders. Harmony among all the groups is an important factor for success. The activities include [12]:

- a. **Monitoring:** To measure the progress.

- b. **Follow-up:** To identify the necessary follow-up actions.

Roles of the local authorities for disaster management

The local authorities consist of administrative and political structures that may include a district government, a municipal administration, a sub-district administration or a commune. The local authorities can play an effective role in disaster management through following activities [13]:

- a. **Vulnerability identification:** Identifying and prioritizing most vulnerable communities.
- b. **Risk assessment:** Conducting local and community level risk assessment.
- c. **Planning:** Developing local disaster preparedness plans.
- d. **Implementation:** Implementing local level preparedness planning.
- e. **Effective Early Warning Systems (EWS):** Upgrading local and community level Early Warning Systems.
- f. **Reviewing and up-grading the plan:** Periodic up-grading of disaster preparedness and mitigation plan.
- g. **Capacity building:** Capacity building of community volunteers and groups; such as training on search and rescue, extrication of the trapped from buildings, first aid, firefighting, swimming, evacuation drills and risk assessment etc.
- h. **Team work:** Developing local level emergency response teams.
- i. **Establishing relief distribution teams:** Establishing the damage assessment and relief distribution teams.
- j. **Constructing temporary shelters:** Constructing temporary shelters at vulnerable locations to host affected people.
- k. **Adequate storage of the resources:** Ensuring the safe storage of essential items near vulnerable locations such as food, medicine, rescue equipment, earth moving machinery etc.
- l. **Availability of the resources:** Ensuring the availability of the resources to community volunteers and groups; such as medicine kits, rescue equipment, survival kits, warning equipment, firefighting equipment, evacuation equipment (boats, transport) etc.
- m. **Building network:** Coordination and networking among all stakeholders.
- n. **Documentation:** Documenting local coping mechanisms and expertise.
- o. **Policies:** Establishing policies based on local needs.

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