Disaster damage to critical infrastructure and basic service provision

This briefing note provides information relevant to the agreement of target (iv) of the draft Post-2015 Framework for Disaster Risk Reduction (DRR) for national monitoring, which reads: [Substantially] reduce disaster damage to critical infrastructure, including health and educational facilities [by a given percentage] by 2030. Its variant (iv alt bis.) also covers basic services and points to developing their resilience.

Background and Trends

Disaster risk reduction is critical for Pakistan as 95 out of its 145 districts are exposed and vulnerable to a variety of natural hazards and disasters.

The 2005 earthquake destroyed 388 of the 796 health services in the affected area causing a multiple disease outbreak. Over 17,000 school-age children perished and about 20,000 injured in the collapsed schools. Out of 9000 schools in the earthquake affected area 4844 educational buildings were destroyed.

In July-August 2010, Pakistan experienced floods that affected 20 million people in 78 districts, killed 1800, damaged or destroyed 514 health facilities out of 9,271 health facilities across the country (5.3 percent of the total).

According to The Asia-Pacific Disaster Report 2012, the 2005 earthquake, the 2007 cyclone and the 2010 floods all affected net primary school enrolment. These events damaged education facilities – reducing the quantity and quality of education.

Flash floods, frequently occurring in mountain areas, cause serious structural damage to pump houses, storage tanks, and pipes. In Punjab and Sindh, where flooding is usually less violent but more extensive in scope and duration, the frequent floods damage electrical and mechanical components, pumping machinery, transformers, building foundations, water supply and sewerage.

In recent years, extreme heat waves has chocked the national grid causing widespread electricity breakdown.

Role of Critical Infrastructure and Basic Services

Critical infrastructure and basic services play critical role in supporting economy and communities and also responding against natural disasters to reduce their impacts (i.e., routes and bridges for evacuation and public buildings for sheltering, controlling post-disaster epidemics). Climate change has
exacerbated the frequency of extreme weather events, which pose a high risk of functional and structural failure of critical infrastructure.

Pakistan’s National DRR Policy 2013 recognizes that “strategies and plans need to define a program to promote and enforce appropriate construction norms and location requirements, and suggest eventual retrofitting activities and measures to mitigate non-structural damage as well as appropriate preparedness, operation and maintenance procedures.”

Implications for the post-2015 framework for DRR

- The use of losses in term of numbers of critical infrastructure, health and educational facilities would be inaccurate as it would not account for the factors that determine financial value of the facility. Mere counting of facilities or length of infrastructure in case of road, sewage etc., would not reflect true picture of the extent of disaster losses. Moreover, partially damaged facilities are not accurately reflected in assessments.

- A better alternative would be to set monetary value of the losses to critical infrastructure rather than numbers. The indicator based on financial value will accommodate the extent of the damage.

- To account for indirect losses, there is a need to use econometric models using area specific variables.

- Present data repositories are insufficient to allow sophisticated scenario modeling and analysis. The NDMA must take a lead to acquire and populated desegregated vulnerability and risk data through standardized reporting from subnational

Recording and Measurement

Key Challenges

- Most often, accurate data on disaster losses are not available and the limited available data only refers to direct measurable monetary losses (direct use values).

- Methodologies for monetising indirect losses are crude and are in early stage of sophistication.

- The NDMA regularly reports that the disaster losses data is incomplete, scattered across various organizations, most often inaccessible, and sometimes suffers from lack of reliability.

- Disaster damage and loss information is not systematically brought together to monitor hazard patterns, occurrence, vulnerability, magnitude and severity. These gaps limit the possibility of assessing relative impact of disaster hazards as well as any meaningful forecasting.

- The accumulated losses do not cover small-scale, highly frequent and localised disaster, and the available statistics are solely based on major disasters.

Keys Issues in setting up a baseline

There are limitations on disaster data that have been pooled so far by national and subnational agencies. Information on disaster occurrence and impact is often collected by different national and international agencies for relief fundraising rather than statistical purposes. The lack of standardized methods and definitions diminishes the ability to set an accurate baseline for monitoring disaster impact and losses.

The lack of damage reporting leads to underestimation of the true economic costs of disasters, especially for remote areas.

Sources


- DesInventar Disaster Information Management System. Available at http://www.desinventar.net/index_www.html

