（２）ガザラ・ナイーム（パキスタン）「Reconstruction Realities　In Context of Kashmir Earthquake 2005」

Reconstruction Realities

In Context of Kashmir Earthquake 2005

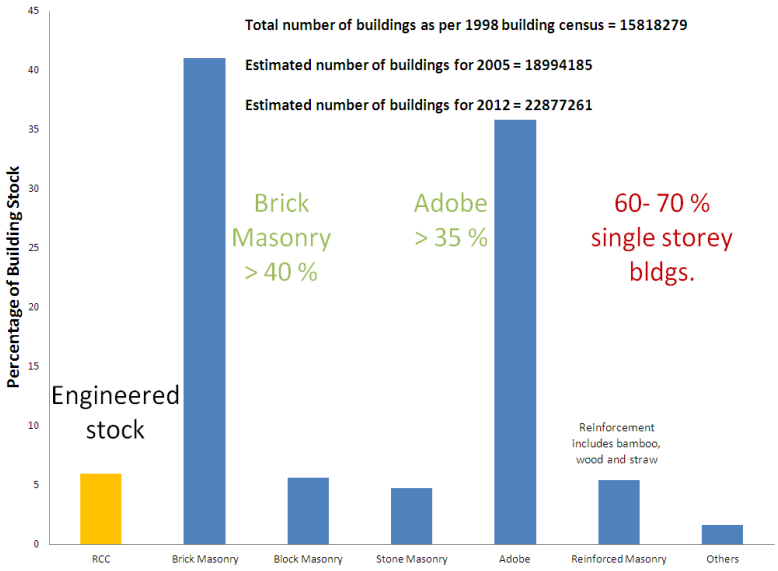
1. Background

The phrase “earthquakes do not kill people, it is the unsafe buildings which do” was found to be true during the 2005 Kashmir Earthquake.

Highly fragile built environment when shaken by the magnitude 7.6 EQ on the Richter scale, devastated 30,000 square kilometers of the area. It killed more than 73,000 people including 18000 school children. About 600,000 families were made homeless also affecting livelihood and infrastructure in nine districts of Khyber Pakhtunkhwa (KPK) and Azad Jammu and Kashmir (AJK).

Above: Aerial view of devastation caused by EQ 2005- Balakot City, KPK

Severity of the damage is attributed to the earthquake’s upthrust coupled with poor construction; built mostly as non-engineered structures without following any building code. Following chart can help understanding the typology of built environment of Pakistan.



Right: Graph shows only 5% engineered buildings whereas more than 75 % structures of load bearing brick masonry and Adobe.

Source, Pakistan Built Environment Research Project, Prof. Sarosh Lodi, NED University Karachi

Unprecedented efforts and cooperation of national and international community culminated in successful completion of relief and recovery phase, which was followed by reconstruction and rehabilitation activities.

2. Reconstruction Targets:

Apart from the huge death toll and the unprecedented number of people injured and displaced, the earthquake destroyed all essential facilities in the entire nine districts.
This mega disaster created a mammoth task to reconstruct 600,000 houses, 6298 educational facilities, 796 health units, 6440 km of road network and 50-70 % of the infrastructure (telecom, power, water and sanitation) completely destroyed.

Prior to Kashmir Earthquake 2005, no dedicated organization in the country existed to deal with the mega disasters like this one, therefore ensuing huge volume of the reconstruction challenge, an "Earthquake Reconstruction and Rehabilitation Authority" (ERRA) was constituted on 24th Oct 2005, soon after the earthquake. Although it was not an easy take off for such an infant organization with hardly any previous established mechanism and procedures in force and any human resource capacity developed to deal with such mega disasters.

After six months of the earthquake, the relief phase was declared closed, having created enabling environment for the affected population to start participating in the reconstruction and rehabilitation of their houses and physical infrastructure.

3. Sectoral Challenges and Updates:

ERRA intervened in twelve different sectors grouped under four clusters:

1. Direct Outreach to Households and Individuals[1],
2. Social Services[2],
3. Public Infrastructure[3],
4. Cross Cutting Programmes[4].

I. Housing

ERRA provided financial and technical assistance to the owners of damaged or destroyed houses for reconstructing or retrofitting, following an owner-driven approach but assisted and inspected by the construction regime.

- Mobilized Assistance and Inspection (AI) Teams for house to house outreach.
  Partner organizations were involved to constitute AI teams trained in assessments comprising of a government representative, an engineer and a social organizer.
- Provided cash grants of US $ 1667 for reconstruction of a core house of 250-400 square feet and US $ 833 for retrofitting and repair of structurally damaged house. Cash grants installments were are linked to three stages of construction and adoption of seismic safety design standards.
- Established building standards and earthquake resilient designs for non-engineered and adobe construction by improving and modification of indigenous and prevailing construction techniques.
- Technical assistance targeted at local authorities, partner organizations, contractors, masons, and home- owners covering; hazard mapping, damage and eligibility assessments, earthquake resilient construction solutions, facilitating building material markets as well as land and property related issues.
- Developed grievances redress system for house ownerships, land availability and relocation issues.

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1 Rural Housing, Livelihood and Social Protection
2 Education Health, Water and Sanitation
3 Governance, Transport, Power and Telecommunication
4 Disaster Risk Reduction, Environmental Safeguards and Gender Equality

Challenges:

- In the absence of updated ownership records/ data base of family properties, finalizing the lists of beneficiaries as per eligibility criteria and damage assessment was a huge challenge.
  Legal Aid Centers were established at district level to resolve the property ownership disputes.
- Exclusive Women Committees were established to help and support the female heads of the families to receive financial and technical assistance for reconstruction e.g. widows of the victims faced family resistance for taking cash grants.
- To meet the demand of many fold increase in construction activity in the affected area, large number of trained workers/ masons were needed; about 80% of the force required was untrained and hence trained from the scratch. To support aggregated demand and continued supply/availability of good quality construction material, material hubs were established at district level.
- Financial assistance was planned to be disbursed through banks whereas most of the people did not have any bank account. Special arrangements were made for opening of the new bank accounts and re-issuance of necessary documents to affected population.
- Relocation of the individual house to an alternate site was comparatively easy but relocating a town or a settlement posed difficulties in terms of finding alternate site as well communities' acceptance to be relocated.
- The massive reconstruction in the area resulted in tremendous pressure on the natural resources and hence deforestation was monitored and controlled with the help of satellite images.

Updates: 462546 units of rural housing were completely destroyed and 1010,091 were partially damaged. At the end of 2011, rural housing programme is near successful completion. By the end of June 2012, 92 % of the destroyed houses will be reconstructed as per ERRA guidelines leaving over 250,000 trained human resources for seismically safe non-engineered construction. Put this information in box

Master plans of urban development projects for the cities of Muzaffarabad, Bagh, Rawalakot and Balakot have been approved and Chinese firms are conducting field surveys.

Social Impact: During a survey in 2008; 88 percent responded enhanced level of confidence in their reconstructed houses. The awareness raising campaigns further enhanced the community's capacity. This prompted safer reconstruction methods and new technologies with wide inclination towards ERRA guidelines.

II. Health

Health care network was rendered paralyzed and 796 health facilities needed reconstructed or retrofitting. The required health services were being provided in makeshift arrangements

Challenges: The smaller Units were integrated into primary health care facilities out of which initially 267 were pledged by donors but later 92 facilities were dropped. Sustainability of interventions is a major challenge which needs to be addressed by the government.

Updates: 173 health facilities have been completed, 86 are under construction and 47 are at designing/ tendering stage as of Jan 2012.
However, very few health facilities are fully operational, primarily due to the lack of government's capacity to maintain and manage.

First dialysis center at AJ& K, Abbass Institute of medical sciences

Social Impact: patient's survey showed 65.5 % found the post earthquake health facilities better than before; whereas only 3.5 % of the facilities had deteriorated. A great proportion of patients felt donor/ NGO provided health facilities are better than the facilities managed by the government. 50 % were of the view that the new facilities are performing better because of the new equipment and better supply of medicine whereas 35 % considered improved construction as the reason of better health facilities.

III. Education

The Kashmir earthquake destroyed 6298 educational institutions killing more than 18000 students. Surviving teachers and students were traumatized and the objective was to bring them back to normalcy within the shortest possible time, hence tent schools were established to ensure minimum disruption of academic activities.

Challenges: Land availability was a big issue, many institution were to be relocated for reconstruction for improved facility. Government department have serious capacity limitations to operate and manage such a large number of projects spread over a vast area.

Updates: 38 % educational institutions have been reconstructed, whereas 36 % are near completion. The reconstructed universities are provided with modern state-of-the-art equipment, libraries and laboratories. The standard of seismically safe educational buildings along with modern day facilities has been an incentive to attract high enrolment and improve the standard of education. Provision of staff, operation and maintenance of completed facilities is the basic responsibility of the concerned provincial and state government which are finding it hard to cope with sustainability issues.

Social Impact: Students enrolment in schools has been significantly improved. The new enrolment in primary schools has risen to 385,00 as compared to the 200,000 . The increase in the number of students going to school reflects the restored confidence of the parents to send their children to educational institutions. 85 % students consider their institutions well equipped and safe.

IV. **Water Supply and Sanitation**

The objective is to improve community's quality of living standards with improved drinking water supply, sanitation and solid waste management.

Challenges: the scattered water sources in the rugged terrain and inadequate supply system was envisaged as a futuristic problem. However, the strategy of participatory approach, was implemented to overcome the impeding tasks i.e. reconstruction and rehabilitation of 4001 Water Supply Schemes (WSS) and 623 sanitation projects.

Updates: So far, over 84% of the physical work has been completed; whereas remaining ongoing works are at advanced stages of completion.

Social Impact: As a result of installation of water supply schemes (WSS) within the proximity of a radius of 75m compared to pre-earthquake situation, on average, a household resulted in saving one hour daily. Improved access to WSS has helped to bring the behavioral changes on hygiene and sanitation in the community.

4. Way forward

A glimpse of reconstruction and rehabilitation process and progress so far reveals unprecedented achievements by ERRA for a newly established organization with no background experience of handling disaster of this magnitude.

However, the experience also reveals that incompatible capacities of other line departments need a lot of improvement to ensure sustainability of all the "build back better" facilities and infrastructure.

The nation was caught unprepared by the Kashmir Earthquake in 2005; but the increased frequency of natural and manmade disasters within the past decades has revealed the importance of preparedness and mitigation for optimum utilization of country's scarce resources.

Diverse topographic climatic and cultural features of Pakistan coupled with varied disaster threats ranging from hydro-met to geological, demand extra ordinary care for integrating disaster risk reduction into development.

The subsequent reconstruction scenario, of 2010 and 2011 mega floods demands integration of lessons learnt from the reconstruction of EQ 2005 in addition to adapt measures to reduce carbon footprint and keeping in mind climate change adaptation strategy.

References:

1. *ERRA Annual Review 2009-10*
2. *Summary report on MZD Earthquake destruction by Ali, UET Peshawar*
3. *http://www.erra.gov.pk/*
4. *ERRA Monitoring and Evaluation Report 2010-June 2011*
5. *ERRA Social Impact Survey report 2008*