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Evaluating the Post-Disaster Situation – A Case Study of Pakistan

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Abstract

The paper enumerates the extent of damages caused to human life, infrastructures and environments. More emphasis has been made on the post earthquake 2005 scenario of Pakistan. The efforts on the part of the government for establishment of suitable organizational structural and campaign to muster resources and successful response and early relief operations are discussed at length. Then the paper focuses on importance and mechanism of Monitoring and Evaluation during re-construction phase of the disaster management. Multi-tiered monitoring, data management and analysis of various sectors including rural housing reconstruction, livelihood, social protection, health, education and WATSAN (Water and Sanitation) have been discussed. Cross cutting themes like Disaster Risk Reduction, environmental safeguards and gender equality were kept in mind while under-taking re-construction processes.

Key words: Disaster, earthquake, reconstruction, evaluation.

1 Introduction

Though Pakistan has face several shocking earthquakes in its history, but the one that took place in 2005, has become an important part of its history, in terms of the damage it caused to the entire belt. The devastation caused by the 8th October, 2005 earthquake was unprecedented. It caused enormous damages across Azad Jammu and Kashmir (AJ&K) and Khyber Pakhtunkhwah (KPK) in terms of human lives, livelihoods, shelter, infrastructure and assets. The main features of this disaster were:-

- 7.6 on the Richter scale
- 30,000 sq. km.
- 73,338 dead and 128,304 severely injured
- 3.5 million rendered homeless and 600,000 houses destroyed
- 5,808 education facilities destroyed
- 307 health facilities destroyed or partially damaged
- 715 Government sector buildings damaged
- 2,393 km of roads and 92 bridges damaged
- 4,830 water supply schemes destroyed
- Miscellaneous: Damages to environment, telecom, power, livelihood, and vulnerable populations
- Colossal economic loss leaving behind a reconstruction bill of over US $ 5 Billion

Figure 1: A Snapshot of Scale and Magnitude

The immediate challenges were the reconstruction of approximately 15,000 projects; renewal of livelihoods and mainstreaming of vulnerable population, and the protection of the environment during the rehabilitation process. Recovery is often a long, complex, and multifaceted process. Recovery of housing stock is an important component of the disaster recovery process consisting of upto 60–70 % of the overall building stock in a given community (Comerio, 1998). Recovery comprises of various actions like provision of shelters, reconstruction, rehabilitation, creation of employment opportunities, removal of debris and damage and need assessment. The purpose of recovery is to restore the community life to its pre disaster level (Shaluf 2008).The complexity of these tasks was compounded with inadequate institutional set-up available to respond to these huge tasks in an inhospitable terrain. To address the rebuilding of the physical and socio economic structure, the initial response was the establishment of the Federal Relief Commission (FRC) on 10th October, 2005 based at the Prime Minister's Secretariat. The Government of Pakistan (GoP) established the Earthquake Reconstruction and Rehabilitation Authority (ERRA) on 24th October 2005 after a preliminary damage assessment. Meanwhile, coordinated and immediate emergency relief efforts started with the support of the people of Pakistan, the Pakistan Army, United Nations Agencies, bi-lateral and multi-lateral

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development agencies and International and local non-governmental organizations (INGOs). ERRA was established as an autonomous organization at the federal level with a mission to reconstruct the lost and destroyed facilities following the highest standards with the obligation to "Build Back Better".

Only returning to pre-disaster conditions mean building back without disaster mitigation measures and not addressing the issues which can increase their vulnerability to disasters (Blaikie et al. 1994). Simultaneously the provincial and state level reconstruction and rehabilitation agencies- Provincial Earthquake Reconstruction and Rehabilitation Agency (PERRA)/ State Earthquake Reconstruction and Rehabilitation Agency (SERRA) and District Reconstruction Units (DRUs) were also established for implementation of projects and programs. The main role of ERRA is that of policy planning, financing, project approval and quality control through monitoring and evaluation. Additionally, it coordinates and facilitates implementation partners. The purpose of this research is to study the working mechanism of ERRA during response and recovery phase of 2005 Kashmir earthquake with the emphasis on it monitoring and evaluation of different projects. It alos discusses the outcome of its M & E system and its impacts on disaster mitigation of under study region.

2 Focus and Response Mechanism

Lack of post-disaster reconstruction research is one of the main factors in slow and unsustainable recovery and reconstruction of the devastated community (Mileti et al., 1975). The initial areas of focus during 2005 earthquake were on the establishment of an institutional set-up, and a Damage and Needs Assessment (DNA) of affected areas spread over 30,000 sq. km, across nine districts of AJ&K and KPK. This was followed by the preparation of umbrella sector strategies covering Housing, Education, Health, Water and Sanitation, Governance, Power, Telecommunication, Transportation, Livelihood, Social Protection; and three cross-cutting programmes, including Disaster Risk Reduction, Gender Equality, and Environmental Safeguards. The strategy of "Built Like That" was supported by seismic surveys, micro-zoning of seismically less-vulnerable areas, as well as fault line mapping. The process of institutional development was strengthened through the articulation of operational and financial procedures, supported by a management information system and database system. In addition, ERRA conducts regular capacity needs assessments of professional, management and field staff. It arranges periodic training which enhances its compatible institutional setting. Such capacity building aligns the ERRA human resources and adjusts its systems to deliver quality services and progress reporting in response to ERRA and other stakeholder's requirements. Organizational effectiveness and quality results are maintained through harmonized and interrelated (internal and external) mechanisms of institutional transparency and organizational accountability. The systems follow principles of international validation, regular monitoring and data collection, Program and financial audits, project reviews and external evaluation of the same through donors and other independent reviews. Program implementation and quality control are being ensured through the Robust Performance Measurement and Reporting System (PMRS), based upon empirical data informing a process of compliance assurance and iterative modifications to implementation by the ERRA Monitoring and Evaluation Wing.

3 Monitoring and evaluation at ERRA

3.1 Framework and Basic Principles

The aim of performance evaluation is to appraise in terms of qualitative and quantitative criteria, the completion of the subject matter (Savolainen 1999). ERRA implements a robust monitoring and evaluation (M&E) system in line with the principles of the Earthquake Monitoring and Evaluation Framework (EMEF). The EMEF was jointly developed by the ERRA M&E Wing, Government of Pakistan (GOP) and Donor's representatives. It is a tool to help ensure a coordinated comprehensive M&E system for the response to the earthquake. The framework aims to ensure that information on the reconstruction activities and outcomes are available to all stakeholders. According to World Bank report (2010), monitoring and evaluation should have process and impact evaluation as its integral parts. The basic framework builds around the core principles of robust M&E for all stakeholders; providing information for continuous learning and programme planning as well as accountability. These processes involve all stakeholders and include direct feedback from beneficiaries.

3.2 Multi-tiered Monitoring – Application of Program Logic Model

Following the "Program Logic Model" (PLM), monitoring is conducted for inputs, outputs, outcomes and impacts of ERRA specific interventions. Regular monitoring is applied in quantifying the quality of the program, assessment of the progress, identification of goals and achievements along with the challenges and lessons learnt. Technical

monitoring (input and output) is conducted by the field based Construction Monitoring Teams (CMTs) and the field based Social Survey Teams (SSTs) that carry out the social monitoring (outcome and impact). Technical monitoring provides appropriateness, relevance, quality, and compliance-related elements, and the social monitoring reports inform the management regarding extension of services as a result of completed facilities, and changes in peoples‟ lives. To ensure relevance, the social monitoring and studies are empirically based; using sample surveys to ensure regular and representative data is collected on an appropriate scale. This timely assessment of progress, quality of program, achievements and challenges provide an opportunity to donors and sponsors to view the changes in the lives of the affected population resulting from their investments in the recovery and reconstruction process. The resulting reports (output, outcome and impact) are effective instruments for timely informing iterative modifications to policies and procedures to ensure compliance in service delivery.

3.3 Data Management, Analysis and Reporting

Databases are maintained at Zonal offices and Headquarters. The data is analyzed against results statements provided in the ERRA sector strategies. These statements are elaborated through sex disaggregated key performance indicators within the Sectoral Logical Frameworks. The quantitative and qualitative analysis is conducted to demonstrate the cause and effect relationship and to measure the results statements. The observations and recommendations contained in the M&E reports are based on a combination of primary data collected by the M&E Wing, key internal stakeholder interviews, as well as secondary data from a range of sources. Efforts are being made for all reports to capture trends that show the extent to which ERRA is achieving its targets and expected results. The reports also provide recommendations for continuous 3 improvements in strategies, policies, programs and help in capturing organizational learning at all levels.

Following are the sector wise highlights which were carried out under auspices of Monitoring and Evaluation.

4 Direct Outreach Programs

4.1 Rural Housing Reconstruction Program (RHRP)

With the distribution of Rural Housing and Reconstruction Program (RHRP) grants nearly completed, more than 96% of the houses have been reconstructed in line with the ERRA approved seismic resistant designs through an owner-driven approach. To support the owner-driven approach, ERRA technical training has benefitted 256,547 individuals, which in turn facilitated the home-owners to reconstruct their houses. A proportion of these trained individuals are gradually forming into a cadre of crafts persons with knowledge of earthquake-resistant construction, adopting the newly acquired skills to supplement their source of income and thereby introducing a practice of safer construction in the affected areas.

4.2 Livelihood and Cash Grant

So far 368 Community Livelihood Rehabilitation Plans (CLRPs) have been completed and around 1,400 are at various stages of implementation. The progress covers 180 union councils and meets 95% of the targets. To restore the agriculture water channels damaged during the earthquake, 15 watersheds are being restored through a multitude of activities ranging from tree planting to constructing loose stone dams. Reconstruction of agriculture and livestock facilities remains critical to the livelihood sector. Out of the total target of 665 facilities, around 65% are either under various stages of construction or have been completed.

4.3 Social Protection

In pursuance of ERRA‟s Social Protection Strategy, the Social Welfare Complex (SWC) at District Muzaffarabad, AJ&K, has been completed and rendering services to various types of vulnerable groups since September 2008. To provide vulnerable women access to socio-economic opportunities and to enable them to effectively look after their families, a comprehensive Women Development Centre (WDC) has been completed in Muzaffarabad District. Two such WDCs are under construction and the remaining six are at various stages of planning, land acquisition, bidding etc. In addition, the social protection sector covers capacity building of Persons with Disabilities (PWDs) through Medical Rehabilitation of Persons with Disabilities in the Earthquake Affected Areas (MRDEA) programme. MRDEA has completed most of its projects and will be handed over to respective departments of KPK and AJ&K.

5 Social Services

5.1 Health

A majority of the patients using the health care facilities expressed satisfaction over the level of health services available to them. The main reasons for patients citing improved service were better health equipment, improved construction of the health facility and improved supply of medicines. Health facilities are providing services to communities in the

earthquake affected areas to ensure the full compliance of service delivery, as defined by the ERRA health strategy. The availability of appropriate equipment still requires improvement as well as ensuring that facilities have their full complement of regularly working staff. The reason for a low level of compliance with the staff complement was primarily due to staff that had not been sanctioned, followed by staff that had been sanctioned but not yet appointed. NGO funded facilities faced a larger problem with staff not being sanctioned whereas GOP facilities had a larger proportion of staff been sanctioned but not appointed. Very few health facilities have all the six required services operational all the time. Lack of trained staff was the primary reason for services not being available, although for NGO funded facilities, non- availability of spare parts was also a notable constraint.

5.2 Education

Student interviews present indicative views on the changing quality of educational services provided as a result of the reconstruction and rehabilitation. The students attending the reconstructed education facilities have better awareness due to disaster reduction training, are optimizing the newly provided science rooms and laboratories and scored the overall teachers effectiveness between good and very good. In terms of adequacy of teaching staff and training, NGO funded education facilities are relatively better. These consistently have a significantly higher ratio of currently working teachers to sanctioned teachers as opposed to GOP and donor funded education facilities. NGO funded facilities also performed better overall, and in terms of having least difference between male and female staff attendance rates. In terms of adequacy of facilities, overall, NGO funded institutions fared better than those donor and GoP funded by consistently having the highest number of required facilities being present and functional. Presence and functioning of school management committees were found to be instrumental in improving full-time availability of teaching staff and other matters related to school performance.

5.3 Water and Sanitation

n most of the cases, especially in AJ&K, the reconstructed Water Supply Schemes (WSS) are benefitting more households than the scheme was originally designed for. Beneficiary analysis shows an overall positive impact of the rehabilitation of WSS and access to water as compared to before the earthquake. Overall, there are reductions in distance and time to access the household's main drinking water source with the majority of WSS recording reductions in time and distance to the nearest main drinking water source. In line with the ERRA strategy, more than 90% of main water supply points are within 75m of all beneficiary households. With the improved access to clean water, the incidence of diarrhea showed an overall reduction after a rehabilitated or reconstructed WSS became operational. Predominantly, WSS are managed by active Water Management Committees (WMC) with good participation by their members for WSS maintenance, water management and financial management. Though females are also part of the WMC composition, their influence over management is yet to be fully realized. Common breakages and leakages of pipes with insufficient water source supplies are cited as main causes for WSS not supplying safe water most or all of the time. Unfair water distribution was also cited as one of the critical issues for WSS without regular water supply.

6 Public Infrastructure

6.1 Governance

The provision of office structures, equipment, training and vehicles greatly helped in the early restoration of the administrative system in affected areas. Through a strategy of co-locating government buildings, the total number of buildings to be reconstructed has been reduced from 949 to 692, out of which 347 have been completed whereas around 280 are under construction with the remaining being at the tendering stage. This has resulted in significant efficiencies in the reconstruction effort and improvements in ease of access to a range of government services. The co- located District Complex at Muzaffarabad has significantly improved quality of services.

6.2 Transport

The restoration of the road network created an enabling environment for reconstruction activities and enhanced economic activities in the area. The reconstruction of roads and bridges has helped return life to normalcy and restore community linkages. Currently 140 projects are completed whereas 100 are under construction and the remaining 19 are at the designing and tendering stages. Construction activities on two mega projects in District Muzaffarabad (Muzaffarabad-Chokhoti and Muzaffarabad-Neelum roads) will definitely have a huge impact on improving means of communication after their completion.

6.3 Power

The salient feature of the rehabilitation of the power infrastructure has been increased

generating capacity and improved transmission systems. In the power sector, a total of 15 projects were identified (8 in AJ&K and 7 in KPK) out of which only 8 projects have been completed so far. The remaining 7 are at design and tender stages. Upgrading the power stations has increased coverage and improved service in the area.

6.4 Telecommunications

With the permission of the Special Communication Organization (SCO) and private companies to provide mobile phone connections, there has been a substantial increase in telecommunications, with over one million connections compared with only 5,000 before the earthquake. Improvements in the SCO facilities in the shape of extended landline communications, the Wireless Local Loop (WLL) and SCO˝s Mobile Service (SCOM) have enabled wider telecom coverage in a larger area. A total of 12 exchanges (9 permanent and 3 transitional) were installed, whereas five new satellite stations were established to facilitate public communication.

7 Cross-Cutting Themes

7.1 Disaster Risk Reduction (DRR)

Disaster risk reduction is being mainstreamed in district and tehsil planning processes to prevent further build-up of risks through risk-conscious investments and activities; and to respond to disasters through effective preparedness. Disaster Management Committees and Emergency Response Teams formed in the union councils are also likely to prove effective in dealing with future disasters. The DRR program has achieved most of its set target and is likely to be completed by end of May 2011.

7.2 Environmental Safeguards

The activities included short-term interventions of solid waste management and debris removal, environmental assessments and long-term interventions of slope stabilization, and reforestation and rehabilitation of damaged forest lands. Most of the projects at various stages of implementation, work are underway to operationalise the permanent system for hospital waste management. The progress of implementation has been slow. This is attributed to negligence and marginalization by the concerned departments. However an overall performance of ERRA indicates that out of 466 total projects in the environment sector, 156 projects had been completed by the end of June 2011, which has been a remarkable progress compared to the previous year's progress.

7.3 Gender Equality

Availability of tools (i.e. sector checklists and guidelines), sex disaggregated key performance indicators, documentation of lessons learnt and best practices promoting gender equality (GE) in the context of rehabilitation and reconstruction, has resulted in increased sharing of information, comparative analysis of overall socio-economic changes in the lives of men, women, girls, boys, elderly and vulnerable groups, and enhanced linkages with key internal and external stakeholders.

8 Conclusions

Optimization of Organizational Potential - Dynamic engagement of the senior management remained a unifying factor to un-leash the organizational potential, transforming it into energy.

Organizational energy was fostered by active involvement of the ERRA senior management, which encouragement and strategic guidance of the senior management at all steps, catalyzed the process and provided much needed rigor to rejuvenate efforts.

The ERRA efforts and mechanisms are most appropriate, transparent, relevant, and effective, and according to the international applicable practices and experiences. That leads to the rigorously usage of ERRA Seismic Resistant Designs - ERRA specified construction pattern and designs for the earthquake affected areas (EQAA).

Provision of social services (health, education and WatSan) are showing positive results in terms of better social indices and enhanced community based forums for the sustained management and operation of such facilities.

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