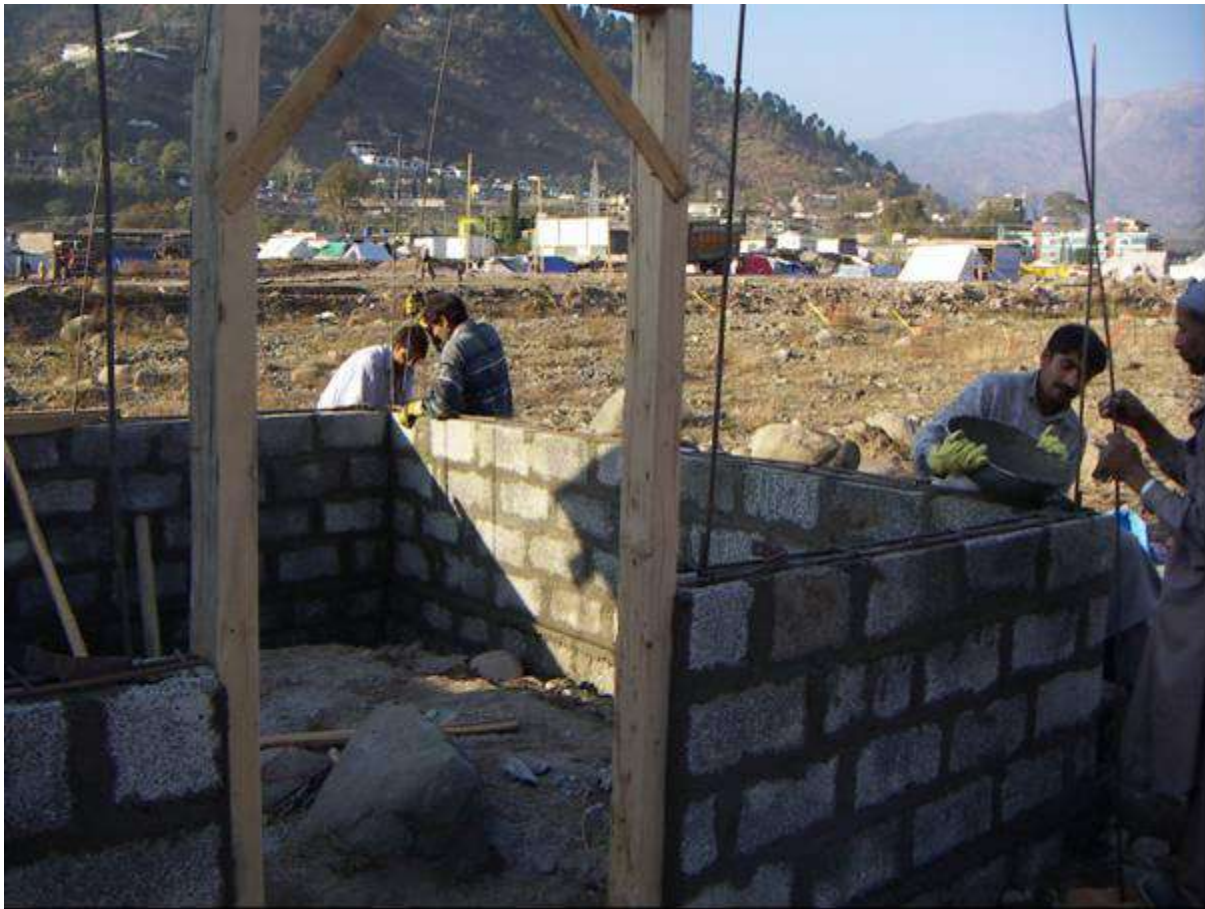




**Earthquake Reconstruction and Rehabilitation Authority
Government of Pakistan**



**ERRA - M&E Annual Report
January 2010 – June 2011
Monitoring and Evaluation Wing**

Marching On Together

Build Back Better

Earthquake Reconstruction and Rehabilitation Authority (ERRA)
Prime Minister Secretariat, Islamabad, Pakistan
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The report has been produced under the overall guidance of the Director General Monitoring and Evaluation Wing of ERRA. The evaluators, data managers, and the field staff of the M&E Wing managed and completed the process with technical advice of the Team Leader and support of the DFID-HTSPE Team for 'Support to ERRA Monitoring and Evaluation Project (SEMP)'.

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ABBREVIATIONS AND ACRONYMS

ADB	Asian Development Bank
AJ&K	Azad Jammu and Kashmir
AJ&KED	Azad Jammu and Kashmir Electricity Department
AJ&KHEB	Azad Jammu and Kashmir Hydro-Electric Board
BEGINER	Building Enabling Governance Institutions for Earthquake Response
BHU	Basic Health Unit
BISP	Benazir Income Support Programme
CBDRM	Community Based Disaster Risk Management
CBO	Community Based Organisation
CBR	Community Based Rehabilitation
CFC	Contractor's Facilities Centre
CFT	Cubic Feet
CIDA	Canadian International Development Agency
CIF	Community Investment Fund
CLRP	Community Livelihood Rehabilitation Plan
CMH	Combined Military Hospital
CMT	Construction Monitoring Team
DEWS	Disease Early Warning System
DFID	Department for International Development
DG	Director General
DHQ	District Headquarters Hospital
DNA	Damage and Needs Assessment
DRM	Disaster Risk Management
DRMP	Disaster Risk Management Programme
DRR	Disaster Risk Reduction
DRU	District Reconstruction Unit
EIA	Environmental Impact Assessment
EMEF	Earthquake Monitoring and Evaluation Framework
EPC	Environmental Protection Cell
EPI	Expanded Programme of Immunisation
EQAA	Earthquake Affected Area
ERM	Earthquake Reconstruction Monitor
ERP	Early Recovery Programme
ERRA	Earthquake Reconstruction and Rehabilitation Authority
ERT	Emergency Response Team
ESDP	Essential Services Delivery Package
FAO	Food and Agriculture Organisation
FBS	Federal Bureau of Statistics
FRC	Federal Relief Commission
GAR	Gross Attendance Ratio
GE	Gender Equality
GoP	Government of Pakistan
GPS	Global Positioning System
GRRN	Gender Reconstruction Rehabilitation Network
GTZ	German Agency for Technical Cooperation
HCG	Housing Cash Grant
HFP	Heritage Foundation of Pakistan
HIM	Hazard Indication Map
HMIS	Health Management Information System
IBR	Institution Based Rehabilitation
ICMC	International Catholic Migration Commission
IDB	Islamic Development Bank
IEC	Information, Education & Communication
IEE	Initial Environmental Examination
IESCO	Islamabad Electric Supply Corporation
IGA	Income Generating Activities
IMR	Infant Mortality Rate
IOM	International Organisation for Migration

IP	Implementing Partner
IT	Information Technology
JBIC	Japan Bank for International Cooperation
JFMP	Joint Forest Management Plan
JICA	Japan International Cooperation Agency
Km	Kilometre
KPI	Key Performance Indicators
KPK	Khyber <i>Pakhtunkhwa</i>
KVA	Kilo Volt-ampere
KW	Kilo Watt
LAC	Legal Aid Centre
LCU	Livelihood Coordination Unit
LEA	Limited Environmental Assessment
LF	Logical Framework
LG&RD	Local Government and Rural Development
LHW	Lady Health Worker
LSCG	Livelihood Cash Grant
LWC	Livelihood Working Committee
M&E	Monitoring and Evaluation
MDG	Millennium Development Goals
MMR	Maternal Mortality Rate
MNCH	Mother and Child Health
MoE	Ministry of Environment
MoH	Ministry of Health
MoU	Memorandum of Understanding
MoWD	Ministry of Women Development
MRC	Medical Rehabilitation Centres
MRDEA	Medical Rehabilitation for Disabled in the Earthquake Affected Areas
MW	Mega Watts
NAR	Net Attendance Ratio
NATO	North Atlantic Treaty Organisation
NCBR	Non-Compliant Beyond Rectification
NDMA	National Disaster Management Authority
NESPAK	National Engineering Services Pakistan
NGO	Non-Governmental Organisation
NHA	National Highway Authority
NOC	No Objection Certificate
NRM	Natural Resource Management
NUST	National University of Science and Technology
NWS	No Work Started
OPD	Outdoor Patient Department
PC -1	Planning Commission Pro forma – I
PCRWR	Pakistan Council for Research in Water Resources
PEPA	Pakistan Environmental Protection Agency
PERRA	Provincial Earthquake Reconstruction and Rehabilitation Agency
PESCO	Peshawar Electric Supply Corporation
PHB	Preservation of Heritage Building
PHED	Public Health Engineering Department
PKR	Pakistan Rupee
PLM	Programme Logic Model
PMRS	Performance Measurement and Reporting System
PO	Partner Organisation
PPAF	Pakistan Poverty Alleviation Fund
PSC	Project Steering Committee
PSLM	Pakistan Social and Living Standards Measurement Survey
PTA	Parents Teachers Association
PTCL	Pakistan Telecommunication Company Limited
PwD	Persons with Disabilities
PWD	Public Works Department
RHC	Regional/ Rural Health Centre

RHRP	Rural Housing Reconstruction Programme
RHS	Reproductive Health Service
RIC	Resource Information Centre
RLL	Rural Landless
RVLP	Rural/Virtual Landless Programme
SCO	Special Communication Organisation
SCOM	SCO's Mobile Service/ Phone
SERRA	State Earthquake Reconstruction and Rehabilitation Agency
SHYDO	<i>Sarhad</i> Hydrel Development Organisation
SIDA	Swiss International Development Agency
SMC	School Management Committee
SOP	Standard Operating Procedure
Sq. ft.	Square Feet
SST	Social Survey Team
SWC	Social Welfare Complex
TA	Technical Assistance
TAMEER	Technical Assistance for Management of Earthquake Early Recovery
TB	Tubercle Bacillus
TBA	Trained Birth Attendant
THQ	<i>Tehsil</i> Headquarters Hospital
TMA	<i>Tehsil</i> Municipal Administration
TVS	Targeted Vulnerability Survey
UC	Union Council
UCDMC	Union Council Disaster Management Committee
UCERT	Union Council Emergency Response Team
UN	United Nations
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNICEF	United Nations Children Fund
UNIFEM	United Nations Women's Fund
US \$	US Dollar
USAID	United States Agency for International Development
VDP	Village Development Plan
VLL	Virtual Landless
VO	Village Organisation
W&S	Works and Service
WAQIPH	Water Quality Improvement & Promotion of Hygiene
WatSan	Water and Sanitation
WB	The World Bank
WDC	Women Development Centre
WFP	World Food Programme
WHO	World Health Organisation
WLL	Wireless Local Loop
WMC	Water Management Committee
WO	Women Organisation
WSM	Watershed Management
WSS	Water and Sanitation Scheme
WVRC	Women Village Reconstruction Committees

EXECUTIVE SUMMARY

1. Background

The ERRA Annual Monitoring and Evaluation (M&E) Report 2010 reviews the progress made by the organisation from January 2010 to June 2011 and consolidates the progress over the last five years. The report covers all the ERRA sectors grouped under four clusters; Direct Outreach to Households and Individuals¹, Social Services², Public Infrastructure³ and Cross-cutting Programmes⁴.

The report summarises assessments conducted across the Programme Logic Model⁵ by the ERRA M&E Wing, focus group interactions and other secondary data sources. Aspects related to inputs, processes, and outputs are covered through 'construction monitoring', whereas socio-economic development aspects are captured through facilities and beneficiaries' surveys. The empirical basis for outcome and impact level analyses come largely from the 5th outcome survey and FBS-PSLM time series analysis 2004-5, 2006-7, and 2008-9, at household level, respectively.

For ease of reference, the report is structured cluster wise with each sector presented within its parent cluster. Each sector's observations and conclusion, recommendations and lessons learnt are presented at the end of the chapter.

2. Summary of Important Points and Key Findings

Key findings of the report are:

3. Direct Outreach Programmes

3.1 Rural Housing Reconstruction Programme (RHRP)

With the distribution of Rural Housing and Reconstruction Programme (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.

3.2 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.

3.3 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

¹ Rural Housing, Livelihood and Social Protection

² Education, Health and Water and Sanitation

³ Governance, Transport, Power and Telecommunication

⁴ Disaster Risk Reduction, Environmental Safeguards, and Gender Equality

⁵ Inputs, Outputs, Outcomes and Impacts

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.

4. Social Services

4.1 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.

4.2 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 optimising the newly provided science rooms and laboratories and scored the overall teacher's 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.

4.3 Water and Sanitation

In 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 diarrhoea 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 realised.

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.

5. Public Infrastructure

5.1 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.

5.2 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.

5.2 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.

5.3 Telecommunications

With the permission of the Special Communication Organisation (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.

6. Cross-cutting Programmes

6.1 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 programme has achieved most of its set target and is likely to be completed by end of May 2011.

6.2 Environmental Safeguards

The activities included short-term interventions of solid waste management and debris removal, environmental assessments and long-term interventions of slope stabilisation, 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 marginalisation 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.

6.3 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.

7. Overall Conclusions

7.1 Institutional Achievements

Optimisation of Organisational Potential - Dynamic engagement of the senior management remained a unifying factor to un-leash the organisational potential, transforming it into energy. It catalysed the process, harmonised the efforts, maintained the quality control, and boosted the rhythm and team spirit. Being a hybrid organisation, its human resource pool comprises personnel with varied background and sectors.

Organisational energy was fostered by active involvement of the ERRA senior management, which encouraged the team and maintained the momentum at times when achievement of targets seemed very difficult. Such encouragement and strategic guidance of the senior management at all steps catalysed the process and provided much needed rigour to rejuvenate efforts.

It is the dynamism and engagement of the leadership that generated positive energy among the coordinating teams to eventually realise the target as scheduled.

External Validation by Practitioners and Partners - Validation of ERRA approaches by national and international subject matter specialists and confirmation of existing programme and implementation frameworks vis. management and academic models, demonstrated the trust and confidence on the transparency and delivery mechanisms by the partner organisations and ownership of sectoral results and achievements by the sponsors and donors. During the international conference in 2010, almost all the presentations and discussions testified ERRA efforts and mechanisms as most appropriate, relevant, and effective vis-a-vis international applicable practices and experiences in similar settings and academic models. Data available on the ERRA website and in the M&E reports is quoted to establish the correlations and reinforce the arguments. Such references acknowledge ERRA's efforts towards transparency and accountability, as well as its contribution to form a knowledge body.

7.2 Sectoral Achievements

Use of ERRA Seismic Resistant Designs - ERRA specified construction pattern and designs for RHRP are rigorously being followed in the earthquake affected areas (EQAA). Wider dissemination of housing programme's success and lessons learnt at national and international levels is essential to ensure replication outside the earthquake affected areas and beyond RHRP.

Improved Livelihoods and Social Protection - ERRA's efforts are helping to improve the lives of the vulnerable people in the earthquake affected areas by increasing income generation opportunities. These initiatives are also facilitating establishment of linkages of the affected community with various government and non-government organisations, creating new windows of opportunities while protecting the legal rights of the vulnerable members.

Enhanced Delivery of Social Services - 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. However, availability of full staff complement, and complete functioning of facilities and extension of services as per ERRA requirements still needs attention.

Restoration and Reconstruction of Infrastructure - Restoration and rehabilitation of critical infrastructure has resulted in improved connectivity, increase in pace and scale of construction activities, and improved business opportunities. Better access to market and improved means of communication were quoted as the two major factors for improved business opportunities, which are a direct result of restored roads and bridges. Simultaneously, the demand for construction labour to carry out the required civil works helped support the restoration of local livelihoods.

1. INTRODUCTION

Earthquake 2005 – The Challenges and Establishment of Earthquake Reconstruction and Rehabilitation Authority (ERRA)

The devastation caused by the 8th October, 2005 earthquake was unprecedented. It caused enormous damage across Azad Jammu and Kashmir (AJ&K) and Khyber *Pakhtunkhwa* (KPK) in terms of human lives, livelihoods, shelter, infrastructure and assets.

The immediate challenges were the reconstruction of approximately 13,000 projects; renewal of livelihoods and mainstreaming of vulnerable population, and the protection of the environment during the rehabilitation process. The complexity of these tasks was compounded with inadequate institutional set-up available to respond to these huge tasks in an inhospitable terrain.

Figure 1.1 A Snapshot of Scale and Magnitude

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 development agencies and International and local non-governmental organisations (INGOs).

- 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

ERRA was established as an autonomous organisation 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". 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 programmes.

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.

Focus and Response Mechanism

The initial areas of focus 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 stakeholders' requirements.

Organisational effectiveness and quality results are maintained through harmonised and interrelated (internal and external) mechanisms of institutional transparency and organisational accountability. The systems follow principles of international validation, regular monitoring and data collection, programme and financial audits, project reviews and external evaluation of the same through donors and other independent reviews.

Programme 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.

1.1 MONITORING AND EVALUATION AT ERRA

1.1.1 Framework and Basic Principles

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 Donors' 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.

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.

1.1.2 Multi-tiered Monitoring – Application of Programme Logic Model

Following the 'Programme 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 programmes, 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 programmes, 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.

1.1.3 Data Management, Analysis and Reporting

Databases are maintained at Zonal offices and Headquarters. The data is analysed 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

improvements in strategies, policies, programmes and help in capturing organisational learning at all levels.

2. METHODOLOGY

2.1 ERRA MONITORING AND EVALUATION REPORT 2010

2.1.1 Methodology

This 'ERRA Monitoring and Evaluation Report – 2010' covers the period between January 2010 through to June 2011. Through a combination of primary and secondary data and information, it provides a holistic picture of the reconstruction and rehabilitation related progress made by ERRA and its partners during the year. One output survey and one impact level time series FBS-PSLM (Federal Bureau of Statistics- Pakistan Social and Living Standards Measurement) analysis (**Annex 1**) is the major empirical basis for understanding the level of service delivery from rehabilitated facilities and the impact on the population's lives and livelihoods of the entire reconstruction effort. These results are presented in the Outcome (Facility and Beneficiary survey) Report, and in the Social Impact Assessment (Household Survey) Report of FBS-PSLM data. These are then combined with the construction monitoring reports, case studies and secondary information once a year to form an Annual M&E Report. Since it is a consolidated M&E annual report, it therefore captures the key summary of previous progress and lessons learnt over the last five years. The report focuses on observations, recommendations and lessons learnt. Policy recommendations for improvements are provided to senior decision-making management in ERRA, while taking into account donor feedback.

This report consolidates technical monitoring and social assessments across inputs, outputs, outcomes and impacts. The construction monitoring data provide a basis for assessing, relevance, quality, and compliance-related aspects of the physical reconstruction, whereas the social analyses provide insights on the effectiveness of interventions in changing lives and livelihoods in the earthquake affected areas. The Director of Evaluation at the M&E headquarters coordinates the technical monitoring through the zonal offices at Muzaffarabad and Abbottabad. Technical monitoring is conducted for all the under-construction projects by teams of engineers across all of the earthquake affected districts. The technical reports are compiled on a weekly basis, and are shared with the stakeholders to monitor compliance and inform remedial action where required.

Outcome level monitoring was used and conducted through sample surveys of the completed projects in the sectors of Education, Water and Sanitation, and Health. During 2010, only the 5th outcome survey was conducted. Outcome surveys are conducted to gauge the adequacy of service and functioning of staff, availability and use of equipment and extension of services; and the satisfaction level of the beneficiaries of each facility. The survey tools (questionnaires) are designed to be in line with sector strategies and logical frameworks.

In this year's report, the impact analysis is solely upon FBS PSLM district level data from 2004-05, 2006-07 and 2008-09. The FBS in 2004, initiated a series of PSLM surveys which included a short questionnaire with sample size to produce district representative estimates data every two years. The survey was also enumerated in AJ&K, apparently this was done so with a lower sampling intensity. Unfortunately, despite requests from ERRA, AJ&K micro-data was neither provided to ERRA nor publicly available, and there are no results from AJ&K published in the survey reports. Therefore, this impact analysis using PSLM district data is limited to KPK only.

The pre-earthquake enumeration in the KPK earthquake affected districts took place between 14th January and 15th May 2005. This resulted in district level representative data on, among other things, livelihoods, access to education and health services between 6 and 11 months prior the earthquake, providing rural-urban district level representative data just before the earthquake, providing an excellent baseline on which to monitor the impact of the earthquake and subsequent recovery of livelihoods.

2.2 STRUCTURE OF THE REPORT AND SECTOR ANALYSES

The report covers all ERRA's sectors, combined in the following four clusters:

Direct Outreach to Households and Individuals: Rural Housing, Social Protection, Livelihood

Social Services:	Education, Health, Water and Sanitation (WatSan)
Public Infrastructure:	Transport, Power, Telecommunication, Governance
Cross-cutting Programmes:	Disaster Risk Reduction, Environmental Safeguards and Gender Equality

The individual chapters present sector achievements in terms of immediate results and outcomes. Where applicable, the performance analyses follow the development assistance criteria (DAC) and results are presented around accomplishments and impact.

The report adheres to applicable practices of data quality and analysis, and follows a process of peer review, which incorporates comments and suggestions by the 'EERA Core Group', and senior ERRA Management.

3. RURAL HOUSING

3.1 INTRODUCTION

3.1.1 Background

The housing infrastructure was severely damaged due to the earthquake in the affected districts of AJ&K and KPK. Widespread use of non-seismic conventional house construction designs in earthquake-hit areas, coupled with the location of houses in hazardous areas, resulted in large scale damage and destruction of private houses in the nine earthquake affected districts of AJ&K and KPK. Absence of beams/ columns to support the weight of the house, the use of inadequate material in the construction and establishment of houses in slide-prone areas were some of the contributing factors to the scale of the destruction. This resulted in the loss of personal belongings, land and assets, in addition to the housing itself. During the initial DNA Survey⁶, the total number of houses affected due to the earthquake was estimated at 611,059. This can be broken down in the following way:

Category of Damage	Estimated houses
Completely Destroyed	463,243
Partially Damaged	101,091
Minor Damage	46,725
Total Household Surveyed	611,059

Immediate relief and rescue operations were launched soon after the earthquake. However, a sustainable and effective implementation strategy was required for the provision of shelter to the earthquake affected community. As a result, the Rural Housing Reconstruction Programme (RHRP) was launched, which was based on an 'owner-driven approach' towards the construction of houses. Based on the geographical, environmental and physical conditions prevailing in the area, house designs were approved and affected community members were trained and funded to follow the suggested seismic resistant designs to reconstruct houses that would be much more resistant to collapse, should there be another earthquake.

3.2 STRATEGIC APPROACH

3.2.1 Vision

The Rural Housing Reconstruction Programme (RHRP) is guided by the overarching principle of 'Build Back Better' through "an owner-driven, assisted and inspected reconstruction regime supported by community mobilisation⁷. Seismically resistant housing reconstruction and rehabilitation, and inculcation of a culture of voluntary seismic compliance in the affected districts of KPK and AJ&K are the envisaged outcomes".

3.2.2 Objectives and Strategic Approach

The main objectives of ERRA's Rural Housing Reconstruction Programme are to:

- Reconstruct damaged or destroyed houses by using earthquake resistant techniques through cash grants provided to eligible households, in the earthquake affected areas;
- Rebuild houses as per seismic resistant standards for rehabilitation of peoples' lives, enhancement of their skills and capacity, and strengthened social capital.

The following Strategic Approach was followed to successfully implement the RHRP:

- Ensuring owner-driven housing reconstruction where home-owners are in charge of rebuilding their homes
- Assisted and inspected reconstruction and retrofitting
- Ensuring seismic resistant construction
- Ensuring uniform assistance packages across all programmes and funding sources, maximising outreach through optimised designs and implementation mechanisms

⁶ Damage and Needs Assessment Survey conducted by the World Bank and Asian Development Bank on November 15, 2005

⁷ ERRA Housing Strategy, March 2006

- Ensuring judicious use of grants, reducing and managing conflicts and grievances, minimising socio-economic distortions, inequities and disparities

3.2.3 Implementation Methodology

The Rural Housing Reconstruction Programme is targeted to provide financial and technical assistance to earthquake affected home-owners in both KPK and AJ&K in reconstructing and retrofitting their damaged houses, using a home-owner driven, assisted and inspected construction regime.⁸ Sub-components of this principle cover the operational measures necessary to ensure appropriate pace of construction while ensuring seismic safety. These include:

- Housing Grants:** Financial assistance is aimed to facilitate the owners of both *katcha* and *pucca*⁹ houses, by disbursing money, directly into the accounts of eligible beneficiaries, with the condition that the houses are constructed in compliance with ERRA standards, with a 'core house' between 250 to 400 square feet. Below is a breakdown showing how the financial assistance was disbursed.

For destroyed houses or houses with structural damage beyond economic repair, an initial payment of PKR 25,000 was provided to cover immediate shelter needs. The balance of PKR 150,000 was provided for permanent house construction. These payments were made in three instalments:

- PKR 75,000 for mobilisation;
- PKR 25,000 upon completion of plinth level;
- PKR 50,000 upon completion of the walls.

For structurally damaged houses within economic repair, an initial payment of PKR 25,000 was made to cover immediate shelter needs, while only one instalment of PKR 50,000 was paid for restoration and/or retrofitting.

- Technical Assistance:** Technical assistance is targeted at local authorities and partner organisations in the implementation of rural housing strategy, covering:
 - Hazard risk mapping;
 - Damage and eligibility assessment;
 - Earthquake-resistant housing solutions;
 - Facilitating building material market;
 - Land and property-related issues.
- Capacity Building:** Capacity building was ensured through formal and informal trainings, as well as information dissemination campaigns in the following areas:
 - ERRA policies and procedures;
 - Social mobilisation;
 - Specialised modules on land adjudication, relocation and re-planning;
 - Environmental degradation reduction;
 - Housing reconstruction training;
 - Skilled labour training;
 - Compliance training.

3.3 ACHIEVEMENTS IN TERMS OF OUTPUTS AND OUTCOMES

3.3.1 Cash Disbursement

A year wise progress of distributed tranches in the table above provides a comprehensive statistical detail of the instalment delivered to the earthquake affected communities. First and second tranches were successfully disbursed in the initial 2 years ending 2008. More than 90% of the 3rd and 4th tranches have been disbursed in the current year. The fourth and final payment percentage is likely to improve as a few cases are delayed due to a variety of reasons, including relocation from hazardous sites, land issues and construction non-compliance. Based on the tranche distribution, most housing

⁸ ERRA Rural Housing Strategy, March 2006

⁹ *Katcha* is a non-permanent house and *Pucca* is a permanent house.

construction has been completed and the remaining is about to be completed as indicated in the below table 3.1.

Table 3.1 Tranche Wise Distribution and Status¹⁰

Tranche	Rs. In Billion	Beneficiaries	% age		
	(ERRA+PPAF)	(ERRA+PPAF)	ERRA	PPAF	ERRA+ PPAF
	Present	Present			
2nd Tranche of Rs.75,000 for initiation of work	39.97	566,719	100.00	100.00	100.00
3rd Tranche of Rs.25,000 On Completion of Plinth	10.95	437,845	99.32	99.93	99.63
4th Tranche of Rs. 50,000 On completion of Lintel	20.98	419,509	96.19	93.58	94.89
Total	71.89				

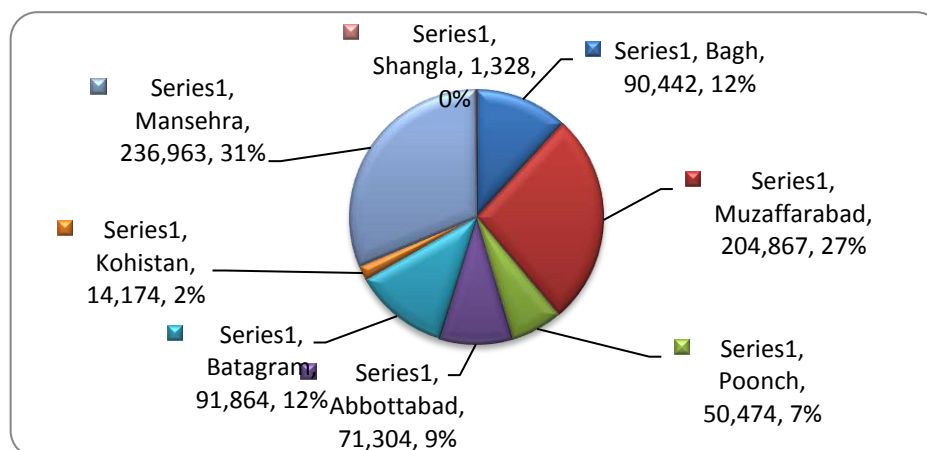
Table 3.2 Status of Housing Construction

Status	December 2009	December 2010	% December 2010
Construction Completed	417,672	419,509	96.14
Under Construction	18,326	16,862	3.86
No work started at all	26,879	26,757	5.16
Total	462,877	463,128	100

3.3.2 Training and Capacity Building

The RHRP follows an owner-driven approach, allowing the home-owners to construct their own houses. For this purpose, various trainings have been held to build a cadre of skilled individuals in the earthquake affected areas. These trainings facilitated the home-owners to not only construct their houses, but also to utilise these skills for income generation. Technical training has benefitted 256,547 individuals whereas social mobilisation training has benefitted 504,897 individuals.

A summary of training in each district is shown in Figure 3.1:



Mansehra followed by Muzaffarabad are leading in terms of providing training with 31% and 27% respectively. In Kohistan only 2% people have been trained which is the lowest number compared to rest of the districts.

These individuals can adopt these skills as their permanent source of income and help create an earthquake-resistant construction culture in the affected areas of both AJ&K and KPK. Therefore, trainings by ERRA in this domain have been both relevant as well as effective, as over 96% of the affected houses are now following ERRA approved construction techniques.

3.4 ACCOMPLISHMENTS AND IMPACT

¹⁰ ERRA Sectoral Updated on January 1, 2011

The success of the housing sector is acknowledged by the international community and donors as one of the more dynamic sectors and is considered to be an accomplishment of ERRA. Achievements in the housing sector include over 96% rebuilding/repair completion, over Rs: 72 billion disbursed among homeowners for reconstruction, 96% rebuilt/repair homes compliant with seismic-resistance and other standards, creating a pool of skilled labour and the empowerment of women, promoted through the provision of house reconstruction grants and capacity building.

Distribution of the housing compensations helped quake effected communities to reconstruct shelter, the most important need besides food and water. The trench-wise disbursement system was an outstanding initiative which ought to be followed in other areas experiencing catastrophes such as the floods in Pakistan.

Mr. Rune Stroem, Country Director, Asian Development Bank (ADB) while appreciating and commending ERRA's initiatives said, "ERRA's success was due to the commitment of its leadership and staff and its ability to learn and adapt". Furthermore, he indicated the reason behind the success was that "the decision to put people in charge of rebuilding their homes as one that had paid off – both in terms of getting homes rebuilt and in building back safer"¹¹.

Acknowledging the effectiveness and efficiency of ERRA, the head of the World Bank expressed satisfaction at the achievements and progress made in reconstruction, and specifically applauded the focus on addressing needs of vulnerable groups, ensuring stakeholder participation, and the strong lead provided by the Government¹².

3.5 OBSERVATIONS AND CONCLUSIONS

- Comprehensive and focused strategy for housing provided clearer direction and targets, with strategies for effective and long-lasting rehabilitation and reconstruction efforts.
- Provision of timely information sharing, capacity building interventions and involvement of beneficiaries from the very outset ensures the promotion and application of seismically resistant construction, but there is evidence that an earlier public information campaign could have resulted in even greater impact on the types of private post-earthquake reconstruction.
- Reinforcement of the media campaign in order to keep the communication channel open with the people and informing the stakeholder about the continuous usage of ERRA's approved housing design.
- Wider dissemination of the housing programme successes and lessons learnt at national and international levels to ensure its replication and acknowledgement as a best practice programme.

3.6 RECOMMENDATIONS

- Ensuring that houses are passed by the inspection teams based on the seismic compliance criteria and not on comparative compliance or anticipatory compliance. In order to achieve that, ERRA wrote off¹³ Non-Compliant beyond Rectification (NCBR) cases and No Work Started (NWS) cases so that inspection teams do not get influenced by them and start certifying the non-compliant houses.
- Devise a strategy for effective sharing of the housing model of ERRA with stakeholders at local and international levels for replication, particularly in case of flood affected communities of Pakistan.

3.7 LESSONS LEARNT

¹¹ ERRA International Conference "Converting Adversity into Opportunity: Learning from Experiences in Reconstruction and Rehabilitation for Rebuilding Lives and Communities after Disasters, 19-21 April 2010

¹² ERRA International Conference "Converting Adversity into Opportunity: Learning from Experiences in Reconstruction and Rehabilitation for Rebuilding Lives and Communities after Disasters, 19-21 April 2010

¹³ Means omitted of the ERRA list of houses.

- There is potential for even fuller compliance with the rural housing reconstruction programme, and this issue should be investigated by the ERRA monitoring and evaluation department as part of the rural housing completion report.
- Having a dedicated, dynamic, hybrid organisational structure; ensuring stakeholder involvement; complementing 'brick and mortar' projects with 'soft' activities; carrying out owner driven housing construction.
- Well established grievance redress system increases the level of confidence among affected community.
- Sustained awareness-raising efforts should be made to ensure home construction is in compliance with safety standards and for those failing to comply, additional technical support should be provided to encourage them to do so.
- Flexibility in design and implementation is more effective than a one size fits all approach; use of local practices in construction techniques and solutions ensures ready acceptance and adoption;
- Community participation and an owner driven approach enabled the large majority of the quake affected communities to have better and safer house as compared to pre-earthquake scenario.

4. LIVELIHOOD

4.1 INTRODUCTION

4.1.1 Background

Besides causing damage to the lives of people, the earthquake of 2005 directly and indirectly damaged the livelihoods of the community. Harvested and standing crops, fruit trees, livestock, animal feed and sheds, inputs and grain storage, irrigation infrastructure, field terraces and extensions and research buildings were damaged. Besides the direct damages, the earthquake also affected the communities of the affected area in the form of job and income losses. It was estimated that around 324,000 jobs (29% of the employed population) were lost by the earthquake. The largest job losses were in agriculture, small businesses/shops and construction.¹⁴

The communities in both the affected regions i.e. AJ&K and the KPK had subsistence agriculture with a mix of crop production, fruit and vegetable production and livestock rearing. According to the Preliminary DNA¹⁵, direct damage to the agriculture sector was estimated at a cost of Rs. 13,257 million (US \$ 223.2 million).

A range of multiple and immediate interventions under the ERRA-UN Early Recovery Programme (ERP) i.e. distribution of basic agriculture inputs, cash-for-work, food-for-work to repair the field terraces, capacity building, livestock restocking, feed and animal shelter provision, poultry distribution, enabled the community to rehabilitate and revitalise the agriculture in the affected area. For a long term and sustainable livelihood rehabilitation, a strategy was formulated covering all aspects of livelihoods. The strategy is based on sustainable livelihood principles leading towards outcomes in the form of restored/increased income, increased wellbeing, reduced vulnerability, improved food security and more sustainable use of the natural resource base.

All these damages needed attention and remedial measures towards immediate recovery of livelihoods on an emergent basis as well as focussing on sustainable livelihoods for vulnerable groups.

4.2 STRATEGIC APPROACH

4.2.1 Vision

The vision for the livelihood rehabilitation process is “a revitalised and strengthened livelihood support system with an inclusive community based approach”¹⁶

4.2.2 Objectives

The livelihood rehabilitation strategy has four key objectives:

- To restore the livelihoods of the earthquake affected population to at least pre earthquake conditions.
- To effectively coordinate the livelihood rehabilitation activities in the earthquake affected areas, preventing duplication of activities and ensuring equitable coverage by implementing agencies
- To strengthen community based organisations (CBOs) and committees in planning, implementing, monitoring and evaluating ‘community livelihood rehabilitation plans’ (CLRPs).
- To restore and enhance the capacities and capabilities of livelihood related line departments.

4.2.3 Implementation Methodology

With the involvement of line departments, NGOs and CBOs, the ERRA strategy is being implemented over a period of three years (2007-2009). In order to ensure effective coordination system Livelihood

¹⁴ Preliminary Damage and Needs Assessment by the World Bank and Asian Development Bank November 2005

¹⁵ Prepared by the World Bank and Asian Development Bank November 2005

¹⁶ ERRA Livelihood Rehabilitation Strategy

Coordination Units (LCUs) and Livelihood Working Committees (LWCs) at DRU, PERRA and SERRA level are established. The Livelihood Working Committee established by LCU comprises the line departments, NGOs and INGOs for the identification of the implementing partners to provide technical assistance to the communities bringing forward their prioritised needs in the form of Community Livelihood Rehabilitation Plans (CLRPs). Community Investment funds have been established by ERRA to support the implementation of the CLRPs in at least 185 union councils of affected districts. Each union council is provided with PKR 7.5 million for the implementation of the consolidated CLRPs at the UC level. Monthly meetings of LWCs facilitate the stakeholders in avoiding duplication and overlapping of activities and also encourage sharing of experiences and lessons learnt.

The watershed component promotes a holistic approach to natural resource management with active participation of the communities residing in the selected watershed areas. Together with the line departments, the watershed management facilitators in both AJ&K and KPK have overall responsibility for the implementation of the watershed management interventions.

Forest departments of AJ&K and KPK have the overall responsibility of implementing the watershed component of the livelihood rehabilitation strategy. Implementation is being made by the forest departments through the divisional forest offices. The watershed committees in the downstream areas are envisaged to play a key role in developing Watershed Management Plans of the selected watersheds based on the existing Village Development Plans (VDPs) and Joint Forest Management Plans (JFMPs).

4.3 ACHIEVEMENTS IN TERMS OF OUTPUT AND OUTCOMES

During the Early Recovery/Relief Period ERRA took the following emergency measures for the quick recovery of livelihoods, in all the nine EQ affected districts:

Short Term/Emergency Measures:

4.3.1 Livelihood Support Cash Grant Programme (LSCG)

This programme was designed to immediately meet the non-food item needs of families over a limited period. 290,210 eligible families in all the nine EQ affected districts were paid an amount of Pak Rs.3000/- per month, for six months totalling approximately Pak Rs.5.224 billion.. The programme was further extended for six months to provide livelihoods support to the 22,807 female headed families, totalling approximately Pak Rs.0.411 billion.

During the Initial Cash Grant Assistance Phase (starting May 2006) 26.63%, female-headed families benefitted. Moreover, the Extended Cash Grant Assistance Phase (ending October 2007) benefitted female-headed vulnerable families, increasing female beneficiaries to 32.40% of the total programme. Although the majority of the beneficiaries used the cash grant for food items the intervention developed a sense of security among the vulnerable community who were prone to extreme vulnerability due to the earthquake.

Table 4.1 Cash Grant Assistant – Initial and Extended Phase (May 2006 to Oct 2007):

A-Initial Cash Grant Assistance-Starting May 2006						
Province/State	Total Beneficiaries	Gender				Total %
		Male	%age	Female	%age	
KPK	134,211	103,845	77.37%	30,366	22.63%	100%
AJ&K	133,192	92,341	69.33%	40,851	30.67%	100%
Sub Total:	267,403	196,186	73.37%	71,217	26.63%	100%
B-Extended Cash Grant Assistance-Ending October 2007						
Province/State	Total Beneficiaries	Gender				Total %
		Male	%age	Female	%age	
KPK	8,357	-	-	8,357	100%	100%

AJ&K	14,270	-	-	14,270	100%	100%
Sub Total:	22,807	-	-	22,807	100%	100%
Grand Total:	290,210	196,186	67.60%	94,024	32.40%	100%

4.3.2 ELRP Programme

The overall target of this programme was 100,000 beneficiaries receiving a total of Pak Rs.3.000 billion. It was targeted to provide soft loans of Pak Rs.15,000/- per beneficiary (Rs.3,000 as soft loan and Rs.12,000 as grant) to 28,000 families in the first year of the programme (2006-07) where as the second (2007-08) and third year (2008-09) targets were 41,000 and 31,000 beneficiaries, respectively. Before the end of the ELRP Programme by June 2009, a total of approximately Pak. Rs. 1.080 billion had been extended to 72,019 beneficiaries/families, out of which 32.40%_beneficiary families were female headed.

Table 4.2 ELRP Programme progress as of June 30, 2009 Rs. in millions

Province/ State	District	Total No of Beneficiaries	Amount of Loans (20%)	Amount of Grants (80%)	Total 100%	No of Clients				
						Males	%age	Females	%age	Total %
KPK	Abbottabad	15,217	45.651	182.604	228.255	9,421	61.91%	5,796	38.09%	100%
	Battagram	5,571	16.713	66.852	83.565	5,564	99.87%	7	0.13%	100%
	Kohistan	2,822	8.466	33.864	42.330	2,819	99.89%	3	0.11%	100%
	Mansehra	16,422	49.266	197.064	246.330	13,453	81.92%	2,969	18.08%	100%
	Shangla	4,627	13.881	55.524	69.405	4,624	99.94%	3	0.06%	100%
Sub Total:		44,659	133.977	535.908	669.885	35,881	80.34%	8,778	19.66%	100%
AJ&K	Bagh	4,174	12.522	50.088	62.610	2,755	66.00%	1,419	34.00%	100%
	Muzaffarabad	13,912	41.736	166.944	208.680	6,569	47.22%	7,343	52.78%	100%
	Neelum	2,546	7.638	30.552	38.190	1,046	41.08%	1,500	58.92%	100%
	Poonch	6,728	20.184	80.736	100.920	2,557	38.01%	4,171	61.99%	100%
Sub Total:		27,360	82.080	328.320	410.400	12,927	47.25%	14,433	52.75%	100%
Grand Total:		72,019	216.057	864.228	1080.285	48,808	67.77%	23,211	32.23%	100%

4.3.3 Assistance by UN/NGOs/INGOs

UN agencies and NGOs have provided a range of assistance including; food, cash for work, animal shelters, seeds, agriculture tools and fertiliser. NGOs are also providing vocational training to enable people, particularly the widows/vulnerable women, to restore their capabilities. Most of the livelihood programmes were launched under UN-ERRA-Early Recovery Programme (ERP). All these programmes were properly utilised by the EQ affected people and caused positive results.

4.3.3.1 Livestock Support Scheme

This scheme was extended for the rural EQ affected people, through various NGOs as well as IPs of ERRA. A large number of oxen, cows, bulls, buffalos, sheep/goats and poultry birds were distributed among the needy people in all the nine EQ affected districts. The small animals and poultry birds, arranged from warm areas of Pakistan, couldn't survive the winter season. However other, larger livestock survived and contributed to livelihoods by way of providing fresh milk and ploughing the fields. Certain animals, especially the bulls, are used for breeding purposes.

4.3.3.2 Vocational Training Programme

The NGOs/INGOs also took immediate steps towards the revival of education, especially vocational education for women through the establishment of vocational training centres, scattered throughout the EQ affected area. The women produced excellent results in AJ&K as compared to KPK and have become an earning hand within their families. Due to the extreme potential showed by the woman clan (both in urban and rural areas) such vocational training centres have also become one of the major interventions of the CLRP.

4.3.3.3 Agro Support Programme

The NGOs/INGOs also provided seeds to the small farmers. They also helped them financially with the rehabilitation of small-scale agriculture land for kitchen gardening and a series of awareness campaigns were also launched. Moreover, sets of necessary tools were also distributed among the farmers.

Despite the fact that seeds provided by the NGO's could not fully produce successful results, the kitchen gardening produced good results and this is now becoming a permanent source of livelihood in the EQ affected areas. All these efforts towards the quick recovery of livelihoods during the relief period proved worthy and helped the rural EQ affected people towards improvement of their livelihood, in an extremely short time period.

All the short term interventions were proved as a stimulus in reviving hopes and confidence in the capabilities of the affected communities to counter adverse impacts of the earthquake. These emergent short term interventions were launched initially from the first day of disaster i.e. from October 2005 to 2010. Such interventions brought fruitful results which were shown later and evident from the responsibilities owned by the communities during long term interventions. Through participatory approaches, beneficiaries always welcome the interventions and were involved in all stages of the project activities i.e. planning, implementation, monitoring and evaluation and sustainability.

Long Term/Sustainable Measures:

ERRA, as per its livelihood strategy, has devised long-term plans for the development of livelihoods and has undertaken the following measures for the complete recovery and sustainability of livelihoods among all nine EQ affected districts:

4.3.4 Community Livelihood Rehabilitation Plan (CLRP)

These are the integrated livelihood support (rehabilitation and development) programmes for Union Councils (UCs) starting right from the village level. A maximum of ten interventions (assessed by the villagers on need basis), each worth a maximum of Pak Rs. 0.750 million, are made in various villages of a UC, totalling Pak Rs.7.500 million and with the community's share up to 10% (in the form of an arrangement of land/building/labour).

Right from the beginning, the CLRP contains a bottom-up approach i.e. the assessment for the needed interventions is made through the CBO at the village level. The plan/requirement is then passed-on to any of the ERRA'S IP, approved by the LWC of the concerned district. After getting the approval of the CLRP by LWC and District Reconstruction Accounts Committee (DRAC), the IP passes on the approval to the CBO with a go-ahead signal.

The UN based Food and Agriculture Organisation (FAO) had extended a complete training programme to the IPs about the CLRPs, its undertaking and completion. The IPs further trained all the members of the CBOs on the programme before any assessment was made at the bottom/village level. The District Reconstruction Office releases the required funds upon verification. Under this programme, 1,835 CLRPs have been planned in around 180 UCs in all the nine EQ affected districts. The status of the entire programme is explained via Table 4.3. The CLRP project has been extended till June 2011 due to harsh weather conditions in few districts and financial constraints, which delayed the planned progress.

Table 4.3 CLRP Progress as of December 28, 2010 #

S #	District	Total No. of CLRPs	CLRPs approved by DRAC	No. of CLRPs under implementation	No. of CLRPs completed (All Tranches released)	Funds released in Million
1	Abbottabad	90	95	0	66	61.04
2	Mansehra	290	293	202	93	132.66
3	Battagram	200	151	130	46	83.00
4	Shangla	148	136	109	21	41.70
5	Kohistan	158	158	125	15	62.39

S #	District	Total No. of CLRPs	CLRPs approved by DRAC	No. of CLRPs under implementation	No. of CLRPs completed (All Tranches released)	Funds released in Million
Total for KPK		886	833	566	241	380.78
1	Muzaffarabad	380	426	399	48	173.5
2	Neelum	39	43	42	0	21.1
3	Bagh	270	163	151	28	87.4
4	Rawalakot	260	246	246	51	149.4
Total for AJK		949	878	838	127	431.3
Grand Total		1,835	1,711	1,404	368	812.08

This approach has developed a sense of ownership among the community leading to a complete sense of quality control in respect of all of the interventions either taking place or that have been completed, in all the nine EQ affected districts.

4.3.5 Watershed Management

The EQ imposed severe damages to almost all the major watercourses and the area around it. The shocks, as well as aftershocks, gave way to a number of new slides, which took away huge forests into the water courses and thus caused a permanent destabilisation to the mountains. The majority of the agriculture water channels along such watercourses were also damaged which caused a shortage of water for the fields (a permanent problem affecting the livelihoods of farmers around watercourses).

This serious problem needed thorough and permanent measures to strengthen the already weakened mountains along the major watercourses and to rehabilitate the damaged agriculture channels to enable the affected farmers to retain their normal, permanent ways of livelihood. ERRRA sought not only financial support but also technical assistance for stabilisation of the weakened mountains using the latest techniques, and succeeded in acquiring financial support from Swiss International Development Agency (SIDA). Moreover technical assistance has been extended by FAO who have signed a Memorandum of Understanding (MOU) for all the 17 (9 in KPK and 8 in AJ&K) Watershed Management Projects. Through collaboration of the domestic Forest Department, seventeen watershed spots were selected for Collaborative and Integrated Watershed Management. After successful pilot testing on Watershed *Gulmera* in District Mansehra, KPK and Watershed *Lamnian* in District Muzaffarabad, AJ&K, the following activities have begun in the 15 other watersheds:

- Plantation of multi-purpose trees
- Establishment of nurseries
- Construction of loose stone checks dams inside the forests for conservation of soil and water.
- Training to communities, especially to women, about nursery rising and its management.
- Training about kitchen gardening and nursery business record keeping.

As of December 2010 a total of four facilities of watershed management were completed, the project is supposed to be completed by end of June 2011.

4.3.6 Reconstruction of Agriculture and Livestock Facilities

The reconstruction of the destroyed support facilities is one of the major ERRRA'S Livelihood Sector Strategy. Out of the total target of 665 facilities (195 in KPK and 470 in AJ&K) 81 have been completed, whereas 351 are under construction and the remaining 209 are at tendering and 24 at designing stages.

4.4 ACCOMPLISHMENTS AND IMPACT

Restoring economic activities on an emergent basis in EQAA was one of the primary priorities of ERRRA. Employment and sustained livelihoods of the vulnerable directly relates to their survival in coming harsh weather. Cash was injected to reinstate economic activities through a cash grants programme and emergency livelihood rehabilitation programmes during early recovery period. Revival of agriculture, trade and other income generating opportunities, capacity building, cash/food for work,

etc. were very relevant activities to meet the immediate needs of the community for the restoration of their economic conditions.

Indigenous economy of EQAA depends on the amalgam of employments on daily basis and small businesses. Collective needs of the communities were identified and implemented in long term measures under CLRPs which primarily focus on addressing the needs of vulnerable micro and small enterprises at household level.

4.4.1 Perceptions of Comparative Household Economic Well-being

Without consumption data, a consumption-based poverty headcount rate cannot be calculated. Self-perceptions of economic well-being can be used as a proxy for changes in economic well-being. In this case, the household respondent was asked how they compare their current economic situation with that of a year ago.

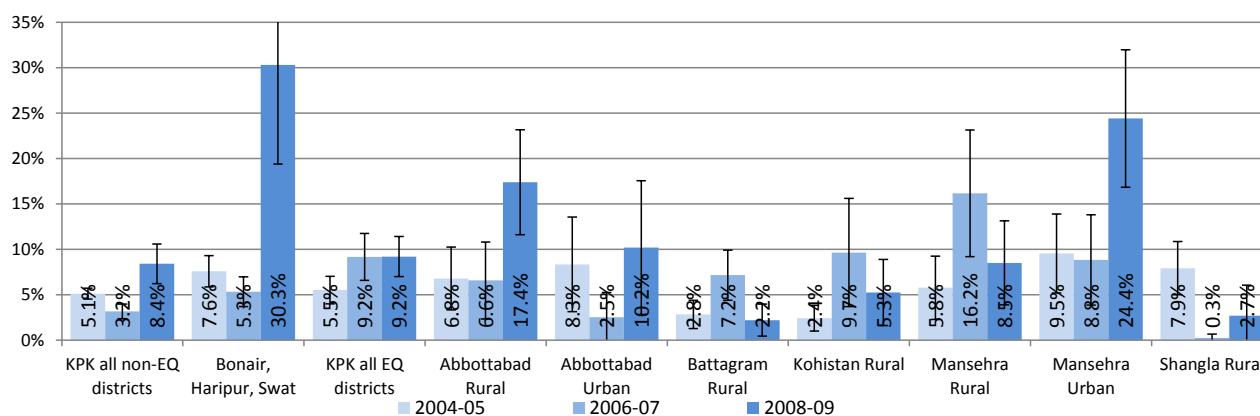


Figure 4.1 Per cent of households that feel there overall economic situation is much worse than a year ago

Figure 4.1 presents the rate of households that feel their economic situation is much worse than a year ago. There was an increase in all earthquake affected districts from 5.5 in 2005 to 9.2 in both 2006-07 and 2008-09. In some cases, there has been an increase in the number of households that feel their economic situation is much worse than a year ago. These correspond with movements in the quasi MPI. Mansehra urban shows a significant jump in the rate of households to 24% in 2008-09, which coincides with the significant jump in the intensity of quasi MPI poverty. Similarly the increase in the quasi-MPI headcount rate in Bonair, Haripur, and Swat in 2008-09 is mirrored by a very significant increase in the number of households feeling much worse off than a year ago. This is reassuring validation that the multidimensional poverty index is reflecting household's perceptions of the change in their well-being to some degree. The worldwide increase in food prices partially coincided with the period of enumeration of the 2008-09 survey, and may be a reason why there is a sudden jump in certain areas of households feeling economically worse off. Urban areas seem to be more likely to show an increase in household perceptions of economic downturn than rural areas, which supports the argument that the food price shock could be responsible, as it is often expected that urban households without access to producing their own food, are most vulnerable to economic shocks from rapid food price hikes.

4.4.2 Household Asset Score

The household asset score index presented is just a simple sum of the household assets enumerated¹⁷ with the exception of tractors, which were thought to be too livelihood specific to be generalised to both urban and rural settings. The data presented indicate that the household asset score recorded in earthquake affected districts in 2008-09 of 5.1 is significantly greater than the pre-earthquake asset score of 4.1. Even larger significant increases were registered in the non-earthquake affected districts, resulting in the earthquake affected districts remaining with a lower household asset score than the other non-affected districts. In the entire earthquake affected districts

¹⁷ Household asset score is the numerical some of the following items owned by a household: electric iron, electric fan, electrifying, sewing machine, radio cassette player, chair/table, watch for such clock, television, VCR/CD player, refrigerator, air cooler, air conditioning, computer, bicycle, motorcycle, car or truck.

there were increases in asset scores. Significantly higher assets scores are recorded in urban Abbottabad and Mansehra than the rural districts, but they did not register a significant improvement in household asset score over the observation period. Significant asset score increases were recorded in all rural districts. The poorest district in terms of household assets is Kohistan with an average household asset score of 3.3 in 2008-09 as opposed to 7.8 urban Abbottabad. Elements of this household asset data contributed to the multi-dimensional poverty index presented above.

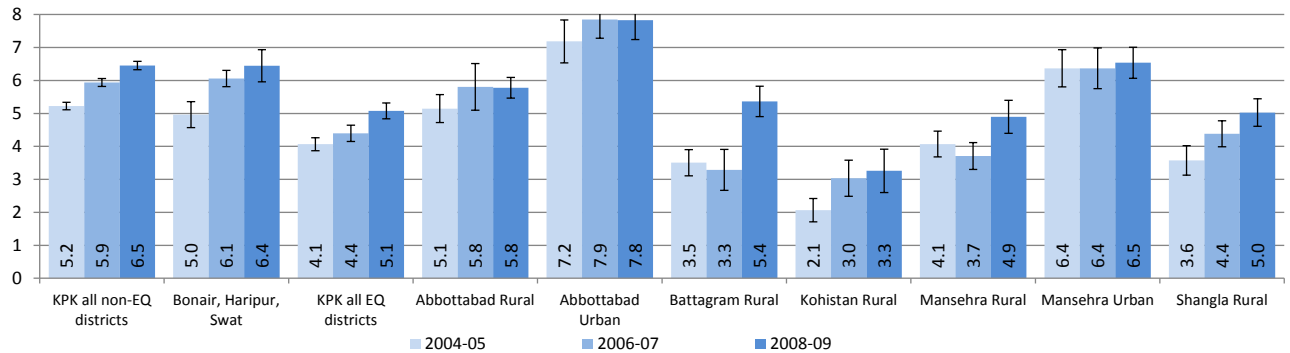


Figure 4.2 Household asset score

4.4.3 Unemployment Rate

The unemployment rate presented Figure 4.3 in is defined as those persons of either sex, aged between 16 and 65, who in the week preceding the survey did not work at all or less than one hour per day, did not have a business, or were helping a family business or farm. The requirement to be available looking for work during the last week was dropped, as when this was included, the resulting estimates of the unemployment rate were very low indeed, less than 1% in most cases. It is more appropriate to call this a measure of underemployment, as in rural agrarian societies underemployment is more prevalent than outright unemployment, which is almost an unaffordable luxury. Also such levels of underemployment in rural areas are likely to be very seasonal nature, with peaks in agricultural activity coupled with periods of underemployment.

Pre-earthquake levels of unemployment were similar in both earthquake and non-earthquake affected districts (59% versus 58%), while in all the non-EQADs there has been a small non-significant decline over the three observations (57.5% → 55.3%). In the EQADs, there was a small non-significant increase in unemployment after the earthquake (59%→60%) followed by a significant decrease in 2008-09 to 53%. In the three adjoining non-earthquake affected districts, the unemployment rate remained stable at just over 60%. The most notable district movement is in Kohistan, where there was a significant increase of unemployment following the earthquake (45%→58%), followed by followed by a significant decline (58%→38%).

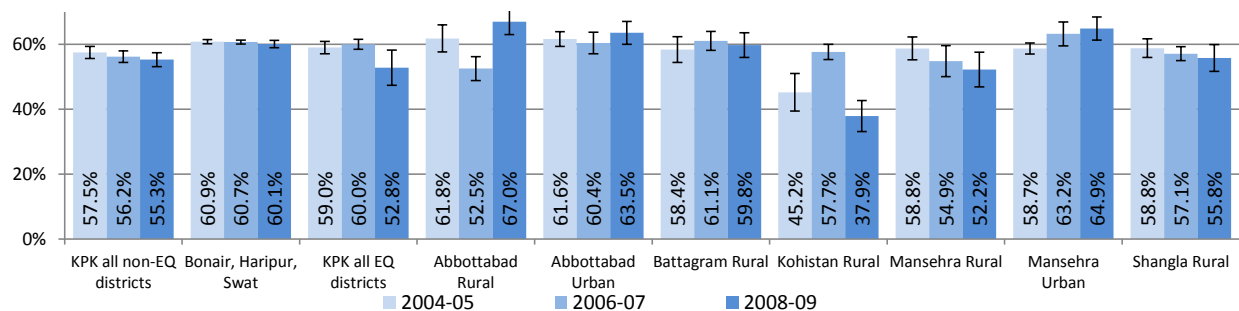


Figure 4.3 Unemployment rate for both sexes between the ages of 16 and 65

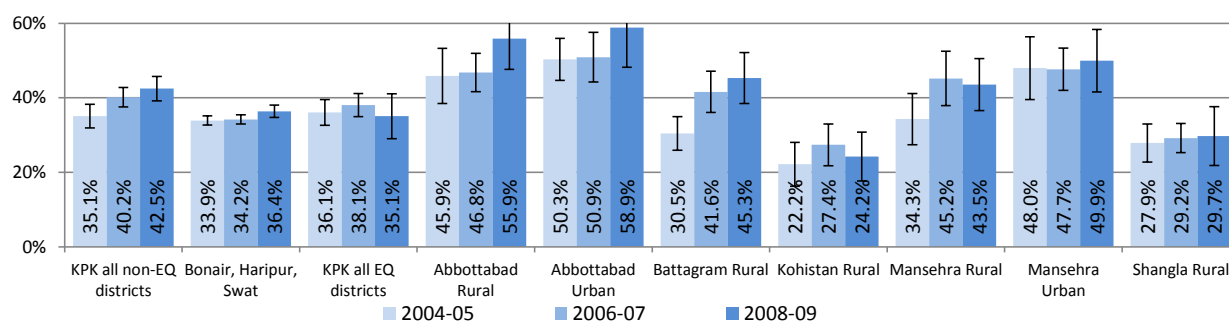


Figure 4.4 Unemployment rate for males only between the ages of 16 and 30

To look at the effect of the earthquake in the recovery on perhaps the most mobile cohort of the adult labour force, i.e. young males aged between 16 and 30 may show a different story. The first thing to note when comparing the unemployment estimates 16-65 (Figure 4.3) and 16-30 year-old males (Figure 4.4) is that the unemployment rate for the 16-30 year-old males is significantly lower than the unemployment rate for the adult population (36% versus 59% in 2008-09 in earthquake affected districts). Overall, there are no significant changes in the unemployment rate in the EQADs, while it did increase significantly in the non-EQADs (35%→43%). Interestingly, this significant increase in unemployment was not experienced in the three adjoining non-earthquake districts, although the actual values increased slightly. The highest unemployment rates within the district analysis are found in the Mansehra and Abbottabad urban areas and Abbottabad rural. The two remote rural districts, Kohistan and Shangla, show the lowest unemployment rates for this age cohort, but once again these have not changed significantly over the course of the three observations. In the other rural cohorts there have been increases, and in the case of Battagram this is statistically significant, but there are no significant increases in unemployment in the first observation following the earthquake, as one might expect. It is likely that other factors contributing to an increase in unemployment in 2008-09 beyond just residual effect on the economy of the earthquake. For example, the fuel and food price shock that took place during 2008-2009, coinciding with the last PSLM district survey.

4.5 OBSERVATIONS AND CONCLUSIONS

- Medium term measures enabled the process of livelihood betterment to continue. Stress is being given to long term measures for the achievement of long term sustainable livelihoods development i.e. improvement of physical infrastructure and facilities.
- Apart from the restoration of the traditional means of livelihoods, the introduction of new means is providing a change towards modern ethics of livelihoods e.g. skills development and market access.
- Communities and the vulnerable have been valued for participation of their needs, when assessment for livelihood restoration interventions was on-way.
- The Line Departments/agencies associated with livelihoods, especially agriculture, livestock, forestry departments must actively be associated for planning and implementation of the livelihood restoration projects, in order to ensure ownership and sustainability once the project is handed over.
- Relevant capacity building programmes/campaigns must be continued for capacity building of the concerned Line Departments/Community Organisations and general awareness campaigns for the public/beneficiaries in order to make all the required interventions a success.
- Security problem and issue of advisories by UN in KPK EQ affected districts caused delays.

4.6 RECOMMENDATIONS

- Remote, difficult and fragile terrain leading to accessibility problems, therefore, targets should be set up considering the weather conditions and financial and human resource availability.
- Strong liaison with government line agencies for technical backstopping and guidance should be available beyond project life.

- Delays in the timely approval of donors at times stalled the programmes; there is a strong need to have the approval of donors on time to achieve set targets particularly in the case of release of funds to CLRPs.

4.7 **LESSONS LEARNT**

- Proper implementation of Livelihoods Strategy, its results and impact are the outcome of a joint effort by multi-stakeholders, focus on community driven approach, with clear and defined roles and responsibilities of different stakeholders.
- An overall improvement of the socio-economic conditions can be achieved through inclusive approach in the need identification process while avoiding duplication of activities and introducing competitiveness through innovative ideas and relevant strategies.
- Ensuring women participation in the CLRP process in the affected zones, need identification, planning and implementation makes it effective and efficient with wider coverage.
- Programme analysis reveals that CLRP and Integrated Watershed Management Plans are the most cost effective and fastest impact oriented interventions.
- Performance based fund release mechanism (releases in trenches through CIF systems) has helped in ensuring transparency, accountability and timely completion of the project.
- Selection of IPs with relevant expertise and capacity building of IPs, communities and line departments through trainings and workshops is essential for efficient and effective implementation of any collaborative programme.
- Active participation and involvement of all stakeholders in planning, decision making, and implementation of interventions ensures sustainability and ownership of interventions.
- Watershed Management Projects have stimulated the process of natural resource preservation and encouraged the use of modern techniques of agriculture and bio-engineering within the communities.

5. SOCIAL PROTECTION

5.1 INTRODUCTION

5.1.1 Background

The destabilisation caused in the earthquake affected areas was augmented by disruption in the living patterns of the community, both physically and mentally. The losses to human lives were supplemented by those who lost their limbs, homes and family, including children, husbands and guardians. Therefore, these "vulnerable" community members have been classified by ERRA as: orphans (by both mother and father, only by mother or only by father); widows and women-headed households; elderly; and physically disabled.

Category of Vulnerability	Estimated Victims
Orphans by both mother and father	1,700
Orphans by mother	22,860
Orphans by father	18,800
Widows	5,388
Elderly without adult caretaker	8,393
Physically disabled	713

Table 5.1 Estimated number of population who have either become widowed orphans or left without their normal source of care. [Source: DNA, 2005]

cash grant disbursement, house construction, and intensive education for orphans were some of the key challenges requiring focused attention during the rehabilitation process.

ERRA, under its Social Protection Programme, initiated the rehabilitation of vulnerable communities in the earthquake affected areas, by providing services aimed at improving their living standards, thus bringing their lives back to normalcy. The strategy incorporates concrete actions, recommendations and policy guidelines for the rehabilitation of vulnerable groups, devising projects and activities covering a wide spectrum ranging from psychosocial support to vulnerable communities and instituting community-based rehabilitation programmes for vulnerable groups, to capacity building of Social Welfare Departments in the earthquake affected areas.

As part of the Early Recovery Programme, 32 specific projects¹⁸ were implemented for the rehabilitation of vulnerable groups in the earthquake affected areas. It covered child protection, involving child-focused interventions such as child-friendly spaces, provision of psychosocial support, and development of child protection committees. Establishment of women-friendly spaces and provision of houses (including efficient cash disbursement mechanism) and shelters to female-headed households, under ERP created an enabling environment for vulnerable females in the earthquake affected areas of both AJ&K and KPK.

5.2 STRATEGIC APPROACH

5.2.1 Vision

ERRA's vision for Social Protection is "to ensure that vulnerable people in the earthquake affected areas are provided with basic social services, livelihood assistance, and support for rehabilitation, primarily within their own families and communities, and to establish linkages with mainstream social welfare services"¹⁹

5.2.2 Objectives

The main objectives of ERRA Social Protection Strategy are to:

- Strengthen the state, provincial, and district level social welfare infrastructure;

¹⁸ Recovery Plan (Extension of UN-ERRA Early Recovery Plan), 1 July 2007 – 30 June 2008

¹⁹ ERRA Social Protection Strategy

- Provide targeted assistance for vulnerable groups in earthquake affected areas, including women, the landless, and Persons With Disabilities (PWDs).

5.2.3 Implementation Methodology

Given the complexity of addressing the varied multi-faceted needs of vulnerable groups and delivering relevant social protection services, a detailed implementation strategy was developed which includes data collection and analysis, multi-stakeholder planning and coordination²⁰, clearly defined roles and responsibilities of development partners, capacity building, and monitoring and evaluation. The programmes implemented under this strategy are:

- i. Rural Landless Programme: to provide financial assistance to eligible families who lost their houses due to the earthquake, or are located in hazardous areas (virtual landless); to enable them to purchase land and rebuild their houses
- ii. Legal Aid Centres: to provide awareness to the vulnerable community members regarding their legal rights and entitlements; to provide free legal aid to earthquake affected community; to ensure that their legal rights to property and social benefits are upheld; to build the capacity of legal professionals, local authorities and other relevant stakeholders to promote the rights of vulnerable community members
- iii. Targeted Vulnerability Survey: to identify vulnerable community members and understand their specific vulnerability by obtaining their basic data²¹, which can be used to provide relevant support to these individuals in case of any future programmes specific for them
- iv. Women Protection Activities and Women Development Centres: to ensure access for women to legal, medical and psychosocial services, livelihood assistance as well as opportunities; to ensure that women are protected from violence, abuse, and have access to safe shelter when in need; to build the capacity of women to earn their livelihood by developing their skills in the production of handicrafts, carpet weaving and other related skills.
- v. Social Welfare Complexes: to provide integrated services to vulnerable groups, including referral system for health, education, legal assistance and residential facilities
- vi. Medical Rehabilitation of Persons with Disabilities (MRDEA) in EQAA: to improve the quality of life for a person with disabilities by focusing on disability awareness, social, economic and cultural inclusion, enhancing medical rehabilitation services and access to these facilities.

As being dealt today, the Social Protection Sector, under ERRA'S strategic programme is categorised into three major components: Rehabilitation of Rural Landless People, Social Welfare Complexes and Women Development Centres.

5.3 ACHIEVEMENTS IN TERMS OF OUTPUTS AND OUTCOMES

5.3.1 Rural Landless (RLL) People

ERRA started the Rural Landless Programme in July 2007 with an aim to rehabilitate the landless people, who lost their houses as well as land by the rapid and unexpected slides during the earthquake. Moreover, thousands of people residing within the Red Zone were also declared as the Virtual Landless (VLL) and ERRA also decided to rehabilitate them on safer grounds. After verification by the Revenue Department, ERRA compensated all the landless people through one-window operations, executed at the Land Verification Units (LVUs) which were established at different locations of KPK and AJ&K respectively. As a result, a total number of 14,355 landless were compensated i.e. 1,730 original landless people in Phase-I by May 15, 2008 and thereafter, 12,625 virtual landless people via Phase-II (started in July 2008 and ended in May 2010).

²⁰ ERRA, PERRA, SERRA, DRUs, POs and Line Departments

²¹ Sex, exact vulnerability, age, residential address, marital status, education level attained

Table 5.2 Summary Phase I: Original Landless

State/Province	District	Tehsil	No of Beneficiaries
KPK	Mansehra	Balakot	456
		Mansehra	12
	Sub Total:		468
AJ&K	Bagh	Bagh	143
		Dhir Kot	25
	Sub Total:		168
	Muzaffarabad	Hattian	384
		Muzaffarabad	331
		Patika	345
	Sub Total:		1,060
	Neelum	Ath Muqam	34
Sub Total:		34	
Total:		1,730	

Table 5.3 Summary Phase II Virtual Landless

State/Province	District	Tehsil	No of Beneficiaries
KPK	Mansehra	Balakot	3,800
		Mansehra	245
	Sub Total:		4,045
AJ&K	Bagh	Bagh	1,561
		Dhir Kot	215
		Haveli	131
	Sub Total:		1,907
	Muzaffarabad	Hattian	1,648
		Muzaffarabad	1,861
		Patika	1,809
	Sub Total:		5,318
	Neelum	Ath Muqam	1,354
		Sharda	1
Sub Total:		1,355	
Total:		12,625	

5.3.2 Legal Aid Centres (LAC)

Legal Aid Centres²² were funded by the Asian Development Bank, to provide free legal assistance to the vulnerable population in the earthquake affected areas; these centres were staffed by two to three legal experts. These included issues related to entitlements; succession; dispute resolution; loss of documents (property, birth, death, marriage and disability certificates); and lost court, bank, pension records.

The main features of the programme were:

- Establishment of Legal Aid Centres (LACs) in 18 *tehsils*;
- Mobile teams to build client awareness and reach out to vulnerable individuals;
- Register cases through *tehsil* Legal Aid Centres, field offices and mobile teams;
- Follow-up on registered cases with relevant administrative and judicial bodies;
- Capacity building of local representatives, legal professionals, and civil societies.
- Till the closure (July 2009) of these centres, 26,321 cases were registered with Legal Aid Centres, out of which 20,519 cases were resolved. In phase II, out of the 5,802 cases pending from Phase I, 5,743 cases were solved remaining 59 cases were transferred to SERRA for subsequent handling.²³

²² Operational till July 2009, now these centres are closed down.

²³ ERRR Social Protection Progress Report 2009

5.3.3 Targeted Vulnerability Survey (TVS)

The Targeted Vulnerability Survey (TVS), funded by ADB and GoP, was aimed to collect detailed data of the vulnerable community in the earthquake affected areas between 2007 and 2008. The result was detailed information on 432,130 vulnerable persons, in terms of their complete residential address, sex, age, marital status, educational level, employment status, present skills and skill development needs, disabilities, household size, National Identification Number, bank account number, type of aid received, source of income, etc. at the household level in both pre and post-earthquake scenarios.

Table 5.4 Category of Vulnerability by Sex

Category of Vulnerability	Total Number of Vulnerable People	Male Number of Vulnerable People	Female Number of Vulnerable People
Persons with Disabilities	205,001	127,973	77,028
Orphans	122,730	65,633	57,097
Female-headed households	96,581	0	96,581
Elderly without Care	7,818	5,180	2,638
Total	432,130	198,786	233,344

The Targeted Vulnerability Survey database and report are accessible to all the stakeholders for efficient planning, funding and rehabilitation of vulnerable community members, identified during the survey, specifically for programmes regarding poverty reduction and alleviation.

The TVS data was shared with the International Catholic Migration Commission (ICMC) project under the title of "Promotion of Access to Services and Protection for Vulnerable People in Northern Pakistan". The ICMC carried out the programme in 40 villages of districts Mansehra and Muzaffarabad in which 199 TVS identified vulnerable persons were confirmed to have benefited from the ICMC programme. Similarly, the TVS data was shared with the Benazir Income Support Programme (BISP), which has concluded a door to door survey in the districts of Battagram and Poonch and agreed to compare TVS data for the two districts to determine the number of TVS registrants that can be included in the BISP. During 2010 various organisations utilised TVS data for reconstruction and rehabilitation after the disaster caused by heavy flood in July 2010. The flood covered the area of AJK, KPK, Sindh, Punjab and Baluchistan.

5.3.4 Women Development Centre (WDC)

The main objective of WDCs is to provide vulnerable women with an access to socio-economic opportunities and to enable them to effectively look after their families. In the earthquake affected areas, according to the updated sex-disaggregated data, of those eligible for the livelihood cash grant, over 26% of households are headed by women, representing over 22% in KPK and over 30% in AJ&K. In February 2007, it was jointly decided by ERRA and the Ministry of Women Development to construct WDCs for the welfare of vulnerable and distressed women, in each of the nine EQ affected districts of Abbottabad, Mansehra, Battagram, Shangla and Kohistan in KPK and Muzaffarabad, Bagh, Poonch and Neelum in AJ&K.

At present, only one out of the total nine planned WDCs has been completed which is located at District Muzaffarabad, AJ&K. Two WDCs, as part of the government complexes, are being constructed in Bagh and Rawalakot, whereas WDCs of Neelum and Shangla were dropped due to non-availability of land whereas remaining two WDCs at Battagram and Kohistan were scrapped due to lack of funds.

District Muzaffarabad WDC, now named "Shaheed Benazir Bhutto Women Development Centre" was inaugurated in July 2009, and after equipping it completely with staff, furniture, equipment etc. it started delivering services in December 2009 in the following areas:

- **Shelter Home:** Provides shelter to 50 women in distress. The duration is from 24 hours to a maximum of sixty days. In this period, the female victims are either rehabilitated or referred to the Social Welfare Complex for further support.
- **Medical Aid Centre:** Currently there is no appointment of medical doctors, therefore the centre is working through referral service to CMH Muzaffarabad for medical and psychological support.

- **Psycho Support Unit:** In the absence of the psychologist, all patients are referred to CMH Muzaffarabad for psychological treatment.
- **Legal Aid Centre:** A permanent posted Law Officer is available for legal counselling of the beneficiaries and free legal assistance is being provided to women in distress. Moreover; investigation into cases of violence is also launched with the Law Enforcing Agencies, through the Legal Advisor.
- **Skill Development Centre:** This is a skill development centre for women and has been established within the WDC, with a capacity to accommodate 50 women/girls. Under trained instructors, training in the following fields is given to the beneficiaries:
 - Computer Literacy
 - Kashmiri Crafts
 - Fabric Painting
 - Glass Painting
 - Poultry Farming
 - Kitchen Gardening

5.3.5 Social Welfare Complex (SWC)

Before the EQ, social services to the vulnerable and needy people were being rendered by the Social Welfare and Women Development departments of KPK and AJ&K. In pursuance of ERRRA's Social Protection Strategy, the social welfare structures needed to be strengthened, in order to render a set of integrated services under one roof, in all the nine EQ affected districts of KPK and AJ&K respectively.

So far the SWC at District Muzaffarabad, AJ&K, has been completed and has been rendering services to various types of vulnerable groups. Between September 2008 and June 2011, it has provided services to more than 900 people in the following areas:

- **Child Protection Centre:** Its capacity is to provide free boarding and lodging facility to 30 vulnerable children. So far, a total of 29 children have been rehabilitated and sent to various charity educational institutions.
- **Kashiana:** A free hostel for 30 orphan girls which is full to capacity.
- **Shelter Home:** A free boarding lodging facility with capacity to accommodate 30 vulnerable women (and accompanying children) who are suffering litigation. So far:
 - Twenty six women are registered along with their 36 children.
 - Five widows have been rehabilitated after the provision of financial assistance of Rs.10,000/- each through Bait-ul-Mal, a sewing machine by SWC and Rs.1,500/- for each of their children up to the age of 14
 - Most of the widows have been rehabilitated after receiving legal assistance and psychological support.
 - Seven are still involved in the rehabilitation process.
- **Old Age Home:** A facility with a capacity to accommodate up to 15 old age persons, including both male and female. So far:
 - A total of 24 old age cases have been registered.
 - Eight cases have been rehabilitated through the provision of a grant worth Rs.10,000/- each by the Pakistan Bait-ul-Mal, whereas; ten cases for similar grants are in process.
 - The remaining beneficiaries are still waiting their turn for rehabilitation.
- **Psycho Social Support Centre:** Under this facility, a psychologist takes regular care of the people in distress. Moreover; patients among beneficiaries are treated through the Combined Military Hospital (CMH) Muzaffarabad.
- **Legal Aid Centre:** It has a capacity to accommodate ten people who are facing various litigations and so far a total of fifteen beneficiaries have been rehabilitated through court proceedings.

According to Planning Wing I data, the reconstruction progress of SWCs in Abbottabad is 48% and in Mansehra 14%, whereas completion dates of these projects were September 2010 and February 2011 respectively. Similarly SWC Rawalakot is 5%²⁴ completed, SWC Kohistan was dropped due to

non availability of funds whereas SWC Neelum and Shangla were abandoned due to non availability of land.

5.3.6 Medical Rehabilitation for Disabled in the Earthquake Affected Areas (MRDEA)

Through this project, ERRA ensures capacity building of PWDs, their families and the community at large. The earthquake left almost 70,000 disabled who were deemed to be the most vulnerable within the community. In light of this, a community based rehabilitation programme, along with the establishment of Medical Rehabilitation Centres (MRC) for persons with disabilities is under implementation. Six out of twelve projects MRC Abbottabad, MRC Muzaffarabad, Resource Information Centre (RIC) Mansehra, RIC Besham, BRU Oghi and RIC at Muzaffarabad are completed and functional.

The total cost of the project was Rs: 60.792 million at the initial stage, which was further re-appropriated up to Rs: 82.891 million. PC-1 of MRDEA consists of 12 projects to be constructed in affected areas of KP and AJ&K. The vision of MRDEA is "to provide comprehensive rehabilitation services for PWDs in earthquake affected areas, ensuring equalisation of opportunities, empowerment and social integration".

This project is a combination of Community Based Rehabilitation (CBR) and Institution Based Rehabilitation (IBR). In view of the problems existing in the affected area, the scope of the project includes infrastructures, training and capacity building both in terms of human resource and equipment that have been designed to cater for the needs of the PWDs and their mainstreaming into society.

Initially, just after earthquake, the government established health facilities for 750 spinal cord injury patients at NIHD and CGH, Rawalpindi. Furthermore, patients were also treated in Lahore and Peshawar;. 17, 500 persons received psychological services, 52, 000 people received physiotherapy services. Additionally, 1, 000 wheelchairs, 200 walkers and crutches and 60 toilets were provided to PWDs.

The pace of activities remained relatively slow in 2010 as the project life was finished in May 2010 and due to be handed over to AJ&K and KPK Governments respectively. So far, MRDEA in KPK was handed over to government on 30th November 2010. Rehabilitation Centres with a capacity for 250 beds at Abbottabad & Muzaffarabad have been completed. The project identified 41,802 PWDs in 2010 and developed software to register the complication and manoeuvring of the data as per requirement. Out of four Resource Information Centres, three have been established at Mansehra, Shangla and Muzaffarabad, while RIC Bagh has been dropped. During 2010, 31,180 patients received health consultations/treatment; 2,639 CWDs were identified for inclusive education out of which, 1,376 were enrolled.

Some of the vocational training that occurred in 2010 included the training of wheel chair users and teacher training on inclusive education. Furthermore, PWDs were provided with different items i.e. assistive devices, hearing aids, sewing machines and visual aids.

Meetings with the Government of AJ&K are being conducted in order to hand over the future running of the project. However, the facilities in AJ&K are functioning with minimum numbers of staff. In AJ&K, the coordination was handed over to MRDEA until 28th February 2011. The human resource of MRDEA- AJ&K will be supported by MRDEA-ERRA until June 2011.

5.3.7 Preservation of Heritage Buildings (PHB)

Preserving the heritage has been one of the features of the social protection and environmental safeguard strategy of ERRA. Through this project ERRA hopes to preserve 26 buildings representing the heritage of Pakistan in the earthquake affected areas. It is a joint venture of ERRA and the Heritage Foundation of Pakistan (HFP). Preliminary work including the signing of an MoU with HFP, drafting of the Standard Operating Procedures (SOP), and identification of the buildings have been carried out during the year 2009.

The Heritage Cell of ERRA was created in January 2010. Since then it has completed extensive work which includes:

- Documentation, short listing and cataloguing of all the data related to the cultural and heritage resources in the affected areas.
- Survey of all potential heritage sites and documentation of the tangible / intangible resources to promote cultural tourism.
- Development of SOPs for short listing, prequalification and bids evaluation process.
- Shortlisting of buildings with significant heritage.
- With the scarcity of funds, it has become necessary to raise donor funding for the project, which would require a dedicated effort to locate and identify the potential donor interested in supporting the project.
- A proposal for soliciting donor funding of the project has been made.
- A detailed survey / costing of the buildings to retrofitting has been done by the consultant.
- PC-1 of 2 buildings have been received and approved.

Approximately 143 facilities comprising of 75 buildings were identified by HFP. Out of those, only 15 buildings of significant heritage, falling under ERRA strategy are to be retrofitted. These buildings were identified in consultation with the HPF.

Table 5.5 Name of Building Prioritise for Retrofitting

S.No	Name of building
01	DCO House, Abbottabad
02	Front entrance and stone boundary wall of demolished District jail Abbottabad.
03	Dagri Forest Rest House
04	GGPS City, Noordin Mohallah, Abbottabad
05	Abbot House Abbottabad
06	Govt. Islamia Boys School No.2, Abbottabad
07	Hostel of Govt. Victoria Boys School No.1. Abbottabad
08	DFO, Galis Office and Support Office Abbottabad
09	Govt. Secondary School No.1 Mansehra
10	Old Tehsil Building (Stone Front) Mansehra
11	Residence of DRO (Old AC House) Mansehra
12	DCO Residence (Old Circuit House) Mansehra
13	DCO Servant Quarters, Mansehra
14	Police Lines (Barracks 1&2) Muzaffarabad
15	Quaid-e-Azam Memorial Rest House, Muzaffarabad

Due to economic recession, it is unlikely that any GoP funding will be available in the near future, which necessitates the identification of donor funding to undertake this project. The approximate cost of the project is around PKR 250 million.

5.3.8 Continuous Social Impact Assessment Survey (CSIAS)

In order to determine the social impact of ERRA's two flagship projects, the Livelihoods Support Cash Grant (LSCG) Programme and the Housing Cash Grant (HCG) Programme, expression of interest was invited by the reputed firms of Pakistan to conduct the continuous social impact assessment survey. Further process of review and short-listing were carried out to finalise the firm for this assignment. However, due to non-availability of funds it was later dropped.

5.4 ACCOMPLISHMENTS AND IMPACT

The impact of the ERRA Social Protection strategy was a return towards normality. By physical rehabilitation through Medical Rehabilitation for the Disabled in the Earthquake Affected Areas (MRDEA), Women Development Centres, Skills Development Centres, and Social Welfare Complexes, ERLP vulnerable groups were able to resume their lives. The ERLP project facilitated those affected through a 'one-window operation' methodology. Legal Aid Centres were not only helpful but also enhanced better understanding of legal procedures. ERRA also provided income generation opportunities to the earthquake affected people. These initiatives also linked the affected community with various government and non-government organisations which provided them with alternative opportunities.

During 5 years of services, although construction of various projects is still underway; (Social Welfare Complexes and Women Development Centres), completed projects (ERLP, MRDEA and LAC) have proved effective and efficient in bringing an element of normality to peoples lives.

5.5 OBSERVATIONS AND CONCLUSIONS

- The handing over of the MRDEA should be implemented quickly without disruption of services to PWDs, furthermore the pace of work should be accelerated to facilitate disabled persons.
- Timely completion and proper functioning of remaining SWCs and WDCs will lead to a long-term change in the EQQA, particularly for women. It is too early for social protection to have a proper continuous impact assessment of the sector, since regular impact assessment has been carried out by the M&E wing and full completion of the sectoral activities will be beneficial for the impact assessment.
- Progress of work has been adversely affected due to non availability of funds by GoP and as a result caused the closure of a few projects before their stipulated time.

5.6 RECOMMENDATIONS

- The government needs to enhance the allocation of funds and immediately release funds for projects that are still under construction.
- Women are participating in earning their livelihood within the cultural limits in case of AJ&K, by assisting with agriculture, rearing cattle and producing handicraft items. They are also working in various institutions according to their capacity and available opportunities. Employment opportunities for women should be created and encouraged. More job opportunities may be provided to the vulnerable population in the affected areas by fixing a quota for the disabled/vulnerable community, a policy currently operating in ERRA.

5.7 LESSONS LEARNT

- Engagement of relevant government departments that have long term responsibility for social protection services from the outset and proper institutional arrangements promote ownership and sustainability.
- The Social Protection programmes have formed social networks among the EQAA, thus forming dynamic and progressive communities by instilling in them the notions of self-help and sustainable living skills.
- Willingness for change, enabling environment and financial and technical support is a must for long-lasting change. Community participation and community based development approaches were new to the EQAAs, but it worked effectively in carrying out sustainable social development work.

6. HEALTH

6.1 INTRODUCTION

6.1.1 Background

The earthquake of October 2005 gravely affected the healthcare infrastructure in AJ&K and KPK. The healthcare network was rendered paralysed. After rationalisation, 306 healthcare facilities were identified to be reconstructed or retrofitted. To improve the efficiency of the health delivery systems, smaller units of service delivery including first aid posts, TB centres, and mother and child health centres were integrated with a four-tier service delivery system.

ERRA restored the health care system with the help of its partners and, as of December 2010, 141 permanent health facilities have been completed with improved access for persons with disabilities. The remaining health facilities are running in prefabricated structures. Importantly, all damaged health facilities are functional and providing primary health care services, maternal and neo-natal care, and emergency service.

6.2 STRATEGIC APPROACH

6.2.1 Vision

The vision is to have a revitalised health care system, which is financially viable and ensures provision of an integrated and essential package of health services, which is accessible, effective, efficient and responsive to the health needs of the affected population and contributes to the improved health status of the population.

6.2.2 Objectives

The main objectives of ERRA's Health Strategy are to:

- Restore health care infrastructure through rationalised reconstruction and rehabilitation of seismically safe and user-friendly health infrastructure.
- Ensure availability of an integrated and essential services package at different levels of the health care delivery system, covering preventive and curative services, including a rehabilitation programme with improved access for persons with disabilities.
- Strengthen the management and organisational system to revive and sustain health services.
- Devise an institutional mechanism in the health sector to put in place a rapid effective emergency and disaster response whenever required.

6.2.3 Implementation Methodology

The implementation methodology is comprehensive in its attempts to address the challenges. More specifically, it is guided by and includes the following essential principles and mechanisms:

- Provision and package of health services ensuring an integrated and Essential Services Delivery Package (ESDP) of health services at different levels for emerging local needs.
- Rationalised reconstruction in view of population size and past performance of health facilities. This includes geographical rationalisation and upgrading of health facilities. Care is being taken to avoid inequities in service provision within affected areas.
- Strategic integration of smaller units of service delivery including First Aid Posts, Mother and Child Healthcare Centres, Family Welfare Trust, Tubercle Bacillus (TB) centres and Reproductive Health Services (RHS).
- Seismically safe supervised reconstruction using independent third party mechanism ensures construction of seismically safe health infrastructure.
- Emphasis placed on the need of the vulnerable population including women, children, and persons with disabilities for improved access and services.
- Collaboration and coordination among ERRA, federal, provincial, and district health authorities and stakeholders, with the involvement of local communities, in decision-making. Key responsibilities regarding provision of health care service is with the Ministry of Health (MoH), Department of Health, District Health Offices, and other relevant stakeholders.
- ERRA and World Health Organisation (WHO) are cooperating in solving a number of management problems. The effective Disease Early Warning System (DEWS) implemented

through partner organisation's needs to be incorporated in the Health Management Information System (HMIS). The district risk reduction plans intend to prepare community members for appropriate response to any future calamity.

6.3 ACHIEVEMENTS IN TERMS OF OUTPUTS AND OUTCOMES – HEALTH FACILITY OUTCOME ANALYSIS

By December 2010, 141 different health facilities had been reconstructed, 112 are under construction, and 47 are at tendering stage while 6 are at design stage. The total target of the reconstruction was 307, which has now been revised to 306²⁵ of which 191 have been pledged. 137 pre-fabricated structures with a lifespan of 5-10 years have been provided by different international organisations and INGOs (ERM). Over the last five years, and particularly in 2010, there has been remarkable progress in the health sector's reconstruction project, a comparative trend is shown in Table 6.1.

Table 6.1 Status of Health Facilities Construction Over last Five years as of June 2011

Status	2007	2008	2009	December 2010	June 2011
Completed	32	46	91	141 (65 KPK & 76 AJK)	158
Under construction	165	108	128	112 (56 KPK & 56 AJK)	100
Tendering	-	138	68	47 (25 KPK & 22 AJK)	42
Designing	110	15	20	6 (1 KPK & 5 AJK)	6
Total	307	307	307	306 (147 KPK & 159 AJK)	306

All health facility designs are approved by National Engineering Services Pakistan (NESPAK) to ensure seismically resistant construction. All efforts are made to ensure transparency in all the procedures involved.

The completed health facilities have the requisite service utilities such as availability of electricity, piped water and public toilets. To ensure the sustainability of the reconstructed health facilities and to create a sense of ownership, local governments and communities have been involved in the project cycle.

6.3.1 Adequacy of Health Centre Facilities

Safe drinking water is a basic requisite of any health facility. Waters from rivers, lakes, ponds and streams are not thought to be safe, yet five GoP funded basic health units had this as their only drinking source. Interestingly, the facility respondent went on in 4/5 cases to define this source of water as safe for drinking despite international standards suggesting that this should not be the case.

The basic facilities, for each level of the health clinics, were categorised by whether they were adequate and fully functional or not. As per the ERRA strategy, the Basic Health Units (BHU) were required to have 10 facility types whereas Rural Health Centres (RHC) and *Tehsil* Headquarters Hospital (THQ) were required to have 13. See Table 6.2 for facility specification by health facility type.

	OPD	Waiting Rooms/Area	Beds	Emergency Exits	Training Rooms	Pharmacy	Wards	Toilets	Staff residences	Labour/Delivery Room	Laboratory	Operation theatre	Blood Bank
BHU	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
RHC	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
THQ	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Table 6.2 Medical facility requirement by health facility type according to ERRA health strategy

²⁵ ERRA Sector Update, January 1, 2011

The results indicate that none of the 29 BHUs, 2 RHCs or the single THQ surveyed had the full set of fully functioning facilities, as required by ERRA health strategy (Figure 6.1). The senior management of ERRA has indicated that this difference is in part because the contractors were not being given the required or prescribed list of facilities, furthermore while monitoring the progress, the same is not monitored and reported. Figure 6.2 presents the mean number of functional facilities for BHU's and the actual number for the other categories of health facilities across the two regions.

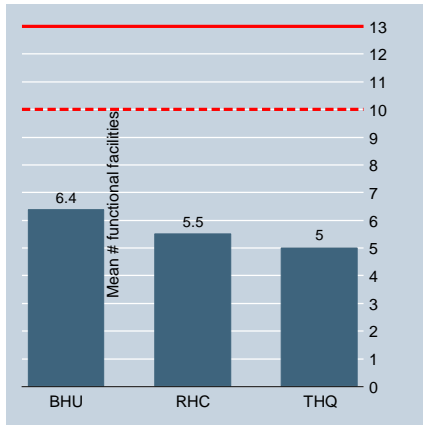


Figure 6.1 Mean number of working facilities by health facility type. (BHU required number of working facilities = 10; RHC & THQ required number of working facilities = 13).

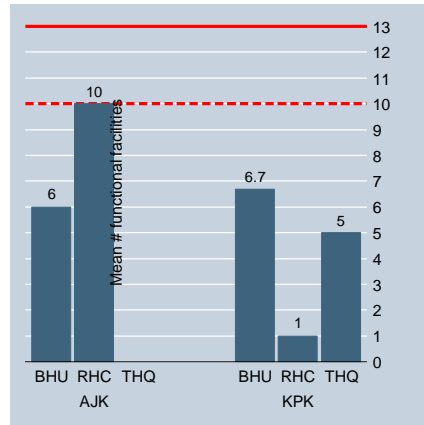


Figure 6.2 Mean number of functional facilities by health centre type within region, BHU total required facilities=11 (dashed red line), RHC & THQ =14 (solid red line).

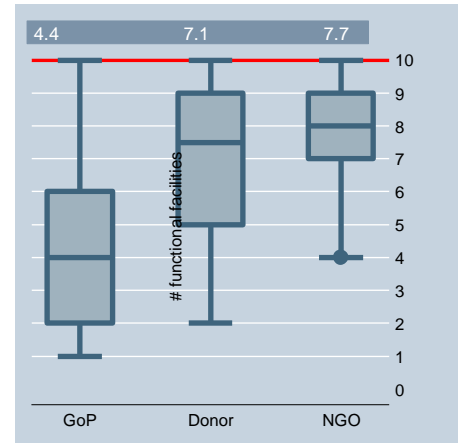


Figure 6.3 Box plot of BHUs only by donor, with mean number of working facilities by donor category in heading. (Red line= 10 required number of working facilities for BHU's)

For the three donor category groups, including the Government of Pakistan (GoP), donors (i.e. JICA, UNICEF and USAID) and NGOs, performance of their respectively funded health units in terms of compliance with ERRA strategy with respect to facilities is presented in Figure 6.3 and **Figure 6.4** . Figure 6.3 presents box plots for the number of working facilities for only BHUs, disaggregated by donor category. The GoP performed with an average of 4.4 facilities present from the 10 required for BHUs. Whereas, donor and NGO funded projects achieved higher levels of compliance.

When this is further broken down by region (Figure 6.4 .4), the GoP funded project compliance in AJ&K shows, a mean number of functional facilities in the order of 1.5 out of 10, thus requiring urgent attention.

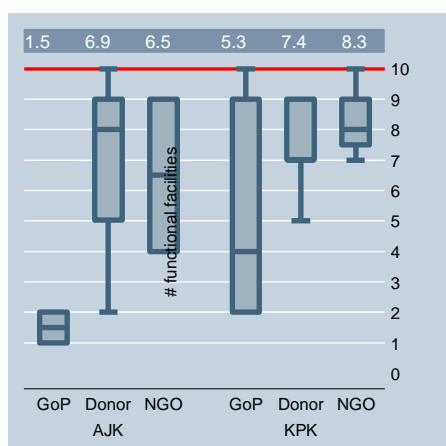


Figure 6.4 Box plot of BHUs only by donor, with mean number of working facilities by donor category in heading. (Red line= 10 required number of working facilities for BHU's)

As part of the survey it was enquired whether outpatient department, toilets, wards and staff residences were available for both males and females separately. The results are presented below:

	Out-patient Dept.	Wards	Toilets	Staff residences
% Health centres with separate male female facilities	31%	44%	91%	63%

Table 6.3 percentage of health centres with selected separate male-female facilities

BHU's)

6.3.2 Adequacy of Health Centre Equipment

Different levels of health facility are required to have different levels of equipment according to the ERRA strategy, as indicated in Table 6.3. The first analysis tested whether the facility had the requisite number of available, adequate and fully functional equipment in line with the requirement for that level of health facility as per Figure 6.4. The survey found that just three BHUs and one THQ had all of the appropriate equipment. The results are presented in Figure 6.4 and Figure 6.5 showing the distribution of facilities with complete medical equipment by donor category, highlighting a better performance by the NGO funded clinics, with 2/6 having the full complement of medical equipment.

Table 6.4 Medical equipment requirement according to ERRA health strategy by health facility type

	Oxygen cylinder	Weighing Machines	Delivery Table	Refrigerator	Blood pressure Kit	Stethoscope	Needle Cutter	Electric/Gas Steriliser	Incinerator	X-Ray	Blood Transfusion	Ultrasound	Surgical Instruments
BHU	✓	✓	✓	✓	✓	✓	✓	✓	✓				
RHC	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
THQ	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Table 6.5 Number of facilities with all medical equipment required by ERRA strategy by facility type and donor category

Available, adequate & fully functional	BHU	RHC	THQ	Total	GoP	Donor	NGO	Total
All medical kit available and functional	3	1	0	4	1	1	2	4
Total number of facilities	29	1	2	32	12	14	6	32

Figure 6.5 indicates the mean number of functioning medical equipment items by health facility type by region (only BHU values are mean, because the rest of the health facility types have no more than one in any region), and for BHUs alone, this statistic is disaggregated by donor category. This indicates that the GoP projects result (clinics) are less well equipped than either donor or NGO, and that NGO clinics are on average, the best equipped. Figure 6.7 presents the box plots of the number of functioning medical equipment items with associated mean. Once again this suggests that the GoP projects are inadequately equipped in both AJ&K and KPK although there was one BHU that was donor funded that reported that none of the equipment was in a fully functioning state.

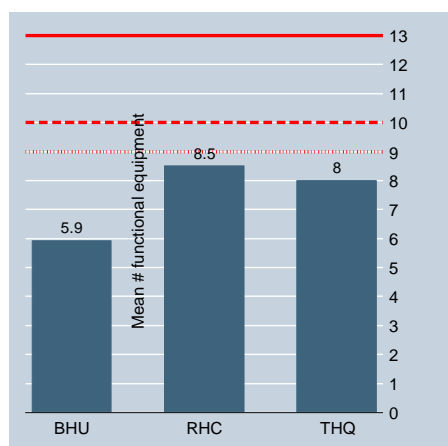


Figure 6.5 Mean number of functional equipment by health centre type. BHU total required facilities are 10, 11 for RHC, and 13 for THQ.

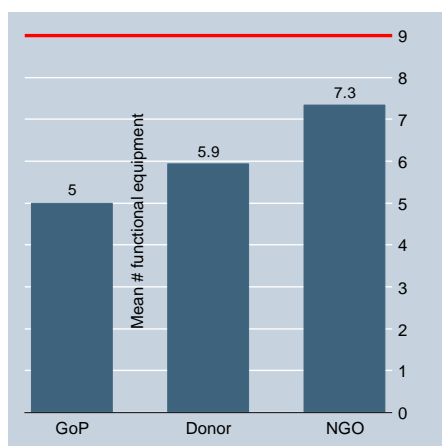


Figure 6.6 Mean number of functional items of medical equipment by donor category within region for only the 29 BHUs. Total required facilities=9 (red line).

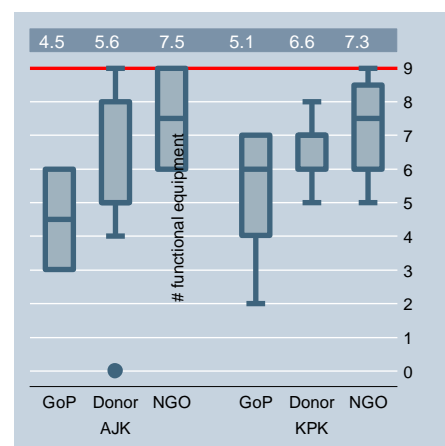


Figure 6.7 Box plot of number of functional items of medical equipment by donor category within region for only the 29 BHUs. Total required facilities=9 (red line).

The reasons why the oxygen cylinders, BP, refrigerators, sterilisers, blood transfusion and ultrasound equipment were not functioning are listed in Table 6.6. Lack of electric power and trained staff are the most commonly cited reasons for equipment not functioning fully.

Reasons of partial or non-functioning of medical equipment	#
Power failure	4
Trained staff not available	4
No electricity connection available	3
Out of order-maintenance budget	2
Out of order-spare part not available	2
Frequent absence of staff	1
Other	1
Total	17

Table 6.6 Reasons of partial or non-functioning of medical equipment

6.3.3 Adequacy of Medical Staff

The adequacy of staff at the health centre was determined by asking whether each of the required medical staff categories was working regularly in the health facility. In a BHU, 8 staff types were required, 10 in RHCs, and 14 in the THQ, (see Table 6.7 Medical staff requirement according to

ERRA health strategy by health facility type for details of medical staff requirement by facility type). The degree of staff complement present is further analysed in Figure 6.8 and Figure 6.11. It shows that just one out of the two RHC's had its full complement of medical staff working regularly .

Table 6.7 Medical staff requirement according to ERRA health strategy by health facility type

	Male Medical Officer	Women Medical Officer	Lady Health Visitor	Dispenser	Health/Medical Technician	Tuberculosis Test Technician	programme for immunisation	Traditional Birth Attendant	Gynaecologist	Child Specialist	Anaesthesiologists	Bio Medical Technician	Radiologist	Ambulance Driver
BHU	✓	✓	✓	✓	✓	✓	✓	✓						
RHC	✓	✓	✓	✓	✓	✓	✓	✓	✓				✓	✓
THQ	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Figure 6.8 presents a box plot of the number of staff working regularly by different category of health facility. The two RHC's are almost completely staffed with an average of 8.5/10 of the required medical staff categories working regularly , and both are GoP funded rehabilitations. BHUs had an average staff number of 3.8/8 (48%) with values ranging between one and six. When broken down by region, Figure 6.9 , the RHC in KPK was the only fully staffed facility out of the 32 enumerated, with 10 staff regularly working from the 10 staff categories required by ERRA strategy. BHUs had a similar range of staff regularly working in both regions. Apart from the one RHC, significant levels of understaffing are observed across all types of health facility.

The staffing levels by donor category were examined for 29 BHUs, and do not vary significantly by the type of donor support (Figure 6.10) nor by region (Figure 6.11), indicating consistent and significant shortcomings in the complements of medical staff required to be regularly working at these operational rehabilitated health facilities.

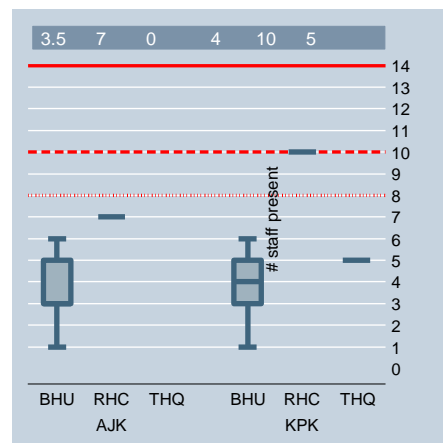
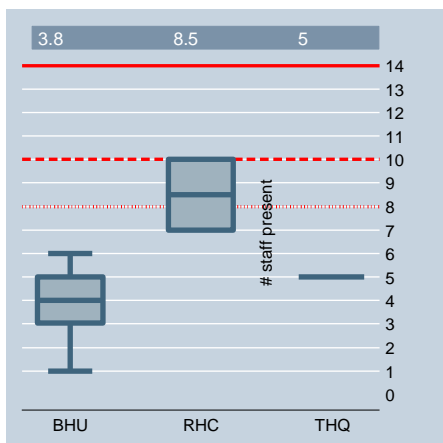


Figure 6.8 Box plot of number of staff regularly working in BHUs, and actual staff for RHC & THQ. Full complement of staff for BHU = 8, RHC = 10, THQ = 14. Means by facility above graph.

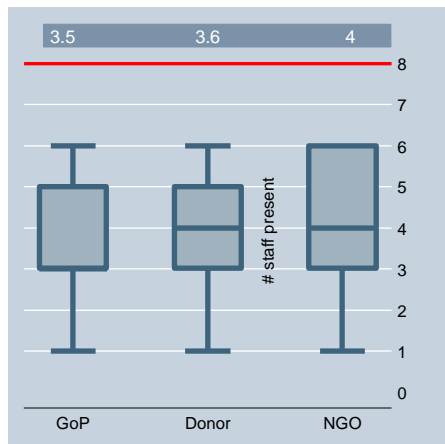


Figure 6.10 Box plot of number of staff regularly working in BHUs by donor category. Total required facilities=8 (red line). Means by donor category above graph.

Figure 6.9 Box plot of number of staff regularly working in BHUs, and actual staff for RHC & THQ by region. Full complement of staff for BHU = 8, RHC = 10, THQ = 14. Means by facility above graph.

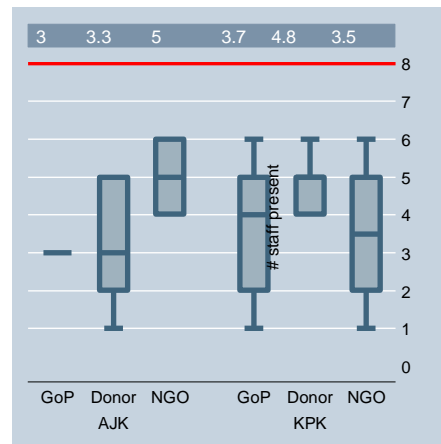


Figure 6.11 Box plot of number of staff regularly working in BHUs by donor category and region. Total required facilities =8 (red line). Means above graph.

A total of 147/462 (31.8%) medical staff categories across the whole facility survey were not working regularly. The reasons for this are presented in Table 6.8 There are only two significant categories, staff not sanctioned, 60%, and staff sanctioned but not appointed, 37% (Figure 6.12).

Reasons for staff absence	%
Sanctioned but not appointed	37%
Appointed but on leave/sick today	1%
Appointed but absent today without permission	1%
Appointed but working at other facility	1%
Not Sanctioned	60%

Table 6.8 Reasons for absence of medical staff

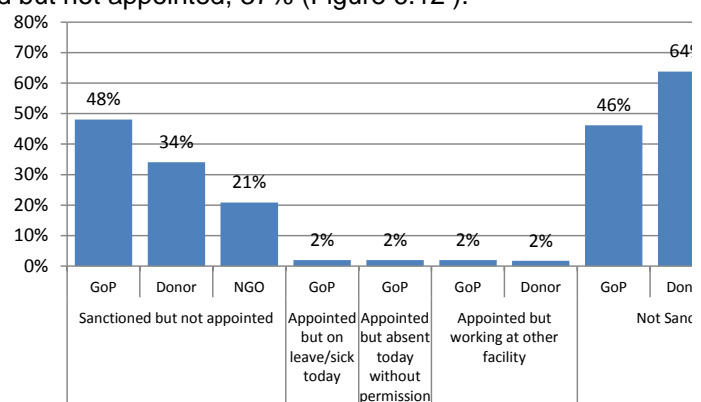


Figure 6.12 Reasons of absence of medical staff disaggregated by donor category

When the reasons for absence of medical staff is disaggregated by donor category (Figure 6.12), GoP and donor funded health facilities have a higher rate of staff than that of staff sanctioned by but not appointed, whereas NGO funded facilities have a bigger problem of staff not being sanctioned.

6.3.4 Adequacy of Services

The availability of nine different medical services was enumerated, 6 for BHUs, 8 for RHUs and 9 for THQ. (See Figure 6.13 and Figure 6.14 **Error! Reference source not found.** for details of medical staff requirement by facility type.)

	Expanded Programme for Immunisation (EPI)	Primary Health Care (PHC)	Nutrition	Tuberculosis testing & treatment	Family Planning	Mother & Child Health Care	Ambulance	Lab Tests	Blood Transfusion
BHU	✓	✓	✓	✓	✓	✓			
RHC	✓	✓	✓	✓	✓	✓	✓	✓	
THQ	✓	✓	✓	✓	✓	✓	✓	✓	✓

Table 6.9 Medical services required according to ERRA health strategy by health facility type

Just three BHUs out of 29 had the six required services fully available at the time of enumeration, whereas none of the RHC's or THQs had the full complement of services available (Figure 6.13). To examine the shortfall of available services further, numbers of available services for the 29 BHUs was disaggregated by donor type (Figure 6.14). This indicates that donor funded facilities are doing slightly better, providing a mean/median of 3.5/4 available services on average compared to 2.3/2 for GoP and 2.24/2 for NGOs funded rehabilitated facilities. Also the donor funded facilities are skewed towards the upper end of the distribution.

Figure 6.15 describes the reasons for the 162/256 (63%) of services that were not available across the 32 facilities enumerated and indicates that the majority of the reasons (83%) for services not being fully available is lack of trained staff. When this statistic is disaggregated by donor category, the only notable difference is that for NGO funded facilities which has less of a problem of trained staff availability but more a problem of equipment being out of order due to a lack of spare parts.

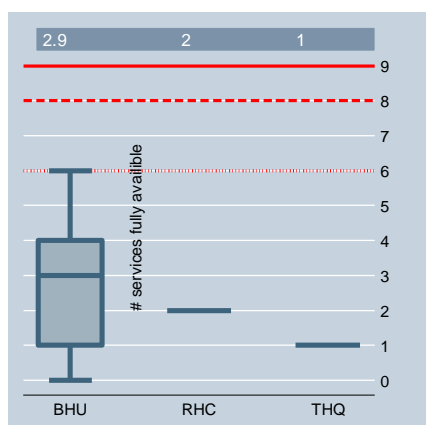


Figure 6.13 Box plot of the number of fully available services by health centre type. Number of available services required: BHU 6; RHC 8 THQ 9 (red lines). Mean number of fully available services by health facility above graph.

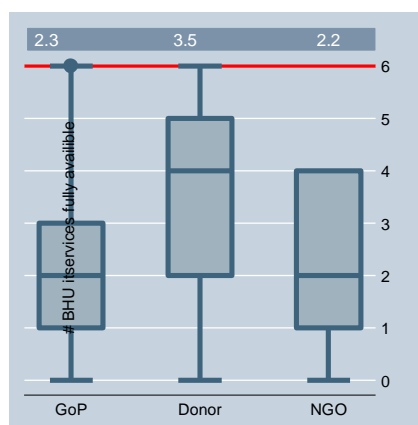


Figure 6.14 Box plot of the number of BHU fully available services by donor category. Total required available services =6 (red line). Mean number of fully available services by donor above graph.

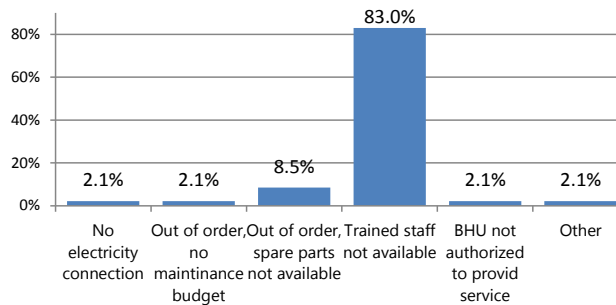


Figure 6.15 Percentages of reasons for not having a fully available service

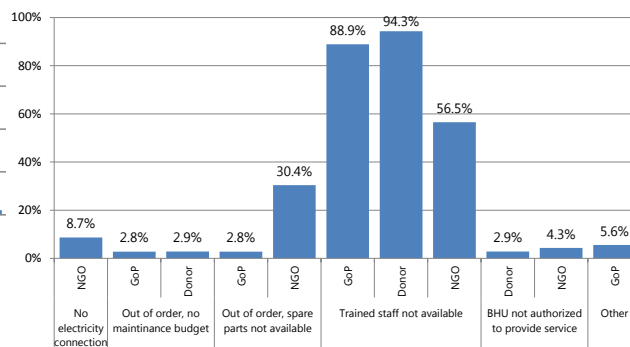


Figure 6.16 Percentages of reasons for not having a fully available service disaggregated by donor category

6.3.5 Availability of Essential Drugs

The ERRA health strategy requires 16 essential drugs to be available at all health facilities. These are:

- | | | |
|---------------|-------------------|-----------------|
| Aspirin | Diclofenic Sodium | Transamine |
| Ampicillin | Diazepam | Dextrose Saline |
| Atenolol | Frusemide | Normal saline |
| Antacid | Hyoscine-N-butyl | Lignocaine |
| Paracetamol | Isoniasid | |
| Ciprofloxacin | Salbutamol | |

The results on the availability of the 16 essential drugs was summarised by determining the percentage of drugs available, all or most of the time (Figure 6.17 & Figure 6.18). The overall mean rate of availability of the 16 drugs, all or most of the time, was only 46%. Out of all the facilities surveyed just 2/32 (6%) health facilities had all 16 drugs available all or most of the time, one BHU and one RHC.

Drug availability varied significantly across health facility types, with only the RHU in KPK having all essential drugs. BHUs in AJ&K were particularly poorly supplied with essential drugs, with an average of 32% of the 16 drugs available all or most of the time. Also, the THQ had a similar low level of essential drug availability in KPK. When these rates of drug availability were disaggregated by donor category, the facilities funded by the GoP faired best, with an average of 51%. NGO funded facilities faired poor with 41% of the 16 drugs available all or most of the time, and donor facilities had more than 56% of the essential drugs available all or most of the time.

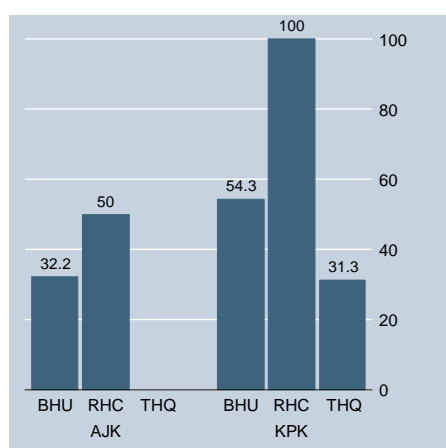


Figure 6.17 Mean % of 16 essential drugs present always or most of the time by health facility type within region.

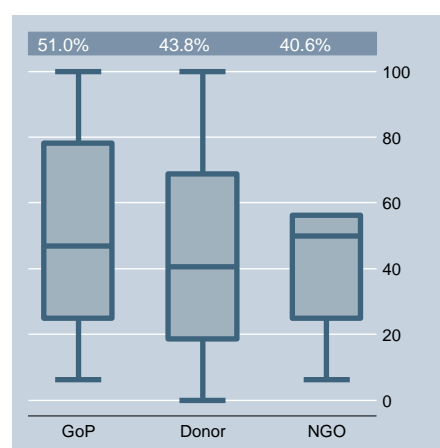


Figure 6.18 Plots of % of essentials vaccines present always or most of the time in the health centre by donor type.

6.3.6 Composite Performance Score

Six aspects of health facility compliance with ERRA strategy had been analysed and presented as single variant analysis. To make an overall assessment of the facility's ability to deliver the range of services required according to the ERRA health strategy, a composite score of the following indicators was calculated as the mean:

- Percentage of required number of facilities working
- Percentage of medical equipment available and functional
- Percentage of required medical staff working regularly
- Percentage of required medical services available
- Percentage of essential drugs available
- Percentage of essential vaccines available

Equal weight was given to all six indicators creating a mean of these six for each facility. Overall, KPK's performance was slightly better than AJ&K with an overall compliance score across the six indicators of 58.4% as opposed to 52.3%. When broken down by region and facility type, the lowest performing individual facility was the THQ in KPK with an overall composite score of 44% (Figure 6.19). The BHUs (29/32 of the facilities) performed better in KPK than AJ&K (58.4% vs. 51.7%, Figure 6.20 6.20). In terms of overall performance of the facilities broken down by donor category, GoP facilities had the lowest level of compliance with an overall score of 51.7%, donor funded facilities, the best with an overall score of 59.5% with NGO facilities in the middle with a score of 54.9% (Figure 6.21).

When the performance by different donor category is broken down by region, in AJ&K, GoP has a weak performance followed by 'donors' with the best score of 60.3% being obtained by NGO funded facilities (Figure 6.22). When the distribution of these results is considered (Figure 6.23) the donor facilities in AJ&K and the GoP facilities in KPK have some health facilities with very low levels of compliance (Figure 6.23). When considering the compliance of BHUs alone by donor category (Figure 6.24) the GoP funded BHUs in AJ&K all have a low level of compliance, whereas the GoP funded BHUs in KPK had a much wider range with relatively good and relatively poor compliant facilities, while still having an overall higher mean (52.1%) than the BHUs in AJ&K (39.7%).

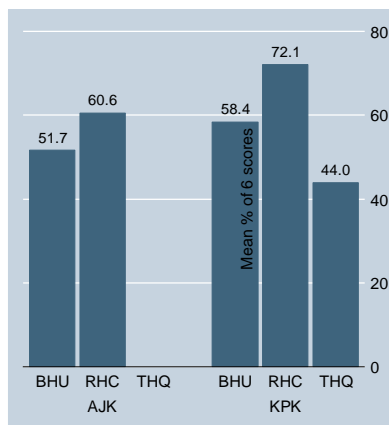


Figure 6.19 Mean composite percentage performance score by region and facility type

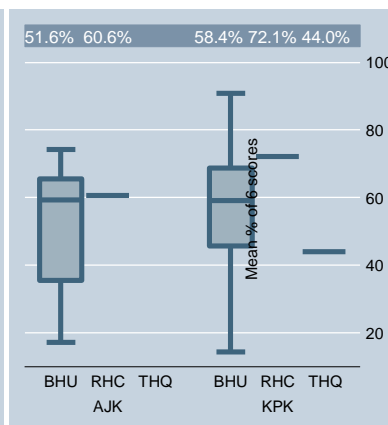


Figure 6.20 Box plot of composite percentage performance score by region and facility type, with means in note above chart.

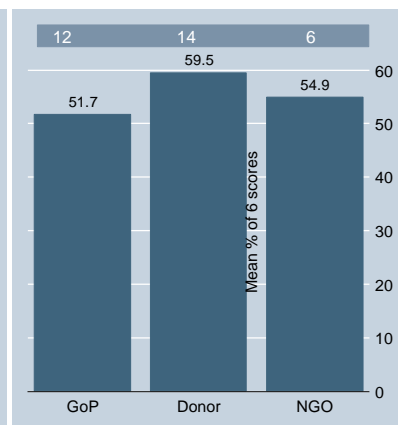


Figure 6.21 Plot of composite percentage performance score by donor category. Number of facilities for each category above chart.

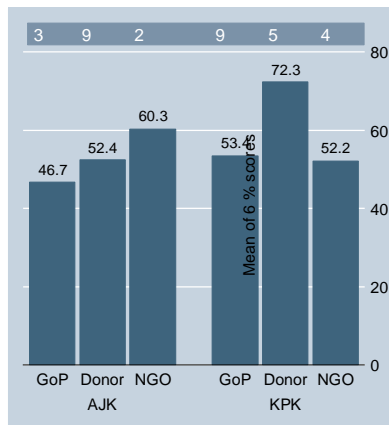


Figure 6.22 Plot of composite percentage performance score by region & donor category. Number of facilities for each category above chart.

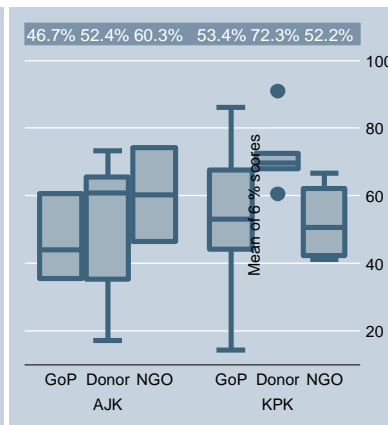


Figure 6.23 Box plot of composite percentage performance score by region & donor category. Mean score for each category above chart.

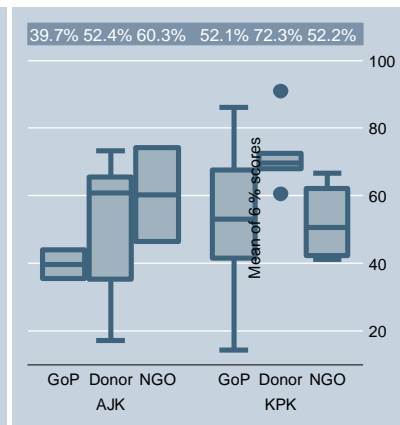


Figure 6.24 Box plot of composite percentage performance score for BHUs only by region & donor category. Mean score for each category above chart.

6.3.7 Patient Satisfaction Analysis

The questionnaire administered to patients exiting from the health facility was a short satisfaction survey. If the exiting patient was too young or too sick to respond to the questionnaire, an accompanying responsible person was allowed to respond for them.

Despite 32 health facilities being enumerated at a facility level, only 30 health facilities have corresponding beneficiaries, the Basic Health Unit Kharari in Battagram district and the Basic Health Unit Pairan Khair Abad in Mansehra district, both in KPK, do not have any exiting patient data. This resulted in a total of 174 exiting patients being surveyed from 30 facilities. One reason suggested for this mismatch between facilities and beneficiaries was that the deadline for completing of the survey could have resulted in a facility interview being completed but not the patient interviews.

Surveyors were given clear instructions to make all efforts to enumerate at least 8 exiting patients, with an equal number of male and female patients, wherever possible. This should be facilitated by ensuring that there is at least one female member of the survey team interviewing exiting patients. The maximum number of exiting patients interviewed was 12. The number of exiting patients actually interviewed ranged from 2 to 12, with a median of 5 exiting patients interviewed. The results show that only 3 health centres complied with the instructions to interview 8 exiting patients or more. The split between male and female exiting patients was 80 females and 94, with only 3 facilities having no female exiting patients enumerated. Nine facilities interviewed more females than males. It is likely that distribution of male - female exiting patients were somewhat determined by the flow of different sexes out of the health facility on the day of enumeration. Because of the variation in the numbers of exiting patients interviewed from each of the health facilities, a weighting system was devised. The weight assigned to each exiting patient was the reciprocal of the number of exiting patients interviewed her health facility. The sum of these weights is equal to the number of health facilities with patient interviews, i.e. 30. The reason for this is it is likely that patient experiences are similar within the same health facility, and if health facility is overrepresented in the sample then its performance will unduly influence the overall results.

6.3.8 Health Service Delivery Currently Better or Worse than Before Reconstruction

Only 11% of patients had received treatment but did not use the health service before its reconstruction and therefore were not in a position to be able to comment on the quality of health services compared to before the reconstruction. The opinions for the remaining 136 patients on why the service was either better or worse than before the reconstruction are presented in Figure 6.25 , Table 6.10 , Table 6.11 and Figure 6.26 .

Overall, 65.5% felt it had actually improved (Figure 6.25) whereas only 3.5% of patients felt that the health service had deteriorated since reconstruction. There were a greater proportion of patients that

felt donor and NGO facilities provided a better service than before reconstruction than for GoP funded facilities. NGO funded facilities were cited significantly more often as being better than before the reconstruction (96.7%), as opposed to 46.3% in the case of GoP funded reconstructions. There were no significant differences in opinions of exiting patients between regions on whether the health service had improved or deteriorated since facility reconstruction.

When the reasons for the improvement in the health service since reconstruction were disaggregated by donor (Figure 6.26), of note is the significantly greater proportion of patients from a donor or NGO reconstructed health facility, citing improved construction. This is likely because donors and NGOs often specified higher per unit reconstruction standards resulting in higher "quality" finish. GoP facilities, had a higher average of improved supply of medicines being cited as a reason for improvement, but this value is not significantly greater than donor or NGO funded reconstructions.

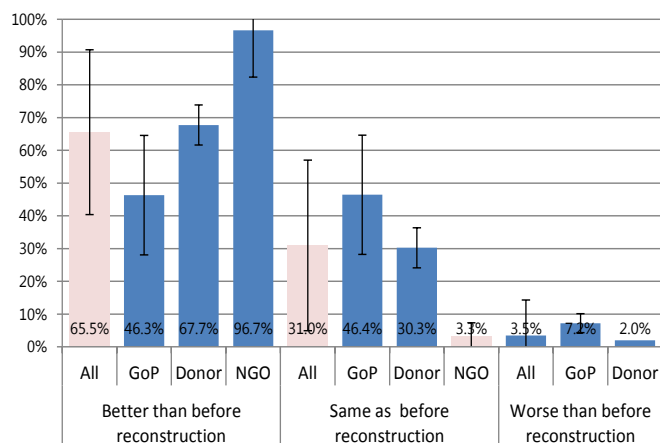


Figure 6.25 % of patients indicating whether the health service was better, the same or worse than before the reconstruction of the health facility disaggregated by donor type with 95% confidence intervals.

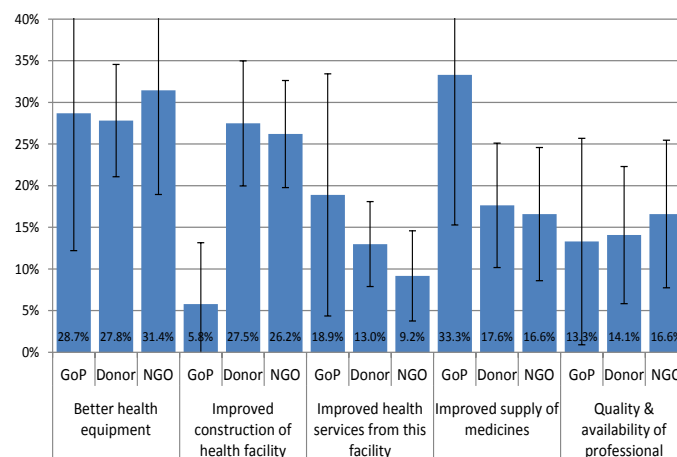


Figure 6.26 % of categories of reasons (two answers permitted) why health service has improved since reconstruction disaggregated by donor type with 95% confidence intervals.

Reason facility has improved since earthquake	Freq	Weighted %
Better health equipment	48	28.9%
Improved construction of health facility	36	22.1%
Improved health services from this facility	21	13.4%
Improved supply of medicines	33	21.0%
Quality & availability of professional	24	14.5%

Table 6.10 Frequency and weighted percentage of reasons cited for health service improvement since reconstruction.

Reasons why health service worse after reconstruction	GoP	Donor	Total
Worse quality & availability of professional staff.	3	2	5
Reduced supply of medicines	1	2	3
Worse health equipment	1	0	1
Total	5	4	9

Table 6.11 Frequency of reasons two answers permitted) why health service judged worse after reconstruction by donor category.

6.4 ACCOMPLISHMENTS AND IMPACT

The health-related indicators presented include time to health centre by foot, health seeking behaviour, satisfaction with visit to health clinic, contact with lady health workers, pre-and antenatal service delivery effectiveness and tetanus immunisation coverage.

6.4.1 Time Taken to Get a Health Centre on Foot

A household's proximity to a health centre is likely to have an implication on its health seeking behaviour from qualified professionals. Figure 6.27 presents the mean time score as the survey categorised time taken to reach the hospital or health clinic in four intervals; 0-14, 15-29, 30-44 and 45-59 minutes. Therefore the lower the score the nearer the health clinic or hospital is.

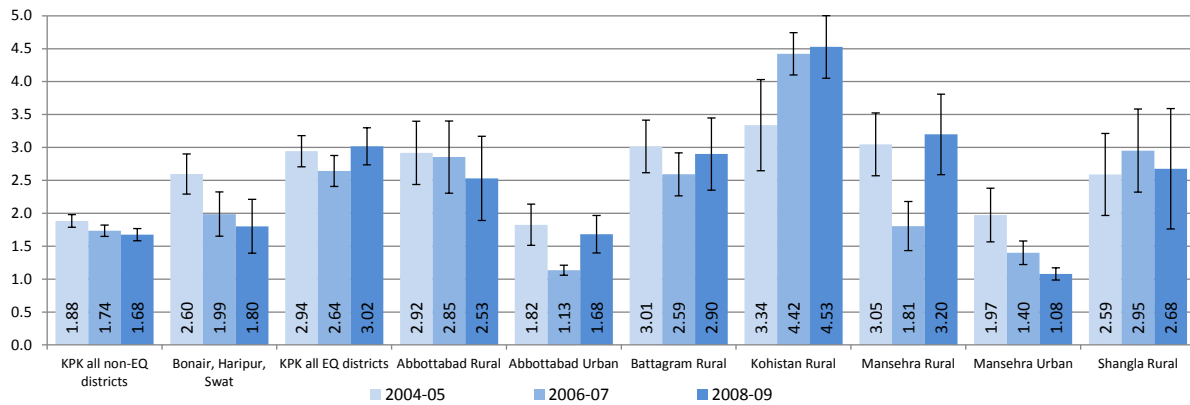


Figure 6.27 Mean time score to get a health centre on foot

Overall, the time taken by households in the earthquake affected districts is significantly more than in the non-earthquake affected districts and the 3 selected non-affected districts. Overall there was no significant decline since before the earthquake in the average time score for earthquake affected districts, whereas there were declines in non-earthquake affected districts. When looking at the district rural-urban disaggregated estimates, worryingly there was a significant increase in time taken to get to a health clinic or hospital in rural Kohistan in 2008-09 (time score = 4.5), but on the other hand a significant decrease in the time taken in urban Mansehra. The two urban domains, Abbottabad and Mansehra, both have significantly lower time scores than rural domains, indicating that in urban areas health clinics or hospitals are much closer to most households, as expected. Kohistan rural registers the one significant increase in time to get to a health centre/hospital in 2008-09. It would seem that apart from in urban areas there has been no significant improvement in access to health centres and hospitals in terms of time taken to get there. This may not be surprising as the ERRA program was largely reconstructing existing health facilities rather than creating a network of new ones that would reduce access time.

6.4.2 Health Facility Patients Have no Complaints

For all household members, the survey provided an opportunity for them to identify any problems they had with a visit to a health clinic or hospital in the two-week reference period preceding the survey. The categories of complaints included no doctor, staff not helpful, no female staff, not clean, long waiting times, lack of trained staff, no medicine available or unsuccessful treatment. Figure 6.28 presents the estimates of the headcount rate of those visiting a health centre or a hospital in the two weeks before the survey that had no problem or complaint, and it is encouraging to see that for all of the earthquake affected districts, this increased significantly from 54% in 2005 to 69% in 2008-09.

This contrasts with the trend in the non-earthquake affected districts, where there is a non-significant downward trend in the headcount rate of those with complaints resulting from a health institution visit in the two weeks preceding the survey. As a result of this, the most satisfied patients in 2008-09 were from the earthquake affected districts. The district disaggregated analysis indicates no significant declines and for the most part, increases in satisfaction rates. In 2008-09 the lowest satisfaction rate in the earthquake affected districts was rural Shangla with just over half (53%) of those visiting a health clinic or hospital in the last two weeks reporting a problem.

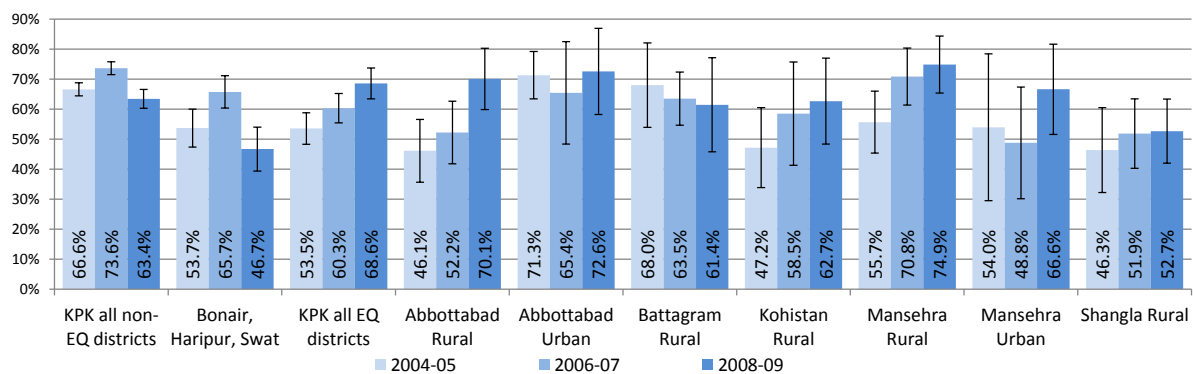


Figure 6.28 Proportion of those visiting health centre or hospital within the last 2 weeks with no problem/complaint

6.4.3 Complaints from Health Institution Visits

While the previous indicator suggests that the situation is improving in the earthquake affected districts, it is still valuable to look at the type of complaints that are being cited from those that have visited a clinic or hospital within the last two weeks before the survey was conducted.

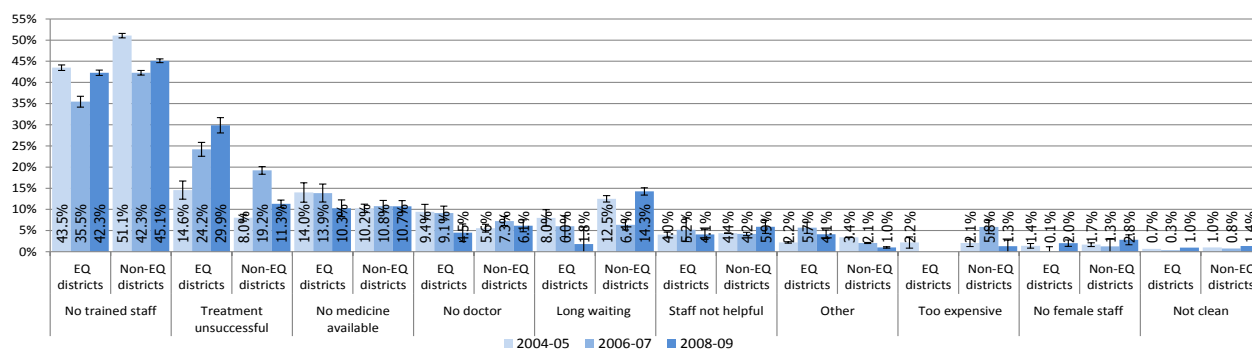


Figure 6.29 Distribution of complaint type by household members visiting health clinic or hospital 2 weeks before the survey

Figure 6.29 presents the rate of citation for different categories of complaints by those who had visited a clinic or hospital within the two weeks before the survey, for which an individual could cite to different problems. The most frequently cited complaint was overwhelmingly the lack of trained staff, accounting for 42% of complaints in earthquake affected districts and 45% in non-earthquake affected districts and the difference is statistically significant. The earthquake affected districts registered a small, non-significant decline in the rate of complaints about the lack of trained staff between base and end-line measurements. The estimate from the 2006-07 survey registered a significant decline in complaints relating to a lack of trained staff with a drop from 43.5% in 2005 to just 35.5% in 2006-07, but this increased again to 42% in 2008-09. The other indicator, similar to this one would be the absence of a doctor, where there was a significant decline in earthquake affected districts from 9.1% in 2006-07 to just 4.5% in 2008-09. For the same complaint, in the non-earthquake affected districts; there was a slight and non-statistically significant increase from 5.6% to 6.1%. It is interesting to note that although in the outcome survey only 2/32 health facilities had a female medical officer, there was a very low complaint citation rate across the three PSLM surveys that there were no female staff in the health facility that they had just visited. This data clearly indicates that there is a widespread perception that staff are not present or inadequately trained in many of the health facilities in both the earthquake and non-earthquake affected areas of KPK.

To simplify the interpretation of the citation of complaints by exiting patients, the complaint categories were reduced to just four, with no doctor, no female staff, and no trained staff combined into staff deficiencies; treatment not successful was maintained as a separate category as was no medicine, while all others (not clean, long waiting, too expensive, staff not helpful and others) were combined into one. The resulting headcount rates of the citations for the four problem categories are presented in Figure 6.30, remembering that an individual can cite two problems related to the health consultation. Staff deficiencies have declined significantly in the earthquake affected districts from 20% before the earthquake to 14% in 2008-09, significantly lower than the 15% citation rate in non-earthquake affected districts in 2008-09. Despite the earthquake affected districts eliciting fewer complaints about staff deficiencies, these areas resulted in significantly more complaints concerning unsuccessful treatment. Caution should be given to opinions regarding unsuccessful treatment as this is perhaps the vaguest of the complaint categories. It is encouraging to see a significant drop in the rate of exiting patients citing lack of medicines as a problem from before the earthquake until 2008-09 (7.5% → 3%).

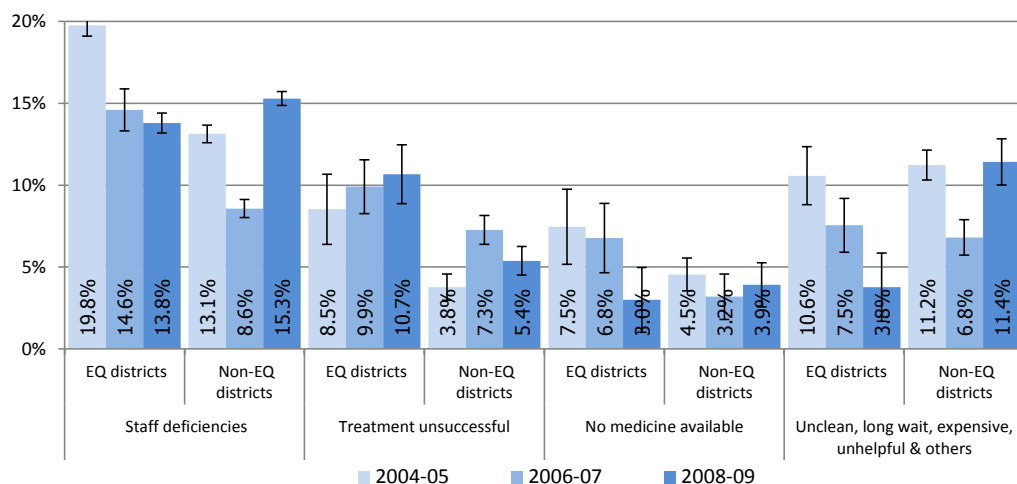


Figure 6.30 Headcount rates of problem citation after a health centre consultation.

6.4.4 Households Receiving Visit from Lady Health Worker in Preceding 30 Days

Lady health workers (LHW) are meant to regularly visit households, at least once a month and therefore the questionnaire gives an opportunity to indicate whether a lady health worker visited the house or a member of the household had visited the lady health worker's house in the last 30 days. The results presented in Figure 6.31 show that overall, the rates of households that had contact with the lady health workers in the preceding month in the earthquake affected areas was significantly less than the non-earthquake areas, and this rate remained virtually the same throughout the three observations at around 38% of households having contact with a LHW. The two urban district domains had higher contact rates, and both had increased since 2004, and in the case of urban Mansehra the increase was significant (59%-79%). On the other hand contact rates in the rural areas are either declining or remaining the same. This suggests that except for the urban areas, the earthquake affected districts or poorly supplied by the health services provided by household member contact with lady health workers, and overall this level of contact is much lower in earthquake affected districts.

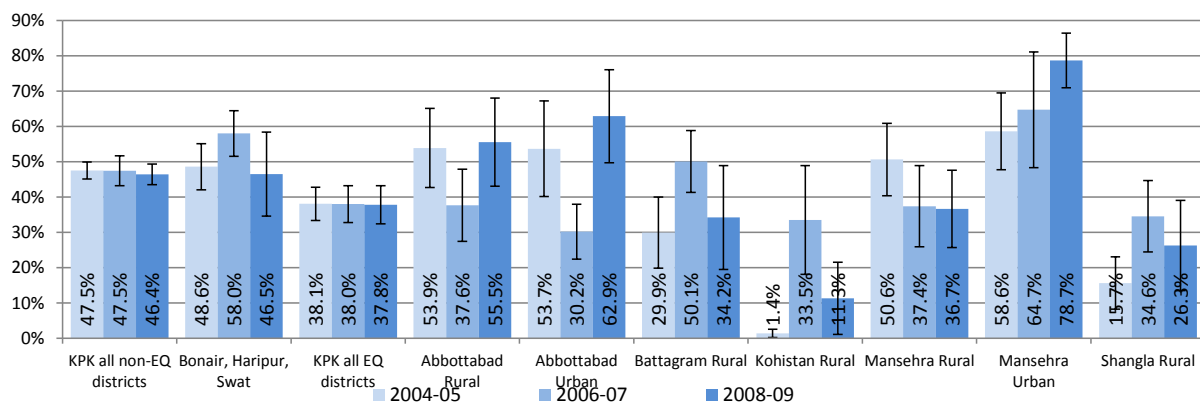


Figure 6.31 Households receiving visit from lady health worker or household member visiting lady health worker's house in preceding 30 day

6.4.5 Pre-and Postnatal Care

All those women from sampled households between the age of 15 and 49 years old, who had never been married responded to questions on antenatal and postnatal services. The indicators presented include provision of antenatal care, tetanus toxoid injection, institutional birth rate, skilled birth attendance rate and postnatal provision rates.

6.4.6 Antenatal Care Provision

Figure 6.32 indicates that the rate at which women who have given birth in the last three years had received antenatal care had increased over the three observations from 40% to 47%, but this

increase is not statistically significant. While the overall rate for earthquake affected districts is lower than for all non-earthquake affected districts, it is not significantly lower. The earthquake affected districts are achieving an antenatal care provision rate slightly higher than the three comparable non-affected districts (47% versus 46%). Urban antenatal care provision rates are higher than in rural areas, but are decreasing in urban Abbottabad (not statistically significant), while they are increasing significantly in urban Mansehra, achieving an almost universal coverage rate of 98% in 2008-09. The more remote rural districts, Kohistan and Shangla, exhibit the lowest antenatal care provision rates, but in both cases they are slowly increasing, although the last observation in Shangla recorded a non-significant decline from 28% in 2006-7 to 22% in 2008-09. Still this data indicates that the rural-urban divide is significant for antenatal care provision.

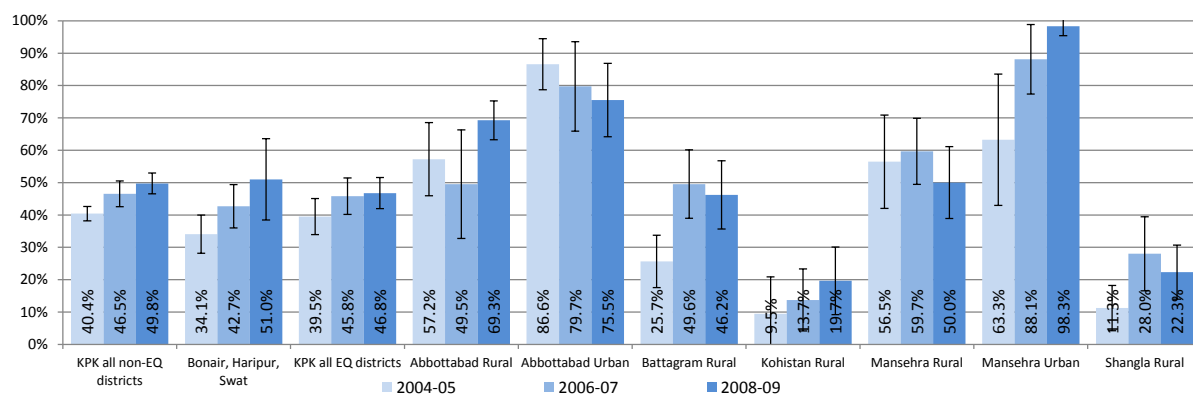


Figure 6.32 Rate at which mothers who gave birth in the last 3 years received antenatal care

6.4.7 Tetanus Toxoid Immunisation Rates for Pregnant Women

The Tetanus Toxoid (TT) vaccine is given during pregnancy to prevent tetanus to both mother and baby. Over the three observations, there has been virtually no change in the Tetanus Toxoid coverage rate (women receiving at least one TT immunisation during pregnancy) of women giving birth in the last three years in the earthquake affected districts. Worryingly, it is significantly lower than both all of non- earthquake affected districts than the three comparable non-earthquake affected districts. The disaggregated district results indicate that coverage rates are declining in urban Abbottabad, rural Kohistan and Mansehra, while increasing significantly in rural Abbottabad and Shangla and urban Mansehra. Therefore despite the TT coverage rate for all earthquake affected districts values showing no change, there are dramatically different patterns emerging at the district rural-urban level with both significant increases and decreases in coverage rates. This demonstrates the value of having representative data from districts for both rural and urban cohorts. Once again Kohistan fares worst, with the lowest TT coverage rate, which has declined (not statistically significantly so) since the earthquake to just 6.7% of mothers.

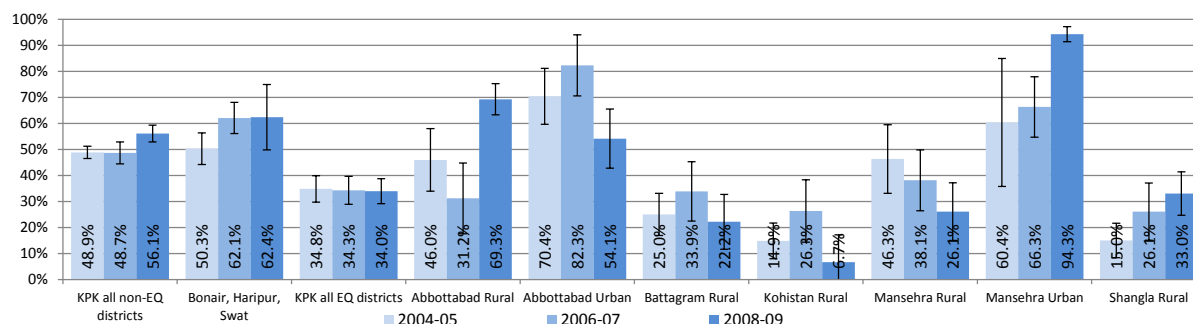


Figure 6.33 Rate which pregnant women were given the tetanus toxoid injection during the last 3 years

6.4.8 Institutional Birth Rate

Mothers giving birth during the last three years at either a government hospital, rural health clinic, basic health unit or private hospital or clinic classified as having had an institutional birth. The institutional birth rate has improved significantly since before the earthquake, rising from 11% in 2005 to 19% in 2008-09 (Figure 6.34). The 2006-07 estimate was even higher at 21%, but not statistically

significantly so. While this is encouraging for fulfilling ERRAs Build Back Better strategy, the institutional birth rate in earthquake affected districts is significantly lower than the non-earthquake affected districts. Again the pattern of better provision of services in the urban areas emerges with urban Abbottabad and Mansehra exhibiting the highest institutional birth rates, (45.6% & 42.1% respectively). Similarly, the most remote rural districts, Kohistan shows the lowest institutional birth rate, but it has increased from almost nothing (0.9%) to 11% in 2006-07 and 8% in 2008-09. The only district to show a decline in institutional birth rates was rural Shangla, dropping from 11% in 2005 to 8% in 2008-09.

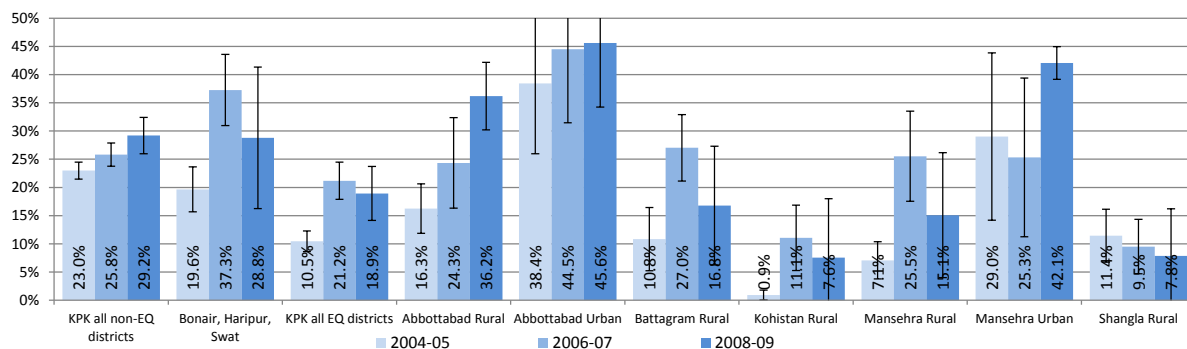


Figure 6.34 Institutional birth rate for mothers giving birth in the last 3 years

6.4.9 Skilled Birth Attendance

Perhaps more critical to the likelihood of child and mother surviving the birth process, is the presence of the skill birth attendant. A skilled birth attended is considered to be a doctor, nurse, lady health visitor or qualified midwife.

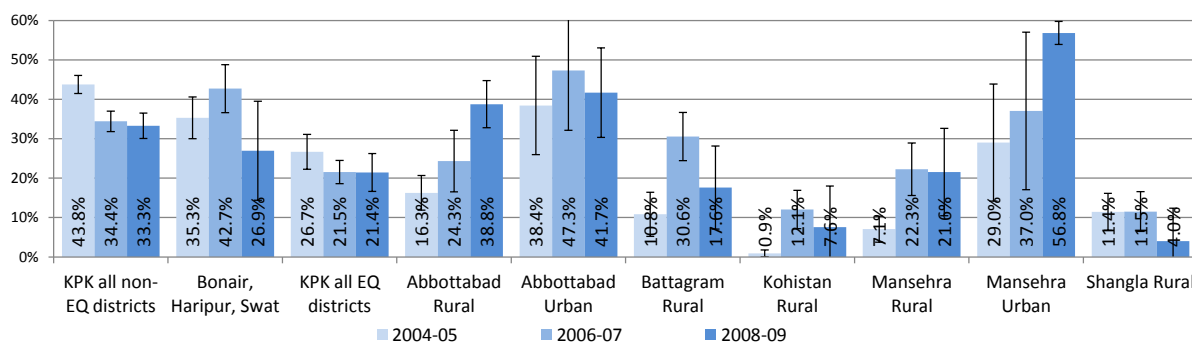


Figure 6.35 Skilled birth attendance rate

Skilled birth attendance rates in the earthquake affected districts declined overall (Figure 6.35), but this decline was not statistically significant (27%-21%). The earthquake affected districts have significantly lower skill birth attendance rates than both all of the non-earthquake affected districts and the three comparable model earthquake affected districts. The district level analysis shows some significant improvements over the 3 observations, notably in rural Abbottabad (16.3%-38.8%) and urban Mansehra (89% -57%). Rural Shangla shows a decline, but not a significant one, from around 11% to just 4%, and rural Kohistan shows very low rates, over the observation period, but they have increased from 0.9% to 7.6%. Once again the picture of the district level analysis indicates an improving situation in urban areas, lower, but improving rates, for the most part, in rural areas, while overall, the earthquake affected areas remain with lower skilled birth attendance rates than the non-earthquake affected areas. This dataset is a good example of the value of individual district level data, as the values for the whole earthquake affected areas didn't change from 2006-07 to 2008-09, individual district values were changing significantly.

6.4.10 Rates of Postnatal Care Provision

Women who had given birth in the last three years were asked if they had received any postnatal care after the delivery without any further definition or reference period defining the post-natal period. Figure 6.36 indicates that in many areas, postnatal care provision rates improved in 2006-07, only to decline again in 2008-09. Overall, postnatal care provision rates for the earthquake affected districts are comparable to the non-earthquake affected districts, but significantly lower than the three

comparable districts. At the district level, there were significant declines in urban Abbottabad and Mansehra. Rural Kohistan and Shangla exhibited the lowest rates, with only 4.1% of women in Rural Kohistan receiving any postnatal care.

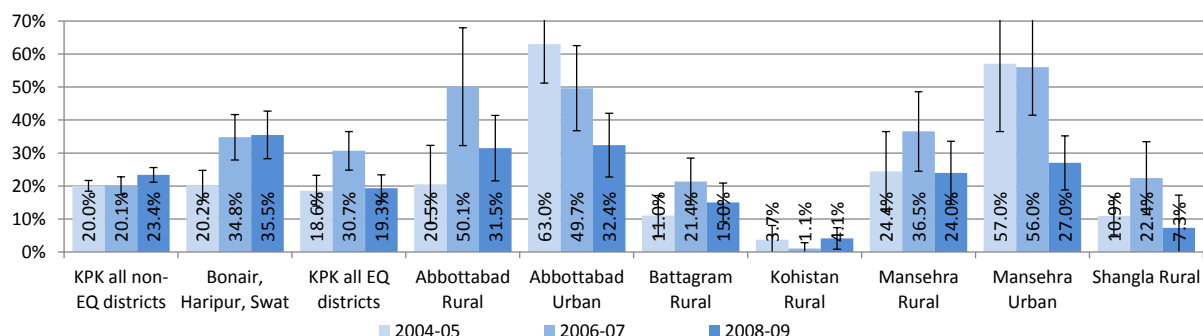


Figure 6.36 Postnatal care provision rates

6.4.11 Immunisation Coverage for Children Under 5

For the purposes of this analysis, the immunisation schedule in the 2004-05 questionnaire was taken as a measure of completeness despite further vaccinations being added for subsequent rounds. Therefore a child will be deemed completely vaccinated if they've received BCG, DPT 1-3, polio 1-3 and measles vaccinations. As the date of enumeration of the surveys was not available for all the data sets, a more precise and accurate generation of an indicator representing whether children are being vaccinated in line with the national schedule was not possible. This indicator will code those children that have been correctly vaccinated on schedule, but have not finished the whole set as they are too young, as not having completed their vaccinations when they are very likely to if they continue in the same pattern. While this is a bias in terms of estimating the actual rate at which children have completed their vaccination course, in terms of the time series, assuming the age demographics of the children don't change significantly over time, a very unlikely occurrence, then there will be no inherent bias in looking at the trends across the three observations.

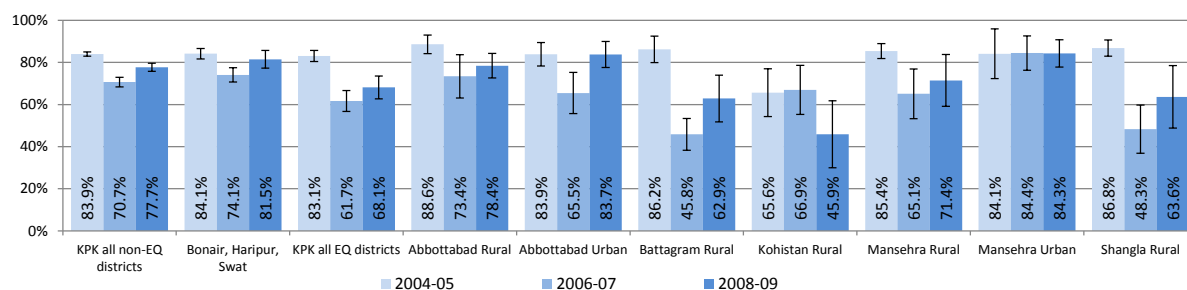


Figure 6.37 Rates of complete immunisation of children under 5

There is a widespread trend of a declining rate of children completing a full immunisation schedule, with significant decrease immunisation coverage after the earthquake in the EQADs that was not experienced in the non-EQADs. As a result, the immunisation rate in the earthquake affected districts is significantly lower than both groupings of non-earthquake affected districts. Once again Kohistan fares badly, with the lowest immunisation completion rate of just 46%, yet this is not significantly lower than the previous higher estimates. Rural Shangla does experience a significant decline from the very coverage rate of 87% before the earthquake to 48% in 2006-07, followed by a non-significant increase to 64% in 2008-9. Significant declines in completeness of vaccinations may contribute to increases in infant and child mortality in the near future.

6.4.12 Basic Health Unit Satisfaction Rate Figure 6.38

The last module of the questionnaire asked household respondents to categorise their usage levels and satisfaction levels with a range of facilities and services, including basic health unit and family planning units from the health sector. Figure 6.38 indicates a decline in the satisfaction rate with the basic health unit service for all analytical domains. There has been a marked and statistically significant decline in the earthquake affected districts from a satisfaction rate of 58% in 2005 down to 35% in 2008-09, a statistically significant decline. There has also been a significant decline in the three comparable non-earthquake affected districts (44% down to 28%), but for all the non-

earthquake affected districts together, a non-significant decline. The district level analysis repeats this pattern of declining satisfaction rates, and this is most marked in rural Kohistan where the pre-earthquake satisfaction rate was 48% and it has dropped significantly to just 4% by the time of the 2008-09 survey. This satisfaction rate would appear to be in line with the results of other measures of health service delivery that have declined since before the earthquake in the earthquake affected areas. These other measures of declining health delivery include LHW visits, tetanus toxoid immunisation rates, skill birth attendance, and post-natal care provision and immunisation coverage.

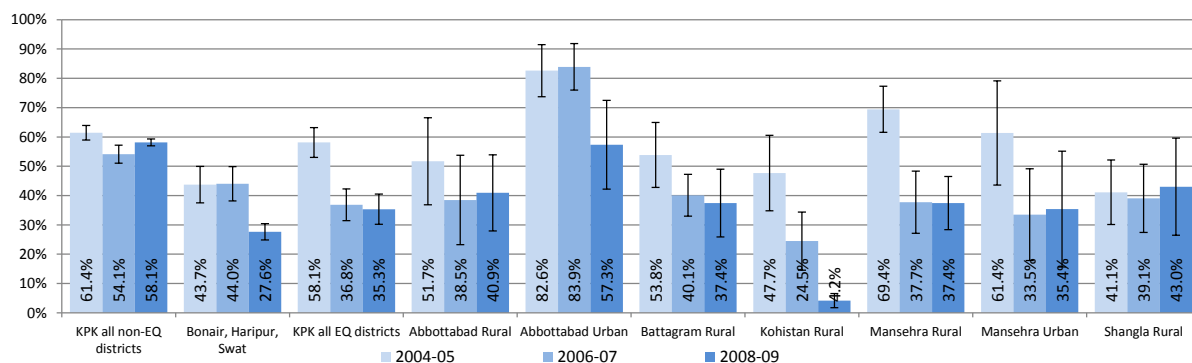


Figure 6.38 Basic health unit satisfaction rates

6.5 OBSERVATIONS AND CONCLUSIONS

6.5.1 Health Facility Survey

- Fully functional facility:** None of the health facilities had all of the prescribed facilities fully functioning as required by the ERRA health strategy. GoP funded BHUs had the lowest number of fully functional facilities (4.4 compared to 7.1 for donors and 7.74 NGO funded BHUs).
- Equipment:** BHUs in AJ&K funded by the government were particularly poorly equipped in terms of facilities.
- Equipment:** Just three BHUs and one THQ had all of the required appropriate equipment.
- Equipment:** GoP funded facilities had the lowest number of functional equipment items for BHUs, with NGO funded facilities having the highest.
- Functioning:** Almost all health facilities were operational according to their required schedules with just two BHUs having any closure in the last four weeks.
- Staffing:** None of the facilities had the required number of staff working regularly, with BHUs having 50% or less of the prescribed staff readily working. There was no difference between the staffing rates and different sources of funding for the rehabilitated health facilities.
- Staffing:** The reason for this poor compliance with staff requirements was primarily due to staff that had not been sanctioned, followed by staff that had been sanctioned but not yet appointed. NGO funded facilities had a bigger problem of staff not being sanctioned whereas GoP facilities had more of a problem with staff who had been sanctioned but not appointed.
- Services:** Just three BHUs had 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 spare parts availability was also a notable constraint.
- Availability of drugs and vaccine:** Just 2/32 (6%) health facilities had all 16 drugs available all or most of the time, one BHU and one RHC. BHUs in AJ&K were particularly poorly supplied by essential drugs with an average of 32% of the 16 drugs available all or most of the time. Overall GoP funded facilities had a slightly higher availability of essential medicines, with a mean of 51% of the essential drugs being available.
- Availability of drugs and vaccine:** Availability of essential vaccines was higher across all categories of health facility, region and donor category, yet there were still three BHUs with no vaccines available.
- Use of incinerators:** Use of an incinerator for disposal of infectious medical waste was used in 34% of all facilities, with KPK having much lower availability of

incinerators than in AJ&K.

12. **Emergency preparedness:** The two RHUs fully complied with all the emergency preparedness requirements, whereas BHUs in AJ&K were the poorest performing group, with only 33% having an emergency preparedness plan in place.
13. **Overall performance:** The composite facility performance score indicated that the GoP funded facilities fared worst and donor funded facilities fared better.

6.5.2 Exiting Patient Satisfaction Survey

1. **Consulting health professional:** 11% of the exiting patients could not consult a health professional, the main reason being that health professionals were either not available or occupied. The rate of exiting patients not having seen health professionals was higher, but not significantly so in KPK.
2. **Consulting health professional:** Rates of exiting patients citing problems with a visit was highest among donor funded facilities followed by GoP funded facilities with the least number of complaints associated with NGO funded facilities. AJ&K facilities also attracted a much higher complaint rate than those in KPK. The main issue was lack of a doctor or required medicine being available.
3. **Current level of services:** The main reasons for patients citing improved services were better health equipment, improved construction of the health facility and improved supply of medicines. When broken down by donor category, there was a greater proportion of patients who felt that donor and NGO facilities provided a better service than before reconstruction than for GoP funded facilities. Only nine patients cited the current level of service as being worse than before rehabilitation, with the main reason being quality and availability of professional staff.
4. **Improved construction:** Very few patients cited improved construction of the health facility applied to GoP facilities, whereas significantly more patients thought both donor and NGO facilities had improved construction.
5. **Composite facility score:** Summarising exiting patients opinions on relative service compared to before reconstruction and level of complaints to the level of facility and comparing with the composite facility score showed no relationship between exiting patients opinions and relative performance of facilities measured by a combination of the six key matrixes analysed at facility level.

6.6 RECOMMENDATIONS

- Ensure availability of adequate funds to make up delays and timely completion of health facilities, particularly in crises of recession and proper release of funds from GoP.
- Continuity and sustainability of ERRA interventions due to non-availability of adequate financial and human resources.
- Reconstruction planning should consider long-term operational and maintenance aspects along with human, technical and financial resource requisite.

6.7 LESSONS LEARNT

- Integration of smaller units into primary health care system has shown impressive results and success in the field of essential health care services. It has the potential for the expansion and replication in other areas and regions.
- Effective approaches and strategies resulted in improved infrastructure and better health service delivery at different level of health facilities, regular and timely inter-departmental coordination facilitated the overall progress in short span of time.
- Effective community mobilisation and public awareness on health issues contributed in the expansion of outreach and change in behaviour for consulting medical facilities.

7. EDUCATION

7.1 INTRODUCTION

7.1.1 Background

After the devastation caused by the earthquake, ERRA's intervention in the education sector has been significant since October 2005. The educational activities resumed in the targeted earthquake affected areas immediately after the earthquake. The challenge was the reconstruction and rehabilitation of 5,802 institutions in the EQAAs with better designs and provision of facilities that were not available before the earthquake to comply with the mandate of building back better.

Initially, the schools started running in tents and temporary shelters to ensure minimum disruption to the educational calendar in the earthquake affected areas. After a slow start, the pace of reconstruction work continued to increase. Out of a total of 5,802 education institutions that are to be reconstructed, 1,105 institutions have been reconstructed, and 2,189 are under construction while 2,508 are at the design stage.

7.2 STRATEGIC APPROACH

7.2.1 Vision

To ensure that educational institutions operate on better lines than before through improved infrastructure facilities and better service delivery.

7.2.2 Objectives

To restore equitable access to quality education and provide for teacher development and capacity building of the district education officers for improved service delivery. The outcome indicators are enrolment/attendance rates and retention of the students. The specific objectives to be achieved are:

1. Reconstruction of seismically safe schools with improved designs
2. Complete repair of partially damaged institutions
3. Build capacity of education managers
4. Recruit and train teachers in the target areas
5. Activate and train SMCs and PTAs
6. Provide all essential facilities for improved learning for example, computer and science laboratories

7.2.3 Implementation Methodology

All schools are constructed in accordance with the National Reference Manual, while simultaneously ensuring equal emphasis on the soft component that includes teacher training and better management practices for education managers.

As the number of schools to be reconstructed was extremely large, it was initially decided to complete the reconstruction in two phases. In order to fast track the construction, alternative fast construction technologies such as light gauge steel frame structures, concrete insulated sandwich panel technologies, and hot rolled steel structures were introduced by the end of the 2008. For all such construction techniques, training was provided on maintenance and sustainability.

As the operation of schools in tents was not a satisfactory transitional arrangement, an effort was made to construct non-tented temporary structures as an interim solution.

It was decided by ERRA that mapping and designing of all the schools should be completed by 31st March, 2010 and at the time of writing this report, this target was about to be achieved.

NESPAK has also contributed positively to the timely construction of schools through an increase in their technical field staff. Increased pace of construction has been enhanced through timely evaluation of bids, close coordination and resolution of disputes with contractors, NESPAK and line departments, enhanced experience of contractors as well as promotion of competition among them. Contractor's Facilities Centre (CFC) based at the ERRA M&E Wing is playing an active role in this whole process. CFC is sharing all the necessary information with the contractors approaching ERRA before the

contracts are awarded to them. CFC provides basic guidelines and procedures related to construction especially to new contractors.

7.3 ACHIEVEMENTS IN TERMS OF OUTPUTS AND OUTCOMES – EDUCATIONAL FACILITY OUTCOME ANALYSIS

By December 2010, a total of 1,581 educational facilities were completed, whereas 2,439 are under construction, and 1,455 are at tendering stage while 296 are at design stage. The total target was the reconstruction of 5,771 educational institutions which has been revised and updated from 5,802 to a current target of 5,771. Over the last three years, 2010-11 saw a remarkable progress in the education sector's reconstruction project, a comparative trend is shown in Table 7.1.

Table 7.1 Status of Educational Facilities Construction Over last four years

Status	Dec 2008	Feb 2010	Dec 2010	June 2011
Completed	215	1,105	1,581	2,007
Under construction	1,716	2,189	2,439	2,192
Tendering	1,881	-	1,455	1,374
Designing	1,538	2,508	296	209
Total	5350	5,802	5,771	5782

Acquiring of land, availability of required human, technical and financial resources, the law and order situation and harsh weather in certain districts are constraints, causing major delays in the reconstruction of these educational institutions.

The facility questionnaire focused on three themes; adequacy of teaching staff, adequacy of school facilities and functioning and impact of school management committees (SMCs).

7.3.1 Adequacy of School Staff

Data was collected from each school regarding the adequacy of the staffing in three categories; sanctioned, posted and regularly teaching. Sanctioned staff refers to the number of staff designated as appropriate for that educational facility by the Ministry of Education. Whereas posted staff are those individual teachers that have been assigned to the school, and finally, of those posted, those that are currently teaching regularly was also recorded. The ratio of those currently teaching regularly to sanctioned and posted was calculated, to give a measure of the degree to which rehabilitated educational facilities are adequately staffed.

Overall the ratio of teachers regularly teaching/teacher sanctioned was 86.5%, and while this improved with AJ&K, (89.8 %) it is not significantly so for KPK (Figure 7.1 7.1). When disaggregated by donor category, NGO funded education facilities have a significantly higher ratio of currently working to sanctioned teachers overall with 94% as opposed to 83% and 81% for GoP and donor funded education facilities respectively. When disaggregated by region-donor category, of the three donor categories, donor performances varied most, with 93.4% in AJ&K and just 75.9% in KPK. The performance of the donor funded facilities in KPK is not significantly lower than GoP funded facilities because it is associated with a particularly high 95% confidence interval resulting from the fact that only 51% of the intended donor funded facilities in KPK were actually surveyed.

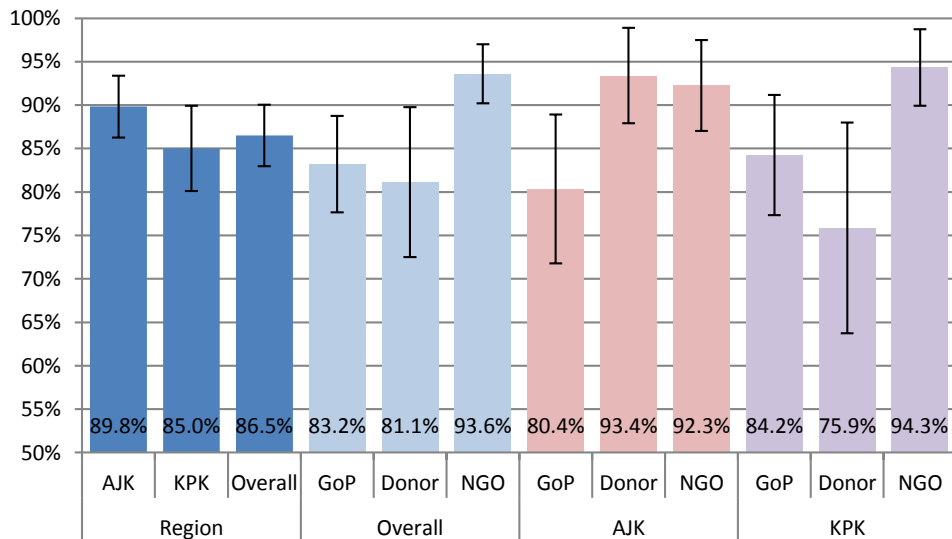


Figure 7.1 Mean ratio of currently working teachers (both sexes) to sanctioned teachers disaggregated by donor category and region-donor category.

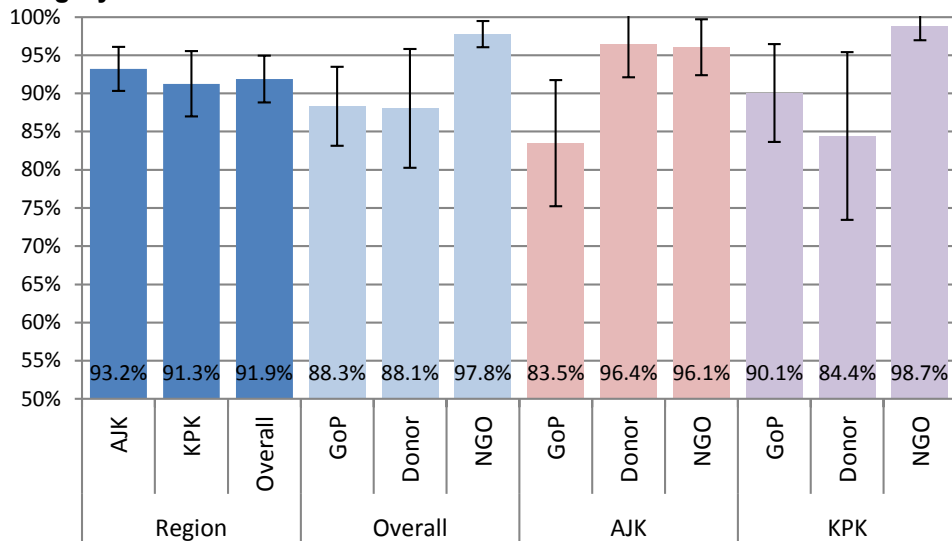


Figure 7.2 Mean ratio of currently working teachers (both sexes) to posted teachers disaggregated by donor category and region-donor category.

Figure 7.2 presents the same statistics as in Figure 7.1, but with posted teachers as the divisor. One would expect the ratio of those currently teaching regularly to in a post to be higher than that of those currently teaching regularly to sanctioned and this is what is observed by comparing the values for the same cohorts in Figure 7.1 and Figure 7.2. Again NGO funded facilities performed best with an overall 96.1% of teachers that have been posted, currently working. GoP funded facilities in AJ&K performed least well (83.5%), whereas donor funded facilities performed least well in KPK (84.4%). There are no significant regional differences, with an overall rate of 91.9%.

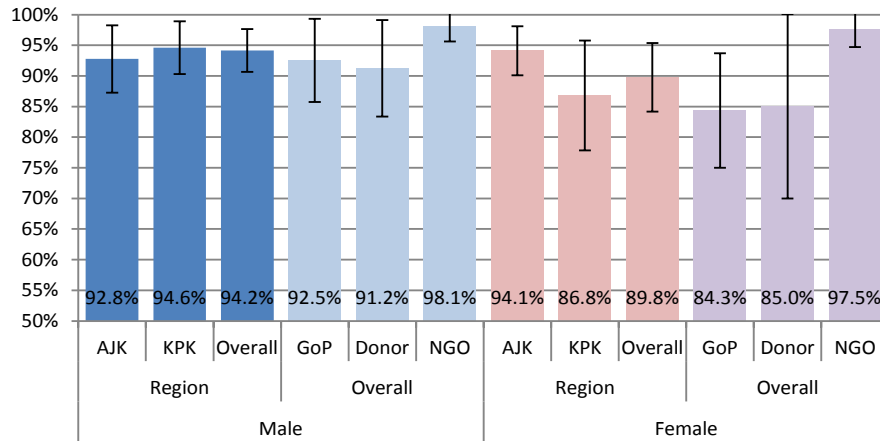


Figure 7.3 Sex disaggregated mean ratio of currently working to posted teachers disaggregated by donor category and region.

Teacher data disaggregated by sex was available for the posted and currently working status, and the results of this analysis are presented in Figure 7.3 . Overall absenteeism was greater in women, with an overall ratio of regularly teaching to those posted of 89.8% as opposed to 94.2% for male teachers, but this is not a significantly different result. Once again, NGO funded facilities performed best overall, and in terms of having least difference between male (98.1%) and female (97.5%) attendance rates (Figure 7.3). The cohorts with the least number of posted teachers regularly teaching were found in GoP funded facilities (84.3%).

Interpreting the aforementioned result is difficult as there is no baseline for the rate with which teachers were regularly teaching in the institutions before the earthquake. Also, there is no data for a similar matrix from non-earthquake affected areas to compare, as well.

A follow-up question determined the reasons that staff had been posted, but were not currently teaching regularly. Out of 409 male and 311 female posted teachers, 39 (5.4%) were reported as not teaching regularly. The reasons for these teachers not teaching regularly are presented in Table 7.2 . If casual leave for a few days has been correctly reported, this can be discounted as a serious systemic failure of education staff to report to work regularly. Excluding maternity leave, extended illness and on-the-job training, chronic attendance issues pertain to just 18 teachers which, represents only 2.5% of the total. If accurate, this is an encouraging result as surveyors have previously reported past occurrences of posted teachers not regularly teaching in their designated educational facility.

Reason for not teaching regularly	Freq.	%
Casual leave for few days	13	37.0%
Frequently absent	12	33.0%
Extended leave	5	11.6%
On job trainings	4	7.2%
Extended illness	3	6.7%
Maternity leave	1	2.5%
Appointed but working at another school	1	2.0%
Total	39	100%

Table 7.2 Reasons teachers is posted but are not currently teaching regularly

Furthermore the data from this Fifth outcome education survey does not support this being a wide-scale problem.

7.3.2 Adequacy of School Facilities

A list of the required facilities that each school type should be equipped with and have in a functional condition as determined by the ERRA education strategy was enumerated. Primary schools were required to have 13 facilities, middle schools 14 facilities and 20 facilities for higher secondary schools and colleges/universities. For facilities details, see Table 7.3 . The facilities ranged from toilets to science labs and computer equipment. The summary analysis determined if there were any schools that had all the functional facilities that it should for its school type. The analysis found that none of the educational facilities in either primary, middle, high or college/university category had all the facilities present and functional as required by the ERRA strategy.

Although none of the educational facilities had all of the required facilities functional, this issue was further analysed through determining the number of facilities that were present and functional as a percentage of those required by ERRA strategy for each facility type.

Figure 7.4 presents the results of this analysis which indicates that overall, 53.7% of the required facilities were present and functional across all school types. Notably overall, the donor funded projects were the poorest in terms of facility compliance with only 46.1% on average, and this was driven largely by the poor performance of donor funded facilities in KPK with the compliance rate of just below 40%. A similar low compliance rate was found with GoP funded facilities in AJ&K (39.2%). Both of these poor performing values were statistically lower than any other within the same region. NGO funded facilities performed best by consistently having the highest number of required facilities available and functional with 61% in AJ&K and 58.4% in KPK and 59.4% overall (Figure 7.4).

Facility type	Library	Books for library	Science lab	Science lab equipment	Computer lab	Computer lab equipment	Teaching kits	Furniture	Green/Black/White-boards	Boundary Wall	Staff Room	Toilets for students	Toilets for staff	Ramps for wheelchair access	Fans	Water pipes installed (even if not connected)	Water connection	Rainwater harvesting installed	Electrical wiring (even if no electricity supply)	Electrical connection
Primary	x	x	x	x	x	x	✓	✓	✓	✓	x	✓	✓	✓	✓	✓	✓	✓	✓	✓
Middle	x	x	x	x	x	x	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
High	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
College/U niversity	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Table 7.3 Facilities required by ERRA strategy by education facility type

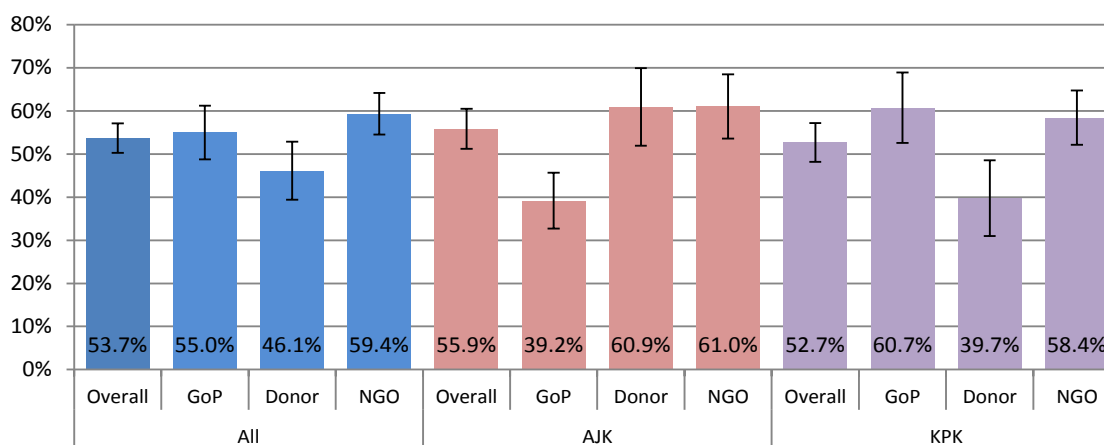


Figure 7.4 Percent of required fully functional facilities overall, by region, donor category and donor category within region

These results are different from the assertion made by the ERRA Education Sector that GoP funded projects have the highest level of facility compliance followed by donors with the lowest compliance rate expected from NGOs. In this sample, NGO's performed consistently better than facilities funded either by GoP or donors.

7.3.3 Impact of Reconstruction on School and its Performance

The three indicators used to test the impact of the reconstruction of the school upon perceptions of infrastructure quality, teaching performance and community participation are presented in Table 7.4 with their significance in the logistic regression for both region and donor category. Figure 7.5, Figure 7.6 and Figure 7.7 present the results for the three indicators disaggregated by the significant (or most significant in case of classroom support) independent variable.

Table 7.4 Probabilities of differences in means occurring by chance if means were equal from logistic regression of quality of education theme against independent variables of region, donor category and school category

Results from reconstruction	P> z for Region	P> z for donor category
Better school infrastructure design	0.000	0.067
Better classroom support to improve learning achievement level through adequate education material, furniture and equipment	0.562	0.082
Better and improved community participation/ownership through active SMC	0.867	0.014

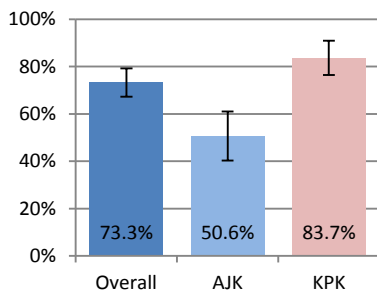


Figure 7.5 Proportion of schools citing better infrastructure design since reconstruction.

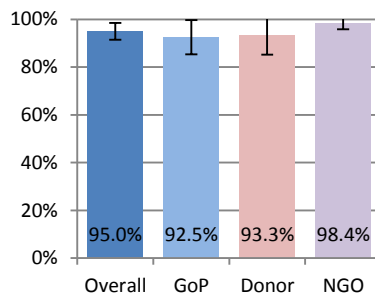


Figure 7.6 Proportion of schools with better classroom support since reconstruction.

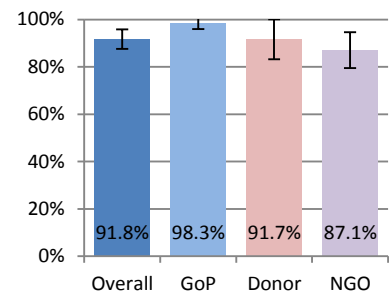


Figure 7.7 Proportion of schools with improved community participation through SMC's since reconstruction.

Figure 7.5 indicates that the proportion of schools citing better infrastructure since reconstruction is significantly higher in KPK (83.7%) as opposed to just 50.6% in AJ&K. The proportion of schools with better classroom support since reconstruction is universally high with an overall value of 95% and no significant variation by either regional donor category (Figure 7.6). Overall, there is a high proportion of schools where improved community participation has been reported, NGOs report a significantly lower rate at 87.1% than those for the GoP funded facilities.

The final question in the education facility questionnaire asked how enrolment rates had changed since before the earthquake. Results show that overall, 86% of facilities indicated that it had increased, this did not vary significantly by either region or donor category (Figure 7.8 Percentage of schools reporting that the upgrading of the school has either decreased no change or increased enrolment).

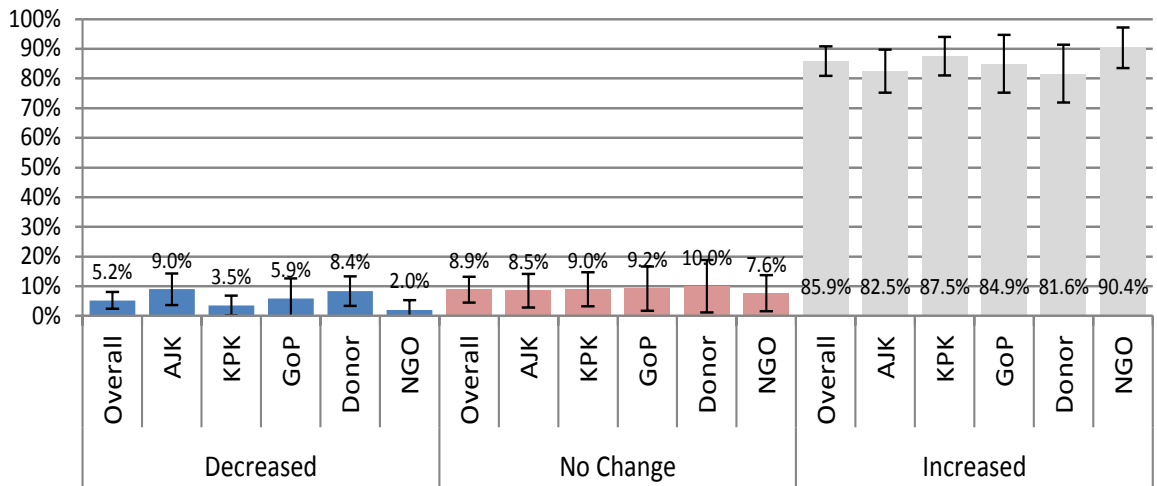


Figure 7.8 Percentage of schools reporting that the upgrading of the school has either decreased no change or increased enrolment

7.3.4 Student Views on Quality of Education Analysis

Weighted regressions were conducted to determine whether region or donor category or both were significant determinants of the variation in student responses that have been averaged to educational facility to remove any bias from the variable number of students enumerated per facility.

Table 7.5 Weighted regressions P values of average student results per school with independent variables of region or donor category

Indicators from student interview	P> z for Region	P> z for donor category
Did students attend disaster reduction training?	0.416	0.066
Students per school aware of disaster reduction training who attended such a training	0.017	0.006
Average number of time students consulted the library in the last month	0.583	0.938
Average number of students using science rooms /laboratories for experiments	0.022	0.397
Average number students indicating that the labs were adequately supplied with equipment and materials to facilitate tuition	0.342	0.510
Average teacher's effectiveness score	0.001	0.798

Region was a significant explanatory factor for the variation in average student responses between schools for the number of students using science laboratories (**Error! Reference source not found.**Table 7.5 & Figure 7.9) and differences in teachers' effectiveness score (Table 7.5 & Figure 7.14). Whereas the donor category was a significant explanatory variable for those students aware of disaster reduction training who also attended (Table 7.5 & Figure 7.10).

Figure 7.9 presents the average proportion of students per school who are aware of any disaster reduction training in their school, which overall seems to be low at just 32.1%, with no significant variation by either region or donor category. There was non-significant variation between donor categories, with NGO funded schools having a much higher student awareness rate of disaster reduction training (41.7%, as opposed to just 28% or 25% for GoP and or donor funded facilities).

Of those that were aware of the training, on average 86.6% also attended disaster reduction training (Figure 7.10). There is a significant variation by donor category, where the donor funded facilities appear to have provided training to an average of 64.7% of students who are aware of disaster reduction training in their school, and this compares unfavourably with 93% in GoP and 97.5% in NGO funded facilities.

A significantly higher proportion of students were using science rooms/laboratories in KPK (60.1%) than in AJ&K (25.3%, Figure 7.12) and although government funded facilities had the highest proportion of students using science rooms/laboratories (53.9%) this was not significantly greater than either donor or NGO laboratory use rates.

The average score of 1.5 for the students opinions on the adequacy of science equipment in the school was halfway between partial and adequate, and hardly varied at all by either region or donor category (Figure 7.13). Similarly, there was little variation in the students' assessment of the teachers' effectiveness of explaining concepts and ideas scored on a score range (with 1 being the poorest and 5 being excellent). The overall teachers' effectiveness score was 3.4 (between good and very good) with no statistically significant variation by region or donor category (Figure 7.14).

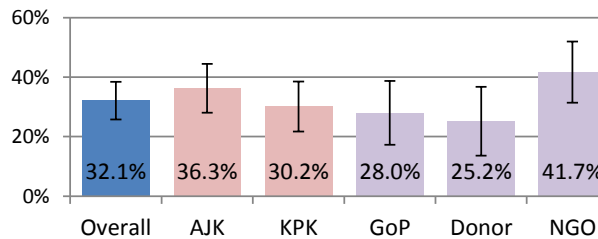


Figure 7.9 Average proportion of students per school aware of disaster reduction training in their school

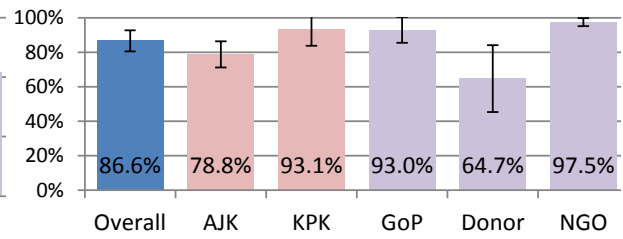


Figure 7.10 Average proportion of students per school aware of disaster reduction training who attended such training.

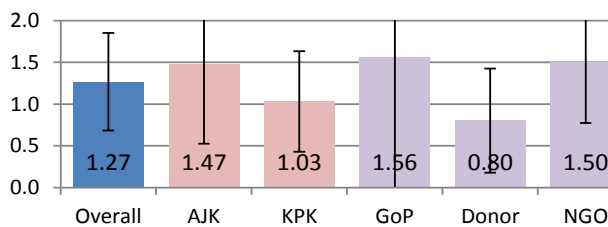


Figure 7.11 Average number of time students per school visited the library in the last month.

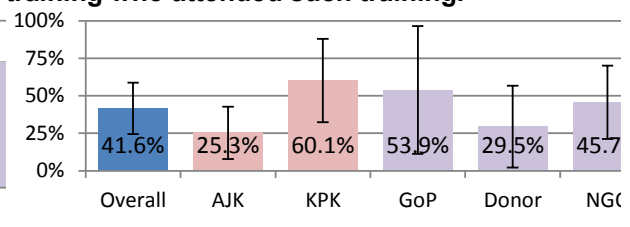


Figure 7.12 Average proportion of students using science rooms/ laboratories.

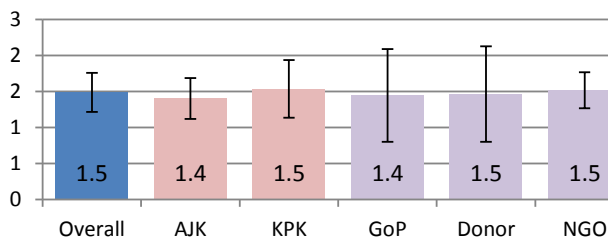


Figure 7.13 Average student's score of whether there is adequate science equipment in the school (0 = none 1 = partial 2 = adequate)

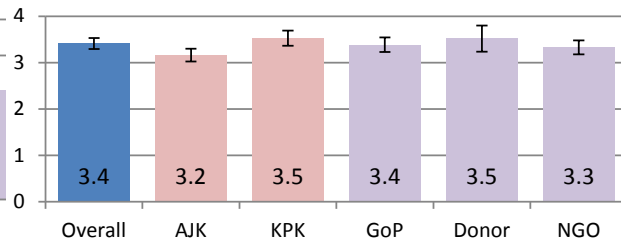


Figure 7.14 Average student's score of class teacher effectiveness of explaining concepts and ideas (1 = poor → 5 = excellent)

7.4 ACCOMPLISHMENTS AND IMPACT

In the presentation of the analysis for gross and net attendance ratio for primary schools, estimates from the 2009 ERRA impact survey are included as they are derived from the same question within a very similar questionnaire. The ERRA impact survey of 2009 was only conducted in the earthquake affected districts, therefore for the comparisons with the non-earthquake affected districts only PSLM data are available. Gross and net attendance ratios are considered for primary school and general education cohorts as well as time to primary school by foot, headcount rates of literacy in those greater than 10 years and analysis of problems encountered in educational institutions and why students aren't attending them.

7.4.1 Walking Time to Primary School

Improvements in the number of students accessing schools could be attributed to improvements in the time taken for children to get to school by foot. The mean time taken to get to the primary school (Figure 7.15) is presented as the mean score as the survey categorised time taken to primary school in for intervals; 0-14, 15-29, 30-44 and 45-59 minutes. Therefore the lower the score, the quicker or nearer it is to get to the primary school. There is a potentially confounding influence in this data in that it was possible to indicate the time taken to get to school by non-mechanised and mechanised transport as well. Consider the situation where those living near or in urban areas are able to afford a faster means of delivering children to primary school than walking and in the subsequent surveys, those children in the rural areas continue to rely on walking would result in an increase in the average walking only time score when in fact no children were taking longer to get to primary school at all.

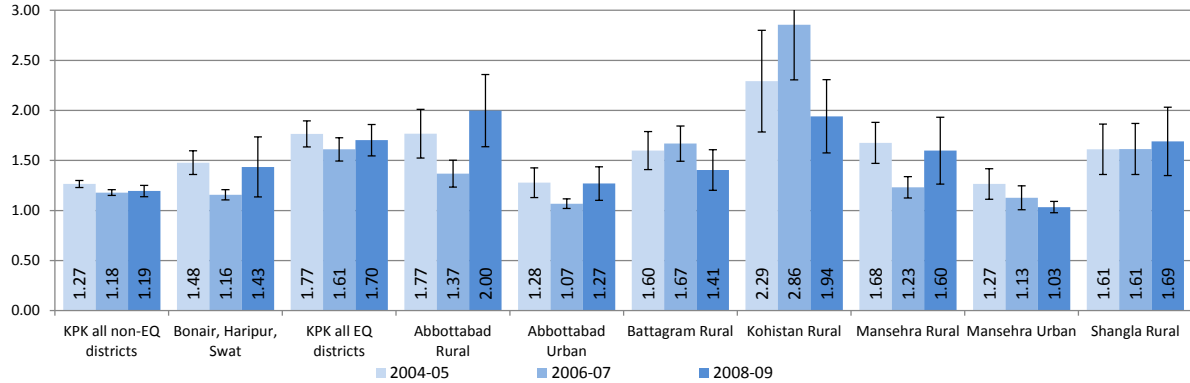


Figure 7.15 Mean time score taken to get to primary school by foot (larger values indicate greater than time taken)

Making the assumption that this is not a major disruption to the interpretation of time score data, overall there has been a slight non-significant decline in time scores in earthquake affected districts (1.77-1.7). There has been a particularly strong decline in rural Kohistan after an initial increase after the earthquake from 2.3-2.9, then a decline to 1.9 in 2008-09, a statistically significant decline. Other individual districts registered non-significant declines or little or no change. Overall the time taken to get to the primary school remains higher in the earthquake affected districts than in the non-earthquake affected districts, and significantly so, but not significantly greater than the three comparable non-earthquake affected districts of Bonair, Haripur & Swat.

Box 7.1 Enrolment in AJK schools grows amid reconstruction

The EU delegation was on a two-day visit to observe the progress achieved by the Build Back Better initiative and the challenges that remain to be addressed.

There are visible signs that the improved schools are boosting enrolment of girls and marginalised children in the remote rural areas. Before the earthquake, there were over 200,000 children in the primary schools and this has now risen to well above 385,000. Children enjoyed colouring, singing, creative games and activity-based learning in a child friendly environment. Impressed by the enthusiastic participation of children in the summer camp at the newly built school in Charoota, Jan De Kok said: "The quality of education holds the key to development in Pakistan."

"Investment in children's education can bring manifold dividends and it also reaches a large segment of the population needing assistance to cope with the affects of disaster." Mr Kok remarked that well educated youth would in future provide strong leadership for the country.

Source: Daily Dawn, July 5, 2010

7.4.2 Gross Attendance Ratio Primary Classes 1-5

Gross attendance ratio for primary classes 1-5 show that there has been a significant increase overall in the earthquake affected districts from 87% to 96% since 2005 when using the PSLM data, but a non-significant decline is indicated from the ERRA data from the same districts (85%). These two inevitably different estimates of the same indicator for a similar period present a challenge to interpretation and ideally should be avoided, as this forces an analyst to either choose one or try to interpret the differences between them. In all but one of the individual districts, the PSLM 2008-09 and the ERRA 2009 estimates are not significantly different for the most part, but they are for all earthquake affected districts combined. The most extreme deviation between the two estimates is found in Kohistan, where the PSLM survey results in an estimate of the gross attendance ratio of 80% and the ERRA survey returns an estimate of 29%. Given the concerns over the quality and completeness of the implementation of the ERRA survey, greater confidence must be given to the FBS data which represents a consistent series of three surveys applying the same instruments with very similar numbers of households being selected in each of the analytical domains being implemented by the same institution and more than likely, the same people. All of this makes it more reasonable to compare within the PSLM survey series rather than between PSLM and the ERRA surveys, implemented by different institutions, with different levels of human resources and quality assurance, albeit a largely identical questionnaire.

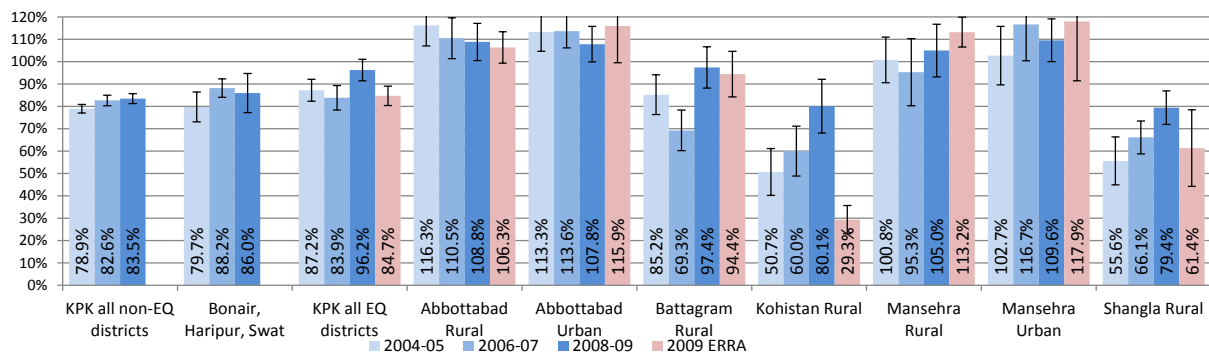


Figure 7.16 Gross Attendance Ratio Classes 1-5 primary (6-10 years)

Gross attendance ratios tend to be high when students have started late or missed some period of school, as may be the case after an earthquake, and therefore are older than they should be for the class that they are attending. Therefore, the increase in gross attendance ratios for primary schools may represent children who had delayed or interrupted primary school education trying now to catch up, and can be seen as positive as children get back into the education system, but bad in that an increase in gross attendance ratios normally follows some sort of large-scale disruption to normal education. Gross attendance ratio for primary school is further examined by disaggregating by sex.

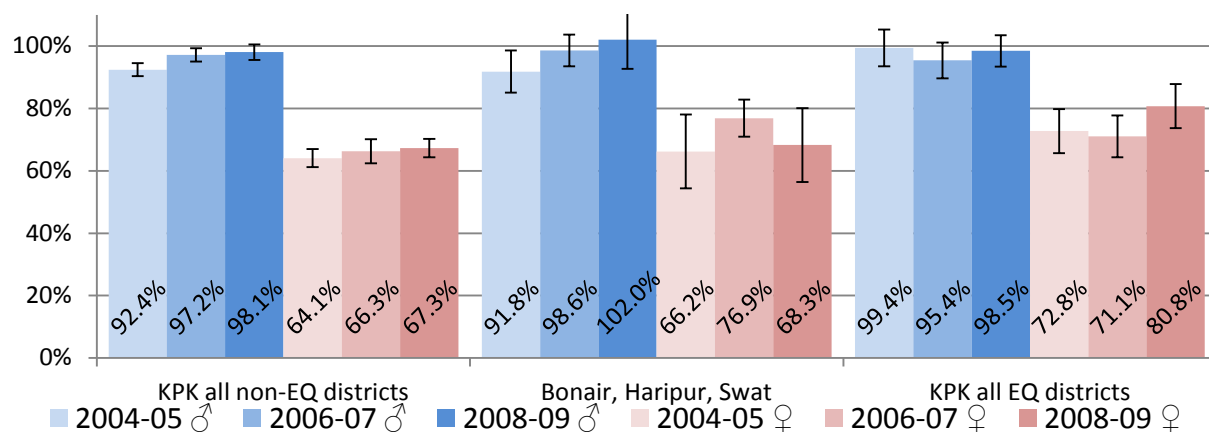


Figure 7.17 Gross Attendance Ratio Classes 1-5 primary (6-10 years) disaggregated by sex for the multidistrict comparisons

Male gross attendance ratios are significantly greater than those of female students across the three multidistrict domains (Figure 7.17). In the earthquake affected districts this differences less than the other district comparisons, and the increase in gross attendance ratio over the three observations was

experience for female students (73%→81%), but this was not statistically significant. The only significant changes in gross attendance ratio were the non-EQADs, where the male 2006-07 and 2008-09 estimates were both significantly greater than the 2004-05 estimate.

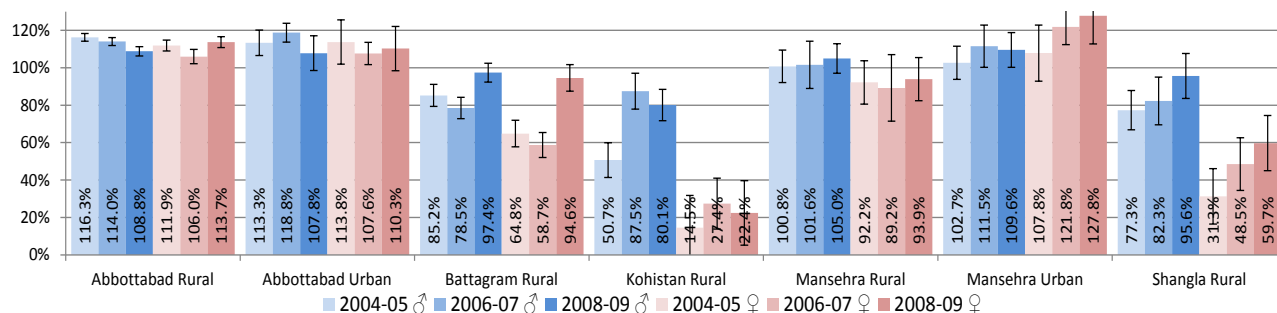


Figure 7.18 Gross Attendance Ratio Classes 1-5 primary (6-10 years) disaggregated by sex for the single-district comparisons

The disaggregated district gross attendance ratio data indicates huge disparities between male and female students in the more remote districts (Figure 7.18). Kohistan district stands out in this regard with a gross attendance ratio in 2008-09 male students of 80% as opposed to just 22% for female. This figure also has not significantly improved since before the earthquake although it has numerically. Shangla district is the next worst in terms of male female attendance disparities, but the difference is smaller, and the attendance ratio for girls is increasing faster than for boys. Urban attendance ratio is generally higher than in rural areas, and in Manserha urban, there is a higher primary GAR for girls than boys, and this was the case both before the earthquake and for the subsequent to observations. Abbottabad urban estimates indicate no significant difference between male and female attendance ratios. Interestingly, the rural part of these two districts also have higher attendance ratios than the other rural districts without an urban domain.

7.4.3 Net Attendance Ratio Primary Classes 1-5

Examining the primary net attendance ratio is a better reflection of the rate at which children are going to school at the right time (Figure 7.19).

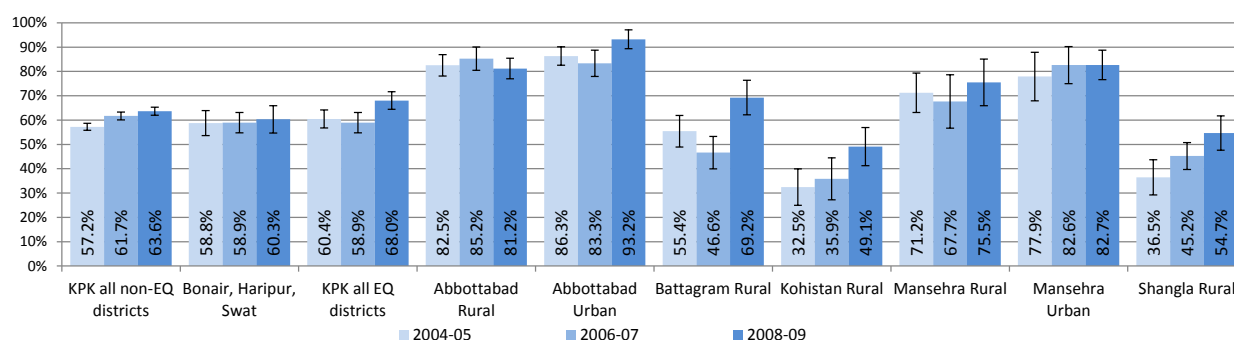


Figure 7.19 Net Attendance Ratio Classes 1-5 primary (6-10 years)

Of the three multidistrict units of analysis, the earthquake affected districts show the highest net attendance ratio for primary classes from class one through to five (68%), with a significant increase between 2006-7 and 2008-9. The earthquake affected districts overall register a very small decline from 2005 to 2006-07 (60%-59%, not statistically significant), whereas the other two units of analysis shows slight increases in net attendance ratio. This may be capturing the impact of reduced attendance rates due to the earthquake, but the recovery after 2006-07 has been stronger leaving the earthquake affected districts with a higher primary net attendance ratio than the non-earthquake affected districts in 2008-09. For the district estimates, with the exception of Abbottabad rural, all districts exhibit an increase in net attendance ratio between 2005-2008-09 which is encouraging. The increases seem to be particularly strong in the most rural of the KPK earthquake affected districts, i.e. Kohistan and Shangla.

When disaggregated by sex, once again male net attendance ratios are significantly higher than female across all of the multidistrict comparisons (Figure 7.22). The increase in female net attendance

ratios over the period of observation is the strongest in the EQADs (52% →59%), but still not a significant increase at the 90% confidence level. Despite this it is encouraging to see the strongest upward trend in female attendance in the earthquake affected districts, although this is still a little less in terms of percentage points than the increase in male primary school attendance over the same period (68% →76%). Despite the non-significant differences, the largest increases in net attendance ratio over the three observations have been in the earthquake affected districts for both male and female students. There is a small indication that girls that have missed out on primary school education have returned in 2008-09 when comparing the EQADs gross and net primary attendance ratios (Figure 7.17 & Figure 7.22).

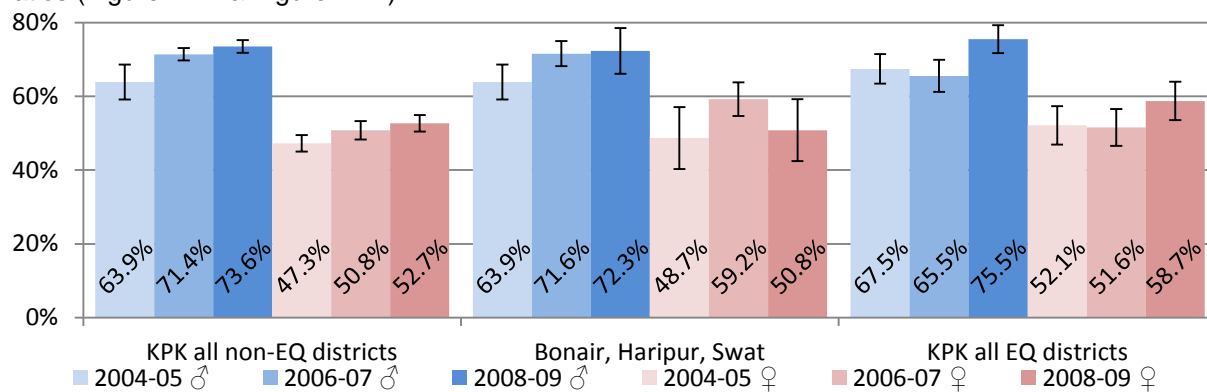


Figure 7.20 Net Attendance Ratio Classes 1-5 primary (6-10 years) disaggregated by sex for multidistrict comparisons

The pattern in the differences between primary net attendance ratios for male and female students in the single district estimates is very similar to that for gross attendance ratios (Figure 7.21); only the estimates are slightly lower because they are only for those children that are age-appropriate for primary school. Kohistan is again worthy of note, where there has been a significant increase in net attendance ratio of males (48%→70%), but no significant increase in the very poor female attendance rates (10%→15%), indicating that in this district, girls are falling behind even further than boys in primary education. So whereas in Kohistan, almost all of the improvement is a real result of improved attendance from male students, and in Shangla, the improvement is a result of improved attendance from both boys and girls.

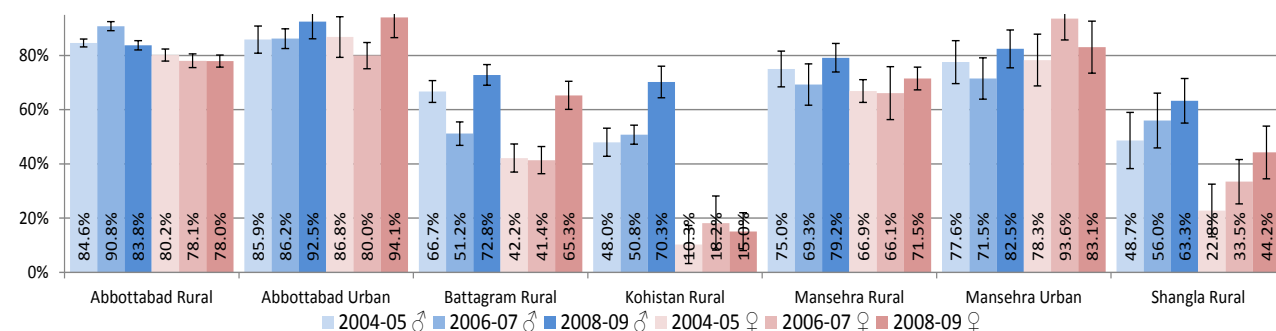


Figure 7.21 Net Attendance Ratio Classes 1-5 primary (6-10 years) disaggregated by sex for the single-district comparisons

7.4.4 Net Attendance Ratio 5-15 Years

Net attendance ratio for 5-15 year-old students covers the major period of primary, middle and secondary education. The results in Figure 7.22 indicate a similar pattern to that of the net attendance ratio for classes 1-5. As of 2008-09, the earthquake affected districts had a higher net attendance ratio than the non-earthquake affected districts, which was just statistically significant. The earthquake affected districts reported a small decline in net attendance after the earthquake followed by a significant increase (56-64%), whereas the non-earthquake affected districts exhibited no such decline in 2006-07. All of the individual districts show improvements since 2005, although not statistically significant, with the most significant improvement taking place in rural Kohistan.

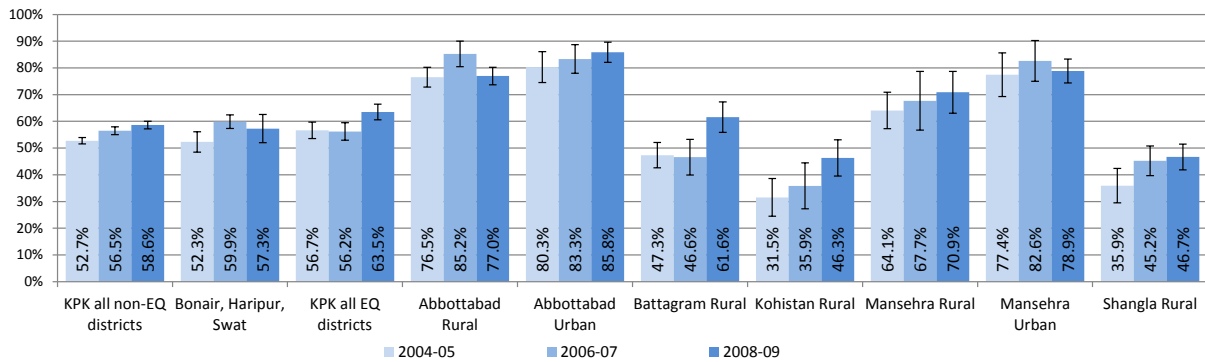


Figure 7.22 Net Attendance Ratio Classes 5-15 years

Similarly when the net attendance ratio for class 5-15-year-olds is disaggregated by sex, the patterns are very similar to the sex disaggregated primary net attendance ratios (Figure 7.20 & Figure 7.21 vs. Figure 7.23 & Figure 7.24). The key trends that are repeated in the net attendance ratio for 5-15 year-old students are significantly greater attendance rates for males in all categories, and the EQADs resulted in the highest net attendance ratios for both male and female students in 2008-09, and the appalling disparity between male and female students in rural Kohistan, where male attendance rates are improving in stark contrast to a chronic low attendance rates of female students. On the other hand there has been a significant increase in female net attendance ratios in Battagram since 2006-07 (34% →54%), and in this district, female attendance rates are catching up with boys. Overall the data indicates a catch up between rural and urban districts, overall and for male and female, with the exception of Kohistan (**Error! Reference source not found.**).

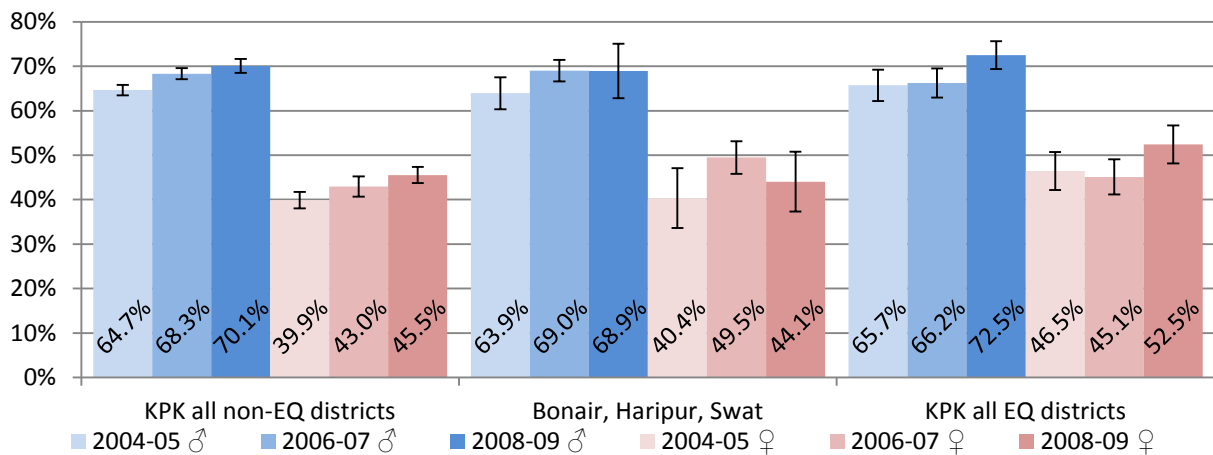


Figure 7.23 Net Attendance Ratio Classes 5-15 years disaggregated by sex for multidistrict comparisons

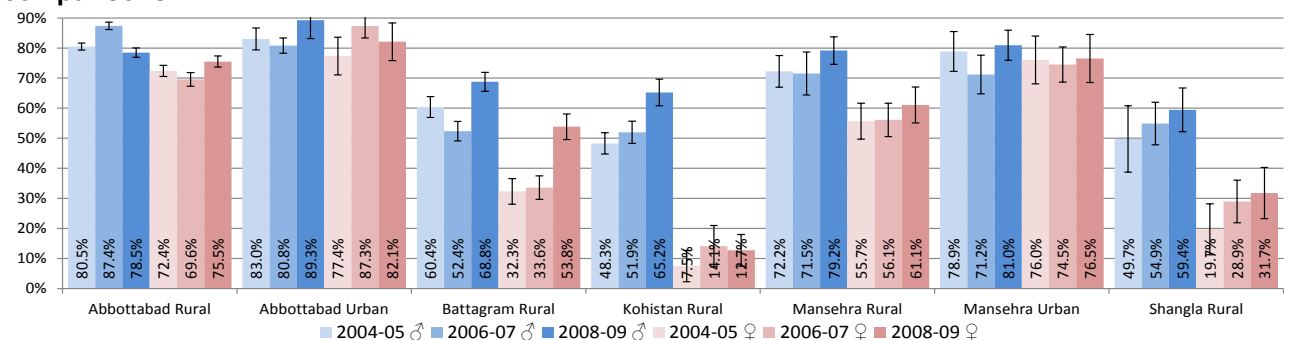


Figure 7.24 Net Attendance Ratio Classes 5-15 years disaggregated by sex for the single-district comparisons

7.4.5 Household Education Satisfaction Rate

For those households with members attending school, they were asked if they had any problems with the educational institution. The estimates in Figure 7.25 indicate that the overall satisfaction rates with the education services in the earthquake, affected districts, while high, are significantly lower than all non-earthquake affected districts. Satisfaction was noticeably poorer in rural Battagram (73% in 2006-07), and more worryingly, just 46% in rural Kohistan in 2008-09, a decline from almost 80% before the earthquake. Otherwise satisfaction rates seem reassuringly high. Household satisfaction of their children's education may not be an objective of the quality of that education been delivered. Such a measure would require a very different approach.

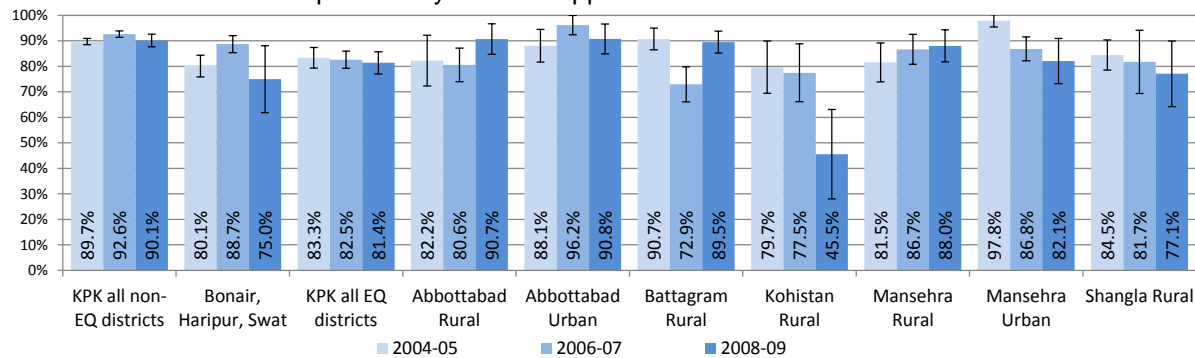


Figure 7.25 Household education satisfaction rate.

7.4.6 Problems with the Educational Institution

Respondents were asked to identify any problems with the educational institution and were given two opportunities to respond. The incidence of reporting of any of the 7 categories of problems is presented in Figure 7.26. The graph compares earthquake and non-earthquake affected districts only. Overall, there is a decline in the frequency of those attending educational institutions citing problems. There is a significant decline in those citing 'a lack of books' as an issue in earthquake affected districts but not non-earthquake affected districts. Similar significant declines are noted in earthquake affected districts for lack of sanitary facilities and schooling being too expensive. Non-significant declines have also been observed for schools being too far away (2006-07 = 3.9%, 2008-09 = 2.5%) and lack of teachers. In the non-earthquake affected districts there have been non-significant increases regarding the lack of teachers. The one complaint that appeared to increase over time was non-standard education, which is a fairly vague category. The increases were not significant in either the earthquake or non-earthquake affected districts.

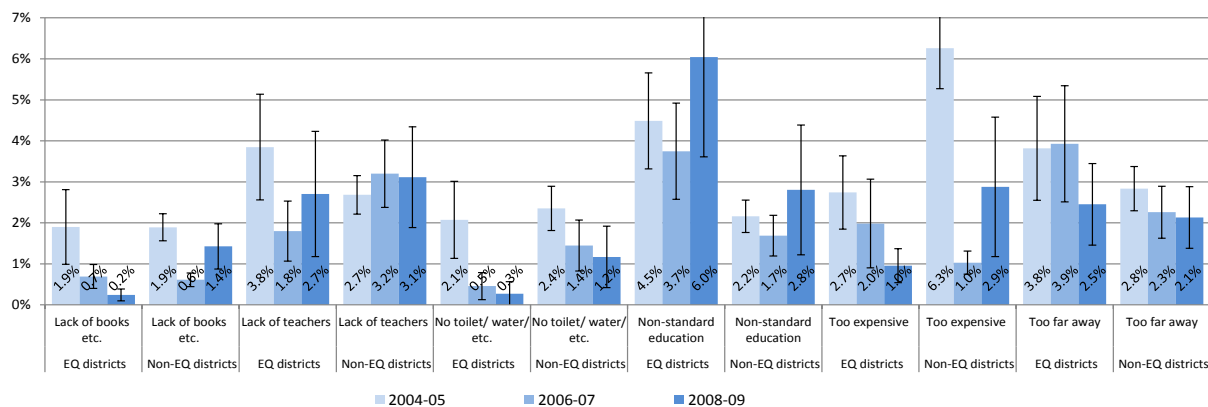


Figure 7.26 Frequency education problems cited

7.4.7 Reasons for School Non-attendance

Reasons for not attending an educational institution were recorded for all household members aged four years and older, but only those between 5 and 15 years were used to summarise the reasons the non-school attendance overall and disaggregated by sex (Figure 7.27). The eight categories displayed in the charts are summary of the 15 categories enumerated.

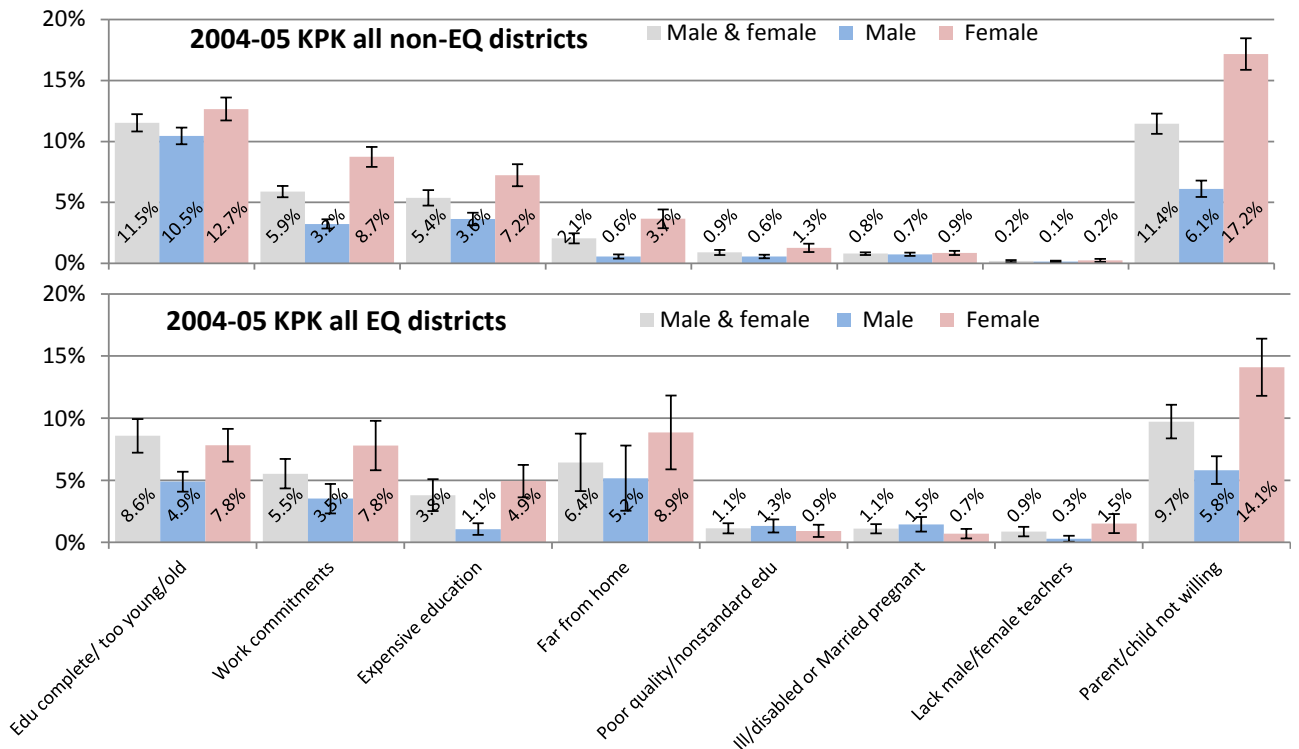


Figure 7.27 Reasons for 5-15-year-olds not been in school expressed as a percentage of the 5-15-year-old population for 2004-05 KPK all non-earthquake and earthquake affected districts, disaggregated by sex.

The four categories of reasons why students 5-15 years were not attending education where there were significant differences between male and female students in 2004-05 (Figure 7.27); i.e. work commitments, school too expensive, school too far from home and parent or child not willing to attend school are further analysed across all three observations and presented in Figure 7.28.

School being too expensive was cited less often in the EQADs than non-EQADs, and the difference between male and female estimates declined over time. This decline was largely made up in a decline of the rate which females are reporting not going to school because of the expense, whereas the male rates remained largely the same. This suggests that households are increasingly willing to sacrifice some resources to educate their daughters, while maintaining a similar cost benefit ratio when considering investment in their son's education.

School been too far from home was cited significantly more often in the EQADs than non-EQADs, and the 2008-09 value is actually higher than the pre-earthquake value (7.4% versus 6.4%) but not significantly so. Also, this reason was cited more often for female students, about twice as often in the EQADs. In the non-EQADs, the ratio between the citation rate of females and males was much greater, but the overall citation rate was lower, but the differences between males and females were statistically significant for all three observations.

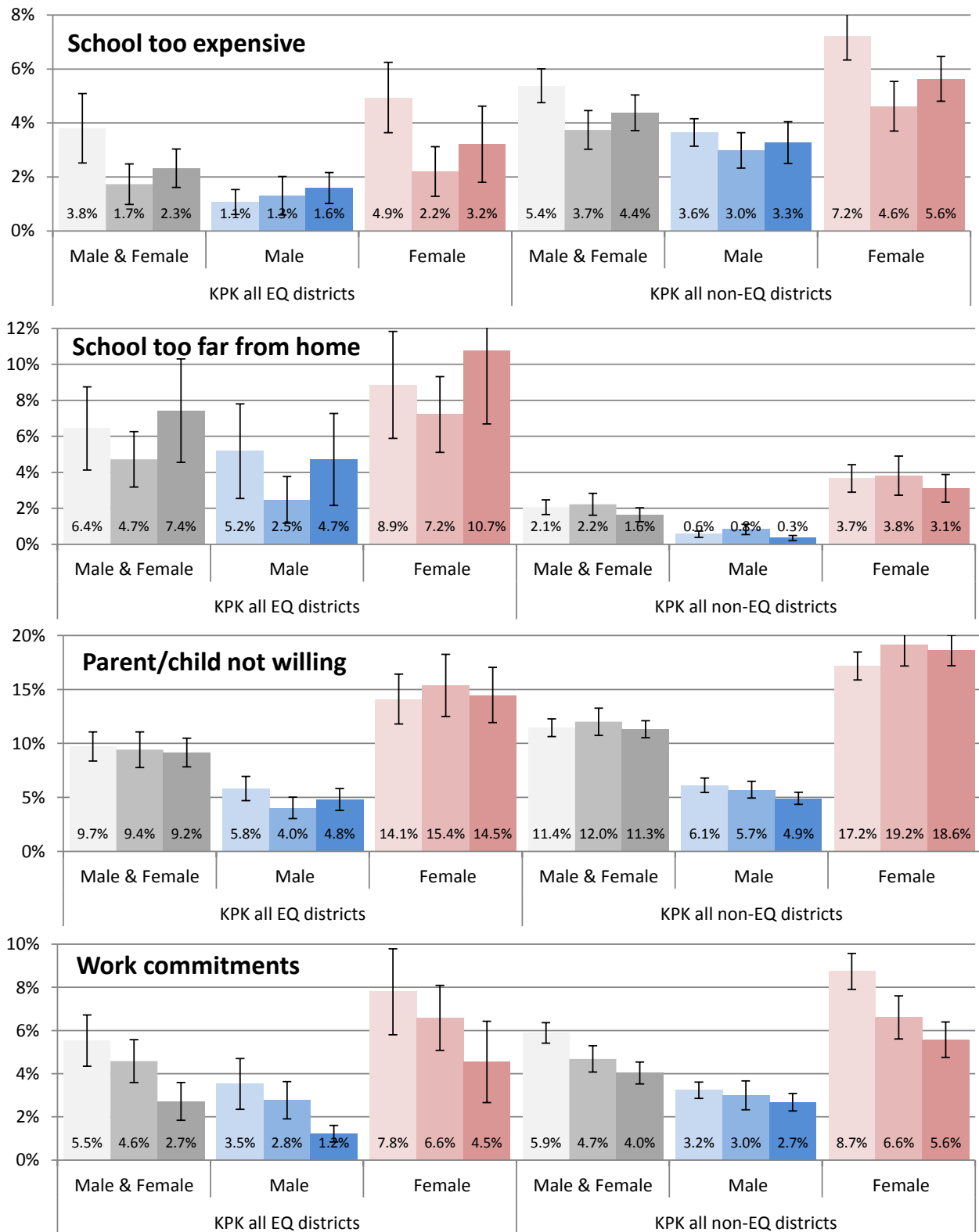


Figure 7.28 Four significant reasons why children were not sent to school between the ages of 5 and 15, for all students and disaggregated by sex, across the three observations (darker colours indicates later observation (2004-05 →2006-07 →2008-09)).

Parent or child not willing to attend school shows striking sexual differences, with significantly rates of citation of parents/children are willing to go to school in the case of females than males and variation over time. For example, in 2004-05, just 6% of male students as opposed to 17% of female students did not attend school for this reason in non-EQADs and the difference was slightly lower in EQADs, 6% versus 14%. Overall the citation rate of females were slightly lower in the EQADs, but not

significantly so. This suggests there has been no closing of the gap between the differences in parental attitudes when deciding to send either male or female children to school.

Rate at which work commitments are cited as a reason for not sending children to school are significantly higher for females than males, although these rates are reducing consistently across the three observations of both male and female students in both EQADs and non-EQADs, an encouraging trend. There appears to be no significant difference between the citation rates in the EQADs and the non-EQADs.

7.4.8 Literacy Rate for those 10 Years and Older

Literacy rates for those 10 years of age and older will not be very sensitive to loss of or improvement of educational services affecting literacy because a large proportion of the cohort is older than school age.

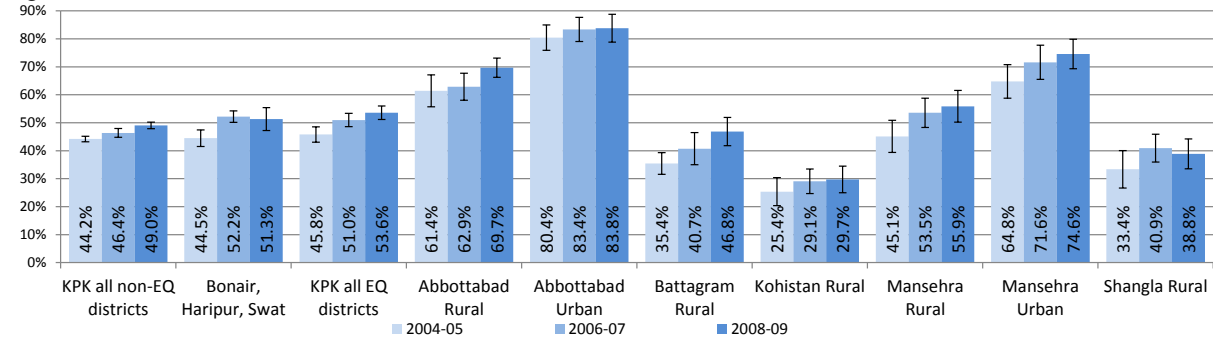


Figure 7.29 Literacy rate for those 10 years and older

Still, it is encouraging that literacy for those aged 10 years and older has continued to rise in almost all of the earthquake affected districts and is not significantly lower than the non-earthquake affected districts (Figure 7.29). In fact all of the non-earthquake affected districts in 2008-09 registered a literacy rate for those 10 years and older of just 49% as opposed to 54% in the earthquake affected districts, a statistically significant difference.

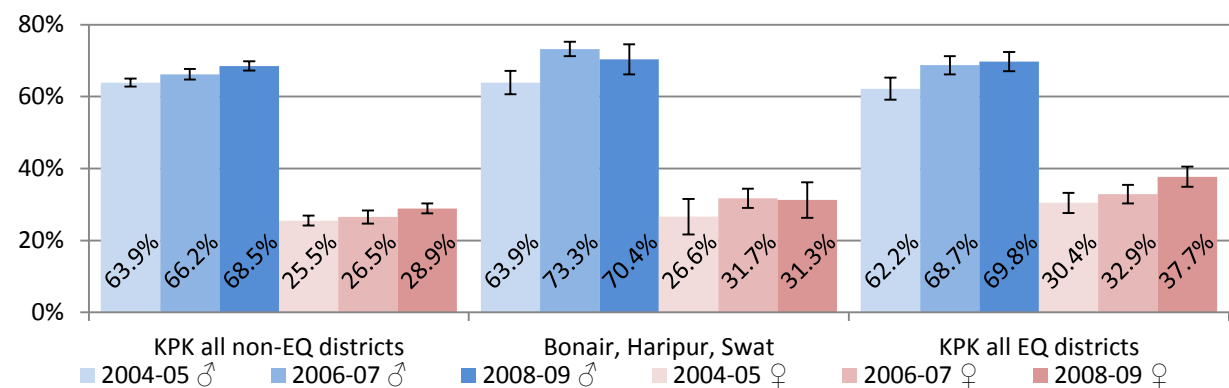


Figure 7.30 Literacy rate for those 10 years and older disaggregated by sex for multidistrict comparisons

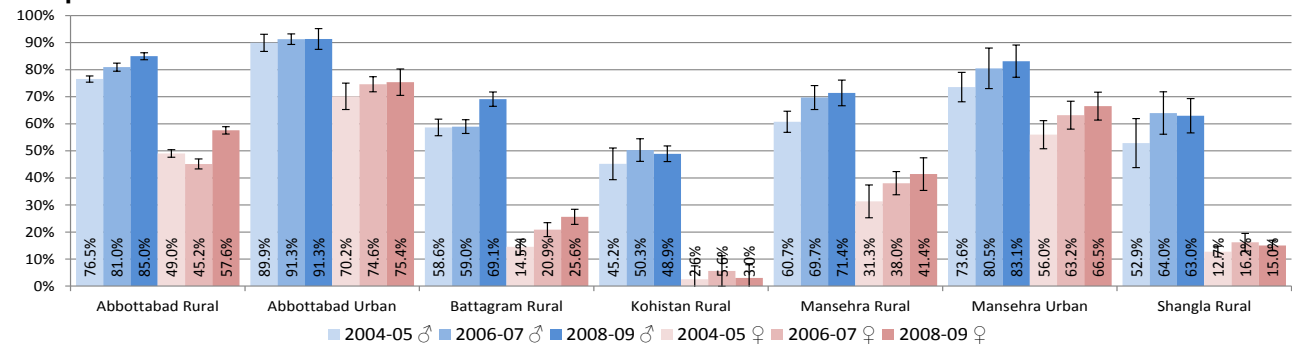


Figure 7.31 Literacy rate for those 10 years and older disaggregated by sex for single-district comparisons

Female literacy rate is significantly lower than males in all the analysis domains (Figure 7.30 & Figure 7.31). Female literacy rates for those over 10 are significantly greater in the EQADs than in the non-EQADs for all three observations and have significantly increased since the earthquake (30%→38%, Figure 7.30). When the single district literacy rates are disaggregated by sex (Figure 7.31), once again Kohistan provides the starkest contrast between male and female literacy (Figure 7.31), with about half the male population literate (49%) as opposed to just 3% of the female population. Also the three observations show no indication that the women's literacy rates are improving in Kohistan, whereas they are improving in most other districts with the exception of Shangla, which also has a chronically low literacy rate for women, but significantly higher than that of Kohistan, at around 15%. Urban male and female literacy rates are the higher than those found in rural districts and the difference between male and female literacy rates are smallest in urban areas. Therefore it is perhaps surprising that the earthquake affected districts overall returned the highest female literacy rate in 2008-09 despite the almost completely illiterate female population in Kohistan and largely illiterate in Shangla.

7.5 OBSERVATIONS AND CONCLUSIONS

The actual sample enumerated was significantly less than the intended sample and this was probably due to the challenges of enumerating schools over the long holiday period among other reasons. Also, the variable number of students enumerated per school and five schools without any students being enumerated indicated that management of the further enumeration requires a lot of attention.

7.5.1 Adequacy of Teaching Staff and Training

NGO funded education facilities were respectively better staffed. These consistently had a significantly higher ratio of currently working teachers to sanctioned teachers overall with 94% as opposed to 83% and 81% for GoP and donor funded education facilities respectively. NGO funded facilities also performed best overall, and in terms of having least difference between male (98.1%) and female (97.5%) attendance rates. The unit of analysis with the least number of posted teachers regularly teaching was GoP funded facilities with 84.3%.

Government funded facilities in KPK performed low for all four aspects of teacher training, pedagogical skills, psycho-social skills, content skills and disaster risk reduction, whereas donor funded facilities resulted in higher training rates in all four skills.

7.5.2 Adequacy of Facilities

Overall, the donor funded projects were the lowest in terms of facility compliance with only 46.1% of the required facilities being present and functional on average, and this was driven largely by the poor performance of donor funded facilities in KPK with the compliance rate of just below 40%. A similar compliance rate was found with GoP funded facilities in AJ&K (39.2%). Both of these poor performing values were statistically lower than any other within the same region. NGO funded facilities performed best by consistently having the highest number of required facilities available and functional with 61% in AJ&K and 58.4% in KPK and 59.4% overall. These results do not support ERRAs Education Programme assertion that GoP funded projects have the highest level of facility compliance followed by donors with the lowest compliance rate expected from NGOs. In this sample, NGO's performed consistently better than facilities funded by both GoP and donors.

7.5.3 SMC Presence and Function

Almost all schools have an SMC, but overall 61% of SMC's meet monthly. Donor funded facilities have the highest rate of monthly meetings (72.4%) compared to GoP or donor NGO funded schools and KPK region at the highest proportion of SMC's meeting monthly (65.4%) where as AJ&K has a greater number of facilities that meet on an as needs basis (24.3%).

In the KPK region, the vast majority of facilities are receiving and managing funds from the Education Department with no significant variation between schools with different category of donor funding. This is in stark contrast with the situation in AJ&K, where only 9.5% of NGO funded facilities are receiving any monies for school maintenance from the Education Department and no GoP or donor funded facilities are receiving any monies from the Education Department.

The rate with which school management implemented SMC decisions was much lower in AJ&K with just 22.1% always or mostly implementing SMC decisions as opposed to 64.7% in KPK, a statistically significant difference. This is in line with the big difference in rates of direct funding of SMC's between AJ&K and KPK. On average, SMC's were spending money on about half of the possible topics in KPK, but in AJ&K nothing is spent in GoP or donor funded facilities, and only on very few topics for NGO funded facilities (5.2%). A total of 64/65 of those schools responding to this question had expenditure in both maintenance and teaching quality category since last academic year.

7.5.4 The Impact of SMCs

Where region is being significant, KPK SMC's consistently perform better than those in AJ&K. Also, for the proportion of SMC's instrumental in improving full-time availability of teaching staff, SMC's from NGO funded facilities performed consistently low in both AJ&K and KPK, resulting in the significant donor funding source effect. However overall, the SMC's in KPK performed significantly better than AJ&K.

The proportion of schools citing better infrastructure since reconstruction is significantly higher in KPK (83.7%) as opposed to just 50.6% in AJ&K. Nevertheless, the proportion of schools with better classroom support since reconstruction is universally high with an overall value of 95% and no significant variation by either regional donor category (Figure 7.6). Overall, there is a high proportion of schools with improved community participation reported that is at a significantly lower rate of 87.1% for NGO funded than those for the GoP funded facilities.

7.5.5 Student Views

NGO funded schools had a much higher student awareness rate of disaster reduction training (41.7%, as opposed to just 28% or 25% for GoP and or donor funded facilities). Donor funded facilities had provided training to an average of just 64.7% of students who are aware of a disaster reduction training in their school, and this compares unfavourably with 93% in GoP funded facilities and 97.5% in NGO funded facilities.

A significantly higher proportion of students were using science rooms/laboratories in KPK (60.1%) than in AJ&K (25.3%). The overall teacher's effectiveness score was 3.4 (between good and very good) with no statistically significant variation by region or donor category (Figure 7.14).

While the student interviews provide indicative views on the changing quality of educational services provided as a result of the reconstruction and rehabilitation, ultimately educational outcomes need to be measured regularly to monitor any sustainable progress and improvement of educational outcomes. Luckily education outcomes are key to all multi-topic household surveys, and Pakistan is no exception with its annual rounds of Pakistan Social and Living Standards Measurement Survey (PSLM) either at provincial or district level.

7.6 RECOMMENDATIONS

- To make-up delays in completion of educational facilities, timely and continuous funds flow is imperative and strategies needs to be devised to manage cost over-runs upon completion.
- Issues related to acquiring land, designing in red zone, provision of furniture should be prioritised and solved in consultation with stakeholders, while considering the vast inaccessible terrain and hostile weather in these areas.
- Instead of only relying on NESPAK, other private consultants may be explored for out-sourcing thus ensuring speedy completion of schools without delaying because of security reasons.
- Innovative and practical solutions should be explored for addressing issues related to non-availability of basic construction materials, capacity of local contractors, skilled labour and non-availability of electricity & water.
- Introduction of alternative fast-track construction technologies be encouraged right from the outset. It helps meet target objectives within the given time. However, capacity to deal with new technologies is sine-quo-non to its success.

7.7 LESSONS LEARNT

- Constant, timely and strategic interventions facilitate early recovery, rehabilitation and back to normalcy in the short-span of four years. Holistic and EQAAs specific activities through collaboration brought this positive change.
- Focusing on soft (education management, teaching and methodologies etc) and hard (infrastructure, equipment etc.) components ensured quality and constant service delivery of education.
- Community participation and involvement in reconstruction and running of educational facilities leads to improved staff attendance, better quality teaching, higher enrolment and retention rates.
- Realistic timelines and targets obviate raising of unwarranted expectations.

8. WATER AND SANITATION

8.1 INTRODUCTION

8.1.1 Background

The earthquake in 2005 destroyed water treatment plants, drinking and household-usage water sources, storage reservoirs, supply mains and distribution networks. A total of 4,747 Water and Sanitation Schemes (WSS), (1,939 in KPK and 2,808 in AJ&K) were damaged. Over 50,000 latrines were damaged in KPK and AJ&K. The ERRA strategy aimed to ensure that essential water and sanitation facilities are restored in earthquake affected areas for both rural and urban communities in support of the Government policy of “Build Back Better”. As reconstruction started, 28 partner organisations (UN, NGOs and INGOs) stepped forward for reconstruction and rehabilitation of water and sanitation facilities. They pledged to reconstruct 2,099 water supply schemes in the affected area.

By October 2010, 4,003 water and sanitation schemes have been completed, while 15% (712) of the schemes are under construction. Reconstruction and rehabilitation of the water supply schemes and solid waste management with improved coverage and quality is addressing water needs of the communities. Community training on hygiene promotion and sanitation are introducing behavioural change, which will contribute to the overall improvement in their quality of life.

8.2 STRATEGIC APPROACH

8.2.1 Vision

The vision of the WatSan strategy is to improve the quality of life of people in earthquake affected areas by reducing risks to the public health through the provision of an equitable, sustainable, and reliable supply of a sufficient quantity of safe water and appropriate sanitation services. The terms, “equitable, sustainable and reliable” require the sector to address issues related to gender, accessibility, affordability and acceptability in the planning and implementation of the WatSan programme.

8.2.2 Objectives

The specific objectives of the WatSan strategy are as follows:

- To rehabilitate and reconstruct all public and community owned drinking water supplies, sanitation and solid waste management systems which were damaged or destroyed as a result of the earthquake 2005;
- To expand, improve and upgrade the affected water supply and sanitation systems for increased disaster preparedness and enhanced service delivery in line with the National Drinking Water and Sanitation Policies, the Pakistan Poverty Reduction Strategy and United Nations Millennium Development Goals (MDGs);
- To restore, build and strengthen the capacity of relevant government departments, agencies and institutions, non-governmental organisations (NGOs), CBOs and other partners;
- To bring about behavioural changes in favour of safe hygiene practices.

8.2.3 Implementation Methodology

One of the main components in this sector is the rehabilitation, reconstruction and improvement of the affected drinking water supply systems, including gravity and pumping schemes, hand pumps, water treatment plants and related infrastructure. Water quality monitoring and management includes water quality tests for physical, chemical and biological parameters.

All affected public and community sanitation schemes including drainage systems, street pavements and public toilets are included in the rehabilitation and reconstruction of sanitation systems. Rehabilitation and upgrading of solid waste management systems provides for development of “Waste Management Strategies and Plans” for all the affected *Tehsil* Municipal Administrations (TMAs) and towns, as well as repair and replacement of damaged municipal solid waste management related infrastructure, tools, equipment, machinery and materials.

Rehabilitation and reconstruction efforts supported the repair and reconstruction of collapsed or damaged offices and residential buildings of the line agencies. This includes buildings of the Public

Health Engineering Division, the Works and Services Department in KPK, as well as of the Public Health Engineering Department (PHED) and the Local Government and Rural Development (LG&RDD) in AJ&K, and *Tehsil* Municipal Administrations in KPK.

Capacity building initiative aims to restore and further enhance the capacity of implementing agencies through provision of:

- Incremental training of project staff in earthquake resistant designing, disaster preparedness, participatory planning, hygiene education and promotion, financial management, information management, project management and procurement;
- Necessary office equipment, furniture, logistics support and incremental operational cost.

Community mobilisation and hygiene promotion programme has encouraged community participation in the implementation of these schemes. Additionally, a hygiene promotion and behavioural change communication programme has been implemented under this component in order to create a demand for sanitation facilities and to advocate safe hygiene practices amongst the population of the affected areas.

The following implementation arrangements are used for the rehabilitation and reconstruction of water and sanitation schemes:

- Direct implementation by the partner organisations: On-going local development projects, donors and sponsors, and registered qualified NGOs were authorised to rehabilitate and reconstruct water and sanitation schemes in collaboration with the local line agencies and communities.
- Implementation through private sector for large urban schemes: Implementation of Public Health Engineering Department (PHED) owned large urban schemes in AJ&K through recruitment of consultants (if required), submission of PC-II/PC-1 to ERR, SERRA, and DRUs approval, using contractors to carry out civil works, commissioning and handing over schemes to the line agency after completion of work, followed by an issuance of a certificate to this effect by DRUs and SERRA;
- Implementation through private sector and NGOs for PHED, Works and Services Department schemes in KPK: The Works and Services Department in KPK has established a Departmental Coordination Office in Mansehra to provide technical support to all PHED offices in the affected districts;
- Implementation through private sector and NGOs for TMA Schemes in KPK and Local Government and Rural Development (LG&RD) schemes in AJ&K.

8.3 ACHIEVEMENTS IN TERMS OF OUTPUT AND OUTCOME

By the end of December 2010, 4,003 WatSan facilities have been completed and 712 are under construction (from a total of 4,746). With only 20 at tendering stage and 11 at the designing stage, over the last three years the progress of WatSan facilities has been steady: the comparative trend is shown in Table 8.1.

Table 8.1 Status of WatSan Facilities Construction Over last four years

Status	Dec 2008	Feb 2009	Dec 2010	June 2011
Completed	1,792	3,658	4,003	4,171
Under construction		1,089	712	544
Tendering			20	20
Designing			11	11
Total	4,080	4,747	4,746	4,746

8.3.1 Water Supply Scheme Facility Outcome Analysis

The water supply scheme facility questionnaire was designed to be completed with a member of the water management committee (WMC), a community-based committee responsible for the implementation and maintenance of the water supply scheme. If no representative of the WMC was available, then interviewers were instructed to interview the village head or a person with knowledge of the water supply scheme. As already indicated 73/297 facilities were visited but were found to be

inoperative. The proportion of visited WSS that were operational varied significantly by WSS type (prob. = 0.005²⁶) and to a lesser degree by donor category (prob. = 0.047), resulting in the mean proportions presented by WSS type and donor category in Figure 8.1. (Unless otherwise indicated, the confidence interval bars in all graphs in this document represents the 95% confidence widths above and below the mean.) As expected, overall, gravity fed systems were most likely to be operational when visited (82%), significantly more than pumping and partial systems (Figure 8.1). There was a significant correlation between WSS type and donor category, because operational performance of pumping schemes varied significantly by donor category. Assuming that the 73 non-functioning water supply schemes visited were schemes that have never been functional and yet were sampled, represents inaccuracies in the data contained and managed by ERRA, from which the sample frame was drawn. This has implications in terms of data reliability not only for the sample frames from which sample surveys are drawn, but also for the veracity of progress reports populating the Earthquake Reconstruction Monitor (ERM) database.

The number of months that the water supply schemes surveyed had been operational ranges from 'became operational just before the survey date' to 'having been operational for as long as 60 months', with the median operational time of 20.5 months (Figure 8.2), indicating that water supply scheme reconstruction has been going on for at least five years.

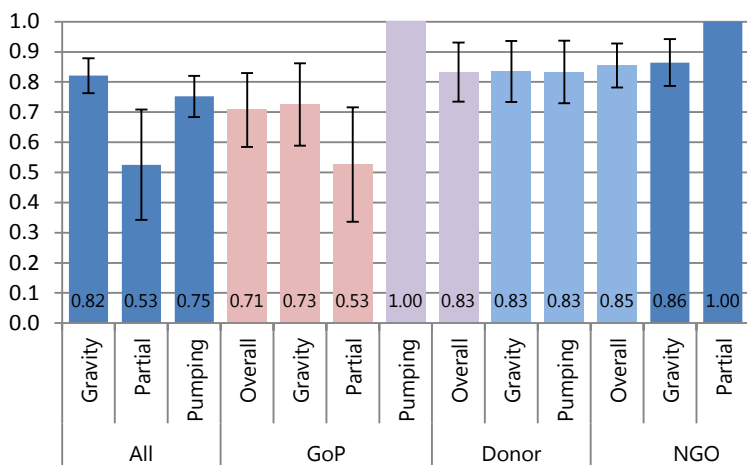


Figure 8.1 Proportion of surveyed WSSs that are operational disaggregated by region and donor category, with 95% confidence interval bars.

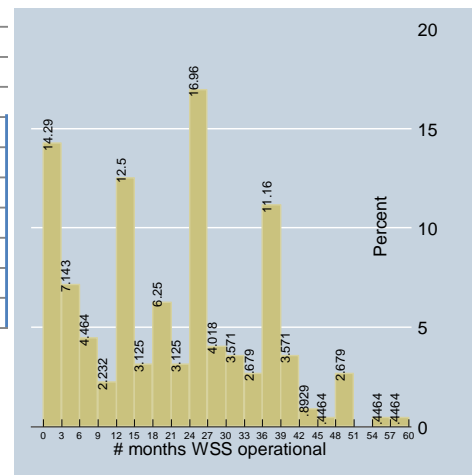


Figure 8.2 Histogram of the number of months the water supply scheme has been operational.

8.3.1.1 Beneficiaries-Intended and Actual

Water supply schemes were designed to provide safe water to a specific number of households and the survey calculated the number of households for which the water supply scheme was designed, and the number of houses currently benefiting from the same scheme. The regression analysis indicated that the ratio of households connected/households designed to be connected varied significantly by region (prob. = 0.027), but not significantly by donor category (prob. = 0.091) or WSS type (prob. = 0.463). Figure 8.3 indicates the results for the proportion of households connected/households designed to be connected per scheme, disaggregated by region and donor category with 90% confidence intervals. Overall, more households were connected than those for which the scheme was originally designed. In AJ&K this has an average ratio of 1.12 whereas in KPK the ratio was 0.94, a statistically significant difference. In both regions, GoP-funded projects perform least well in terms of ensuring the number of households intended for the scheme were actually connected, however, these differences were not statistically significant at the 95% level.

²⁶ Prob.=0.005 indicates that as differences large as that observed between the two factors is only likely to occur 5/1000 times if the means of the two factors have no effect the distribution of the response variable. Probability values smaller than 0.05 are statistically significant at the 95% level, whereas values greater than this are not.

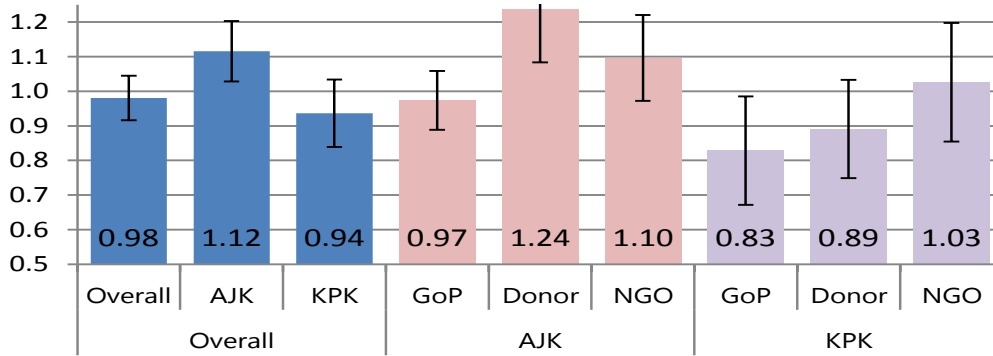


Figure 8.3 Proportion of households connected/households designed to be connected to WSS disaggregated by region and donor category.

Three water supply schemes had no beneficiaries at all, even though households were supposed to be connected. In one case it was because the water source dried up, in another because a storage tank had not been completed or connected to the main source and in the third case water was not available most of the time because of leaking pipes, a failure rate of just over 1%.

8.3.1.2 Operation and Maintenance

An estimated 49% of the water supply schemes are managed by a Water Management Committee (WMC) or Community Based Organisation (CBO), and this varies significantly by region with a much higher rate in AJ&K (85%) than in KPK (37%), (Figure 8.4). To compensate for the low numbers of WSSs managed by WMCs or CBOs, a significantly greater number of the water supply schemes in KPK are managed by either self-help individuals (28%) or the Public Health Engineering Dept. (24%). When compared to the fourth round's regional WMC management rates, the AJ&K rate is comparable (87%) but the rate in KPK was much higher in the Fourth than Fifth round (68% vs. 37%).

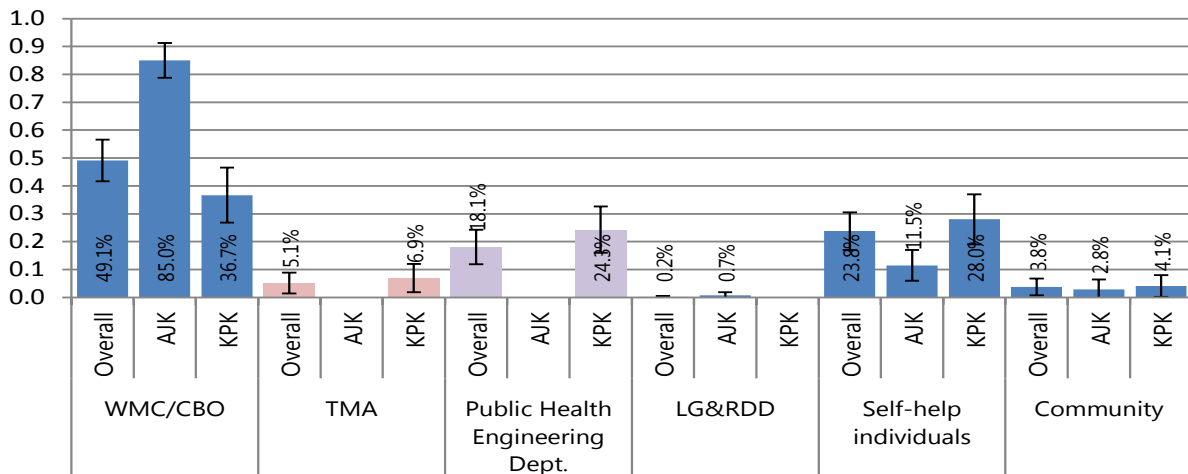


Figure 8.4 Percentage of citations of different organisations responsible for management of the water supply scheme (two answers allowed) disaggregated by region. (WMC/CBO = Water management committee/Community-based organisation; TMA = Tehsil Municipal Administration LG & RDD = Local Government & Rural Development Department).

8.3.1.3 Water Supply Scheme Operation

The WSS facility questionnaire collects further data on the management for only those water schemes where WMC or CBOs are managing the water supply scheme (128/224). Overall, of those water supply schemes with WMC management, 89% indicated that the WMC was actively managing the water supply scheme, with no significant variation between rates in AJ&K and KPK (Figure 8.5). Of those WMC's that do meet, the majority do so on an "as needs" basis (68%), 29% have a regular monthly meeting and just 3% of WSSs meet fortnightly (Figure 8.7). Overall, more than 92% of the WSSs reported good or fair levels of participation by WMC members (Figure 8.8).

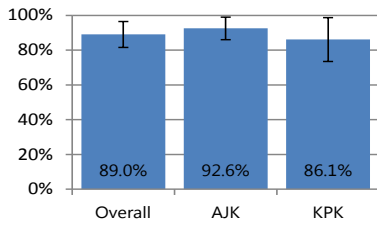


Figure 8.5 Percentage of WSSs indicating WMC management where WMC is deemed as actively managing the WSS

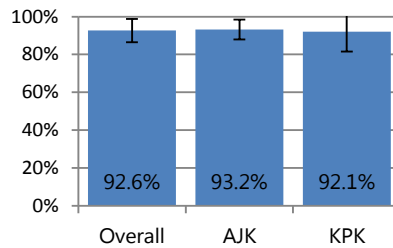


Figure 8.6 Percentage of WSSs with WMC actively managing the WSS and hold meetings.

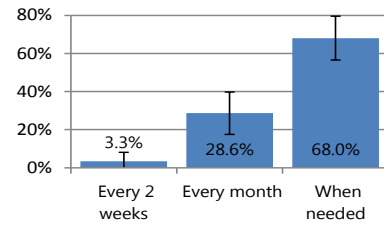


Figure 8.7 Frequency of those WSSs with WMC actively managing hold meetings.

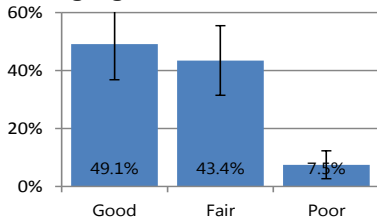


Figure 8.8 Petition levels of WMC members.

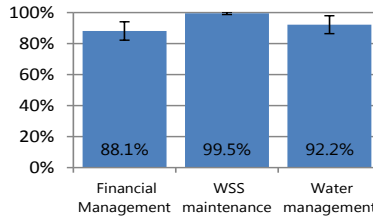


Figure 8.9 Rate of involvement of WMC's in aspects of the WSS management.

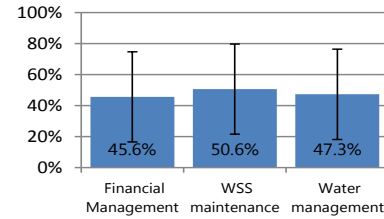


Figure 8.10 Rate of involvement of women WMC members in aspects of the WSS management.

Only 18/118 (15% un-weighted, 8% weighted) WSSs have female members for the WMC. Only seven out of those 18 frequently attend WMC meetings, and only 9/18 WSSs are considered to have good or fair level of participation from women members in WMCs.

8.3.1.4 Water Supply Scheme Functional Status

The number of water supply schemes that have their source protected and which provide a regular supply of drinking water most or all of the time was calculated from the facility data for those water supply schemes that were visited, working and surveyed (Figure 8.11). 73 further sites were visited and found not to be operational and therefore not surveyed but were part of the original sample. For the indicator of whether the water supply scheme is providing safe water most or all of the time this data was added, by inputting that all 73 sites were not providing safe water most or all of the time, leading to the alternate result in Figure 8.12.

The logistic regression indicates that none of the variation in WSSs was significantly accounted for by region, donor category or water supply system type, for either the 224 WSSs surveyed or the complete 297 WSSs visited. For all of the WSSs visited, just over 40% were regularly supplying safe water overall, (50% excluding the 73 non-functional WSSs). In both interpretations of the data, the rate of regularly functioning WSSs in AJ&K was slightly but not statistically significantly higher than KPK (Figure 8.11 & Figure 8.12). Donor category explained more of the variation than either region or WSS type (prob. =0.116), but was not statistically significant. Overall GoP had the poorest rate of WSSs regularly supplying safe water (33%) and NGOs the highest (47%, Figure 8.12). In terms of sustainability, this average rate of 40% of water supply schemes regularly supplying drinking water could, and indeed should, be improved upon to ensure a better return on the investment of public funds. It needs comparison to similar data to contextualise a regularly functioning rate of 40% for water supply schemes to represent "Building back better".

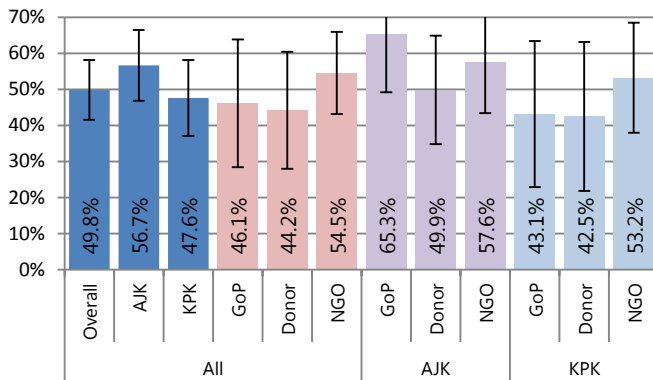


Figure 8.11 Percentage of water supply schemes that are supplying safe water most or all of the time disaggregated by region and donor category, excluding the 73 WWSs visited and found to be non-functional.

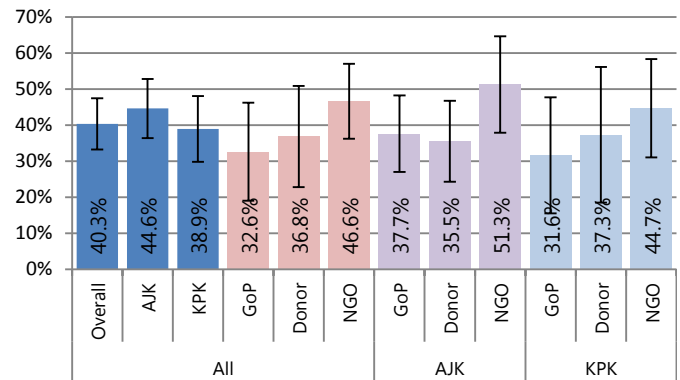


Figure 8.12 Percentage of water supply schemes that are supplying safe water most or all of the time disaggregated by region and donor category, including the 73 WWSs visited and found to be non-functional.

For those 140 WSSs that indicated that the system had not been providing a regular supply of water since it became functional, the respondents were asked to identify the issues related to interruption of regular water supply from the WSS that were addressed by the WMC. The questionnaire provided the option to indicate that the WMC was addressing issues related to pipe breakages, lack of supply of the water source and unfair water distribution. Respondents could also indicate additional issues contributing to the poor functioning of the WSS and these were re-coded into the analysis and included in Figure 8.13.

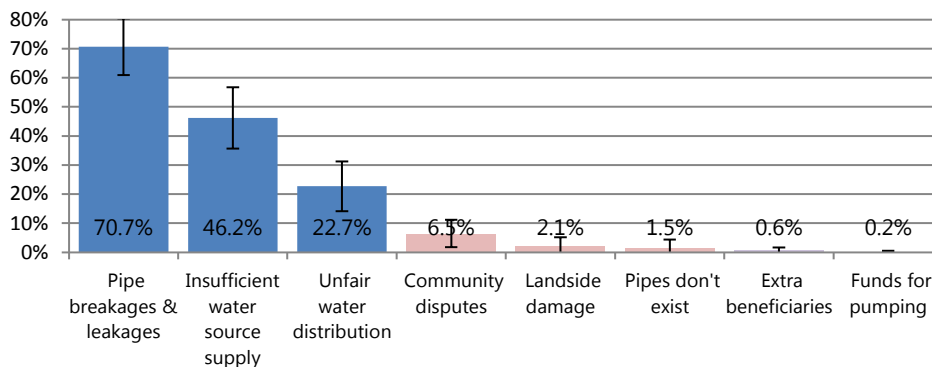


Figure 8.13 Citation rates of various problems associated with water supply schemes not supplying regular water all of the time.

The three categories in the questionnaire (pipe breakages, insufficient water source supply and unfair water distribution) were supplemented by five other categories derived from the 'other' responses. In two cases, the 'other' text was "more users on one source", but the ratio of households connected/households designed to be connected was either 1 or 0.79, indicating that the number of users was not more than the system was originally designed for. For these two WSSs, the other was removed and the unfair distribution of water variable checked. In one case "beneficiaries increased" was cited legitimately because the households connected/households designed to be connected ratio was 2.4, indicating that more than double the number of households designed for the scheme were actually connected. Community dispute was added as another variable as it was frequently cited in the 'other' column. 'Source tank damage' was included in the variable pipe breakages and leakages. In one case, the 'other' text indicated the water was not clean, but the subsequent question indicated that the water supply scheme was operational, not leaking, and clean and covered, for this case contradictory evidence, and the other text was ignored.

From the citations presented in Figure 8.13, breakages and leakages are the most common reasons for the disruption of the water supply (71%); with insufficient water source supplies cited for 46% of the WSSs without regular water supply all of the time, and 23% of these WSSs also cited unfair water distribution as an issue. For the remaining five newly created issues, none accounted for more than

community disputes (6.5%). Community disputes should be considered as a category for inclusion in a revised version of the questionnaire.

Question D4 of the facility questionnaire has a mistake in the categories of responses. The English texts read:

Operational not leaking, clean & covered=1	And should have been:	But was coded as:
Not all conditions are fulfilled	Operational not leaking, clean & covered	Operational not leaking, clean & covered =1
All conditions are fulfilled=3	Not all conditions are fulfilled=0	Not all conditions are fulfilled=2
	All conditions are fulfilled=1	All conditions are fulfilled=3

For this analysis, option one and option three were re-coded as a storage tank fully operational, not leaking, clean and uncovered (Figure 8.14). Overall just 57% of WSSs had an operational, clean and uncovered storage tank, and this did not vary significantly by region (prob. = 0.445), but was highly significant for the donor category (prob. = 0.035). Once again AJ&K did have non-significantly higher rates of operational storage tanks (62%) as opposed to 55% in KPK. Also GoP funded projects consistently had the poorest rates of working storage tanks with just 45% overall, and NGOs consistently had the best rate of fully operational storage tanks (64%). These trends in storage tank condition were consistent across region.

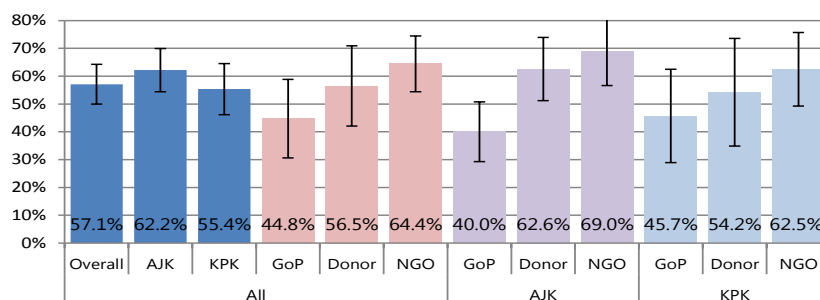


Figure 8.14 Proportion of all WSSs with operational, non-leaking clean and covered storage tanks disaggregated by region and donor category.

8.3.2 Water Supply Scheme Beneficiary Analysis

The number of users interviewed per WSS varied from 1 to 10, with a median of 5. This uneven number of beneficiaries per water supply scheme requires some weighting system to reduce bias from over or under representation of WSS performance. A weighting of beneficiaries was calculated as the ratio of number of beneficiaries interviewed per WSS divided by the number of households benefiting or number of households for which the WSS was originally designed for if the former is not available.

The largest community had 2,845 beneficiaries and the largest weight resulted from the community of 1700 out of which only two users were interviewed. The resulting weights range from 1-850, while mathematically correct; these are felt to be unwise to be used for the analysis for two reasons:

1. In reality not all of the households in the water supply schemes had a chance of being enumerated as there was no listing or random selection of beneficiary households from the complete beneficiary household list.
2. Maintaining weights in the analysis ranging from one to 850 ensures that any errors in those records with high weights would result in exaggerated levels of error within the data.

As an alternative, appropriate statistics were calculated for individual households and then averaged to the water supply scheme level and the water supply scheme level weights and survey design structure then applies to the analysis of these mean beneficiary households matrix at WSS level, without any consideration of the number of households selected from the number of beneficiaries of the scheme.

8.3.2.1 Household Safe Water Access

Safe water access at the time of the outcome survey and before the earthquake was calculated as those households with safe water access in line with MDG definition, but this analysis included

rainwater collection as safe but excluded tanker water. Figure 8.15 and Figure 8.16 present the summary of the mean household access at WSS overall and by region and water supply type before the earthquake and at the time of the Fifth outcome survey. The overall average household access rate within WSSs before the earthquake was 62% and after, it was 85%, indicating an improvement in access to safe water since the earthquake. In describing the variation in access before the earthquake both region (prob. =0.000) and water supply type (prob. =0.004) were statistically significant. KPK had a much higher average rate of access for members within WSS at almost 70% before the earthquake than for AJ&K with an average access rate of households within the WSS of just fewer than 42%. Overall there has been an increase for all water supply system types, but the increase has been greatest for partial systems, where none of the households in the partial pumping water supply schemes had access before the earthquake whereas they all have access at the time of enumeration of the Fifth outcome survey, although partial pumping schemes account for just 10% of the enumerated WSSs (21/220).

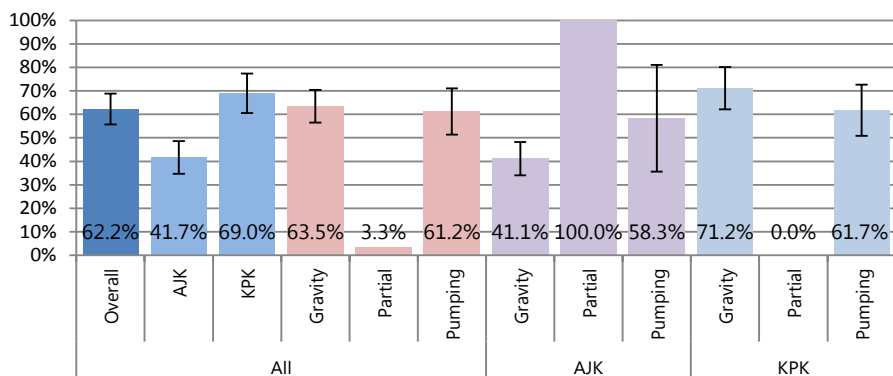


Figure 8.15 Average rate of household's access to safe water at the facility level before earthquake disaggregated by region and water supply type.

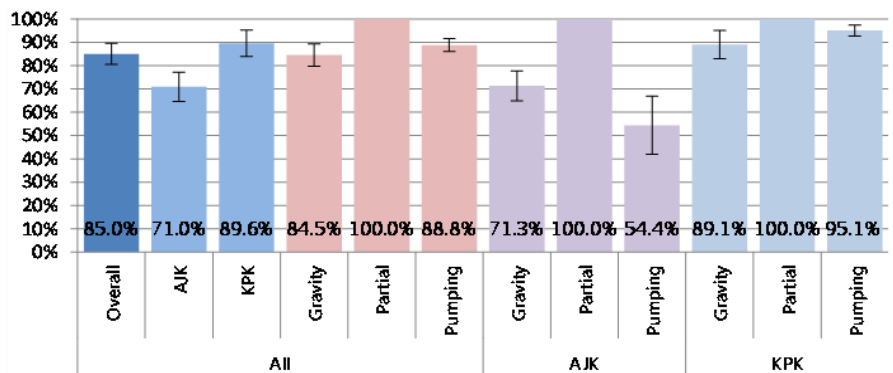


Figure 8.16 Average rate of household's access to safe water at the facility level at time of Fifth outcome survey disaggregated by region and water supply type.

A binary variable was calculated at the household level for those with access to safe water at the time of the survey but not before the earthquake (Figure 8.17). Also, with household data averages at facility, the difference between the facilities average access rate was calculated between time of the survey and before the earthquake (Figure 8.17). Multiple regression of both of these variables against region and donor category showed that none of the explanatory variables explained a significant amount of variation in access to safe water. Water supply scheme type was a significant explanatory variable, driven totally by partial systems having shown a much greater increase in the rate of safe water provision since the earthquake, but they only account for 11/222 (5%) of WSSs.

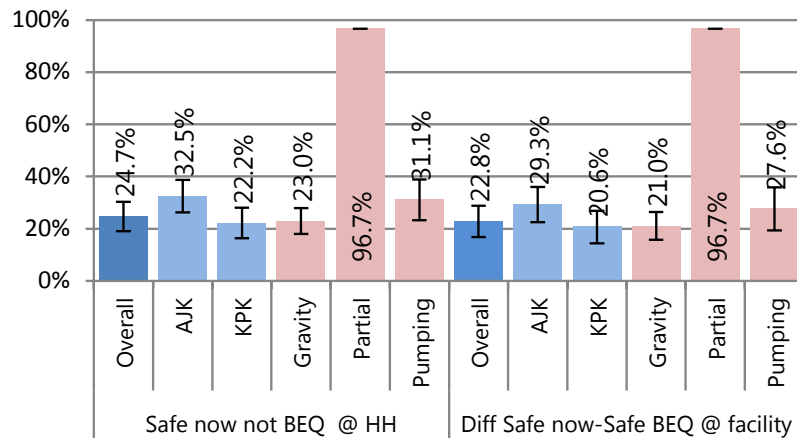


Figure 8.17 Difference between average rates of households per facility with safe water at the time the survey but not before the earthquake and facility level mean safe water access at time of survey minus before the earthquake (90% Confidence interval bars).

The mean rate at facility level of those households that have safe water now but did not have safe water before the earthquake was just under 25%, and while it did not differ significantly by region, AJ&K had a better average rate of households within facility of 32.5% that had safe water access now but didn't have before the earthquake (Figure 8.17). The statistic does not account for any households that may have had safe water before the earthquake, but not now. The difference between average household rates of safe water at the time of the survey and before the earthquake does allow for deterioration in safe water access, but this matrix reassuringly reflects a similar pattern to the household data (Figure 8.17). Overall, the average rate of improvement of access to safe water is almost 23%, but once again AJ&K doing slightly but not statistically significantly better than KPK (29.3% vs. 20.6%). For both matrices, partial pumping systems performed very well, recording almost 100% of their households gaining access to safe water at the time of the survey when they didn't have safe water before the earthquake. Donor funding category explains no significant variation in these outcomes. This analysis suggests that overall beneficiaries are doing better now than before the earthquake.

The WSS beneficiary household respondents were asked to indicate how far and how long it took to reach the nearest main source of drinking water at the time of the Fifth outcome survey and before the earthquake. These ordered categorical outcomes for distance and time taken to reach nearest main source of drinking water are indicated below:

Ordered categorical outcomes for distance to safe water:	Ordered categorical outcomes for time taken to reach safe water:
Within household=1	Within household=1
Less than 50 meters=2	1-14 minutes=2
More 50 and less than 75 meters=3	15-29 minutes=3
More than 75 meters=4	30-45 minutes=4
	More than 45 minutes=5

The change in average beneficiary households within WSS distance and time scores at facility level before the earthquake and at the time of the Fifth outcome survey are presented in Figure 8.18 and **Error! Reference source not found.**

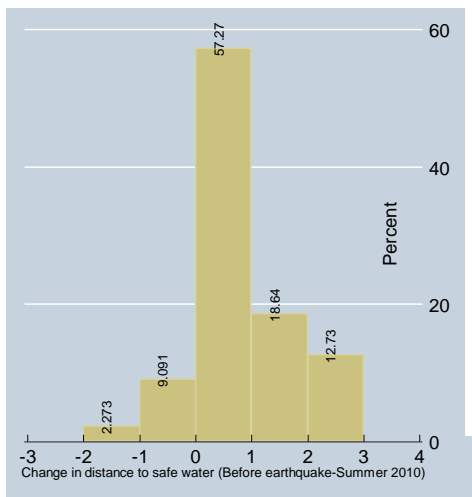


Figure 8.18 Histogram of the change in average score of distance to the nearest safe water.

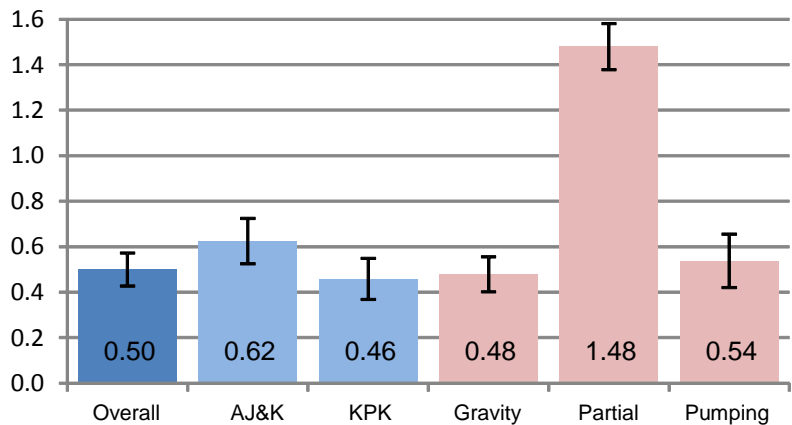


Figure 8.19 Change in facility level scores of distance to main drinking water source between before the earthquake and the Fifth outcome survey disaggregated by region and donor category.

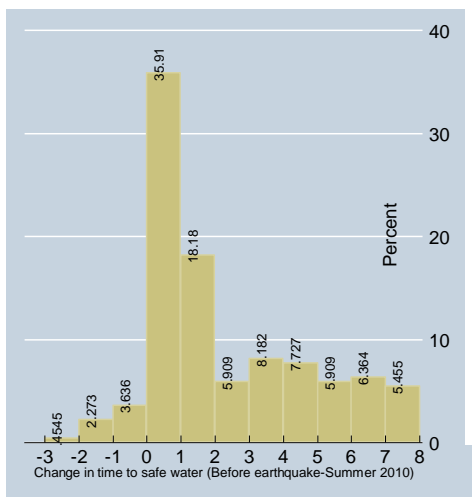


Figure 8.20 Histogram of the change in average score of time to the nearest safe water.

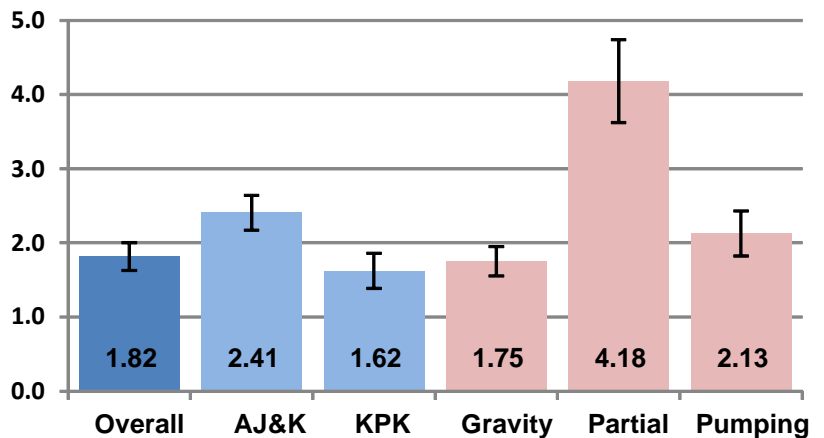


Figure 8.21 Change in facility level scores of time to main drinking water source between before the earthquake and the Fifth outcome survey disaggregated by region and donor category.

Overall, there were reductions in the distance and time to access the household's main drinking water source indicated in the histograms by distribution skewed to the right of zero, showing the majority of WSSs were recording reductions in time and distance to the nearest main drinking water source (Figure 8.18 & Figure 8.20) reflected in reductions in both distance and time taken scores of 0.5 and 1.82 respectively (Figure 8.19 & Figure 8.21). Again partial pumping systems exhibited statistically significant improvements in time score (prob. = 0.017) and almost statistically significant improvement in terms of distance score (prob. = 0.054). Although AJ&K again consistently performs better than KPK, this performance was not significantly better (prob. = 0.228) in terms of the distance score change, but was significantly different (prob. = 0.025) in terms of the score change for time to main drinking water source (2.41 for AJ&K vs. 1.62 for KPK, Figure 8.21).

ERRA's WatSan strategy indicates that the household's main water supply should be within 75 metres of the household. A binary variable was calculated at a household level for households accessing their main water source within 75 m before the earthquake or at the time of the Fifth outcome survey. These variables were summarised to the facility level, and the overall mean household within WSS rate of access to main water within 75 m was 81% before the earthquake and 91% at the time of the Fifth outcome survey (Figure 8.22 & Figure 8.23). The change in the average proportion of households with access to their main drinking water source 75 m or less was calculated between before the earthquake and the time of the Fifth outcome survey (Figure 8.24).

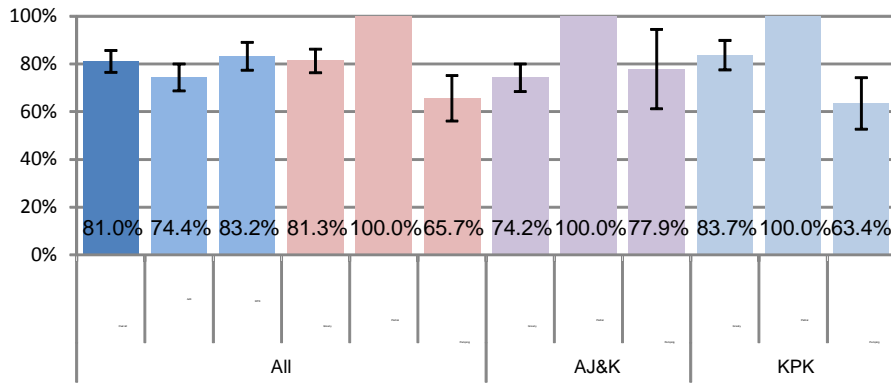


Figure 8.22 Proportion of users per WSS with access to main drinking water supply within 75 m of the household before the earthquake.

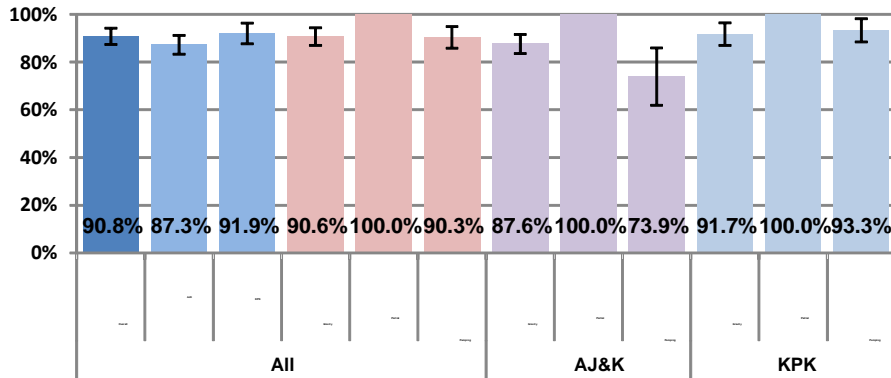


Figure 8.23 Proportion of users per WSS with access to main drinking water supply within 75 m of the household at the time of the enumeration of the Fifth outcome survey.

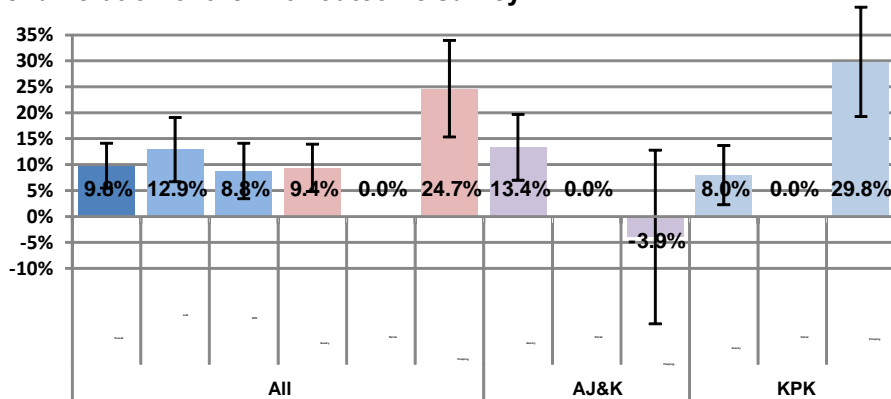


Figure 8.24 Change in the proportion of users per WSS with access to main drinking water supply within 75 m of the household from before the earthquake to the time of the Fifth outcome survey disaggregated by region and WSS type.

Overall there was an increase of 9.8% of the mean number of households per WSS that were accessing their main water supply within 75m, but this did not vary significantly by region, although AJ&K had a slightly better performance with an increase in 12.9% of WSSs mean rate of household access to drinking water within 75 m as a result of the rehabilitation of the water supply scheme (Figure 8.24). Water supply system type was significant, indicated by the one negative result where there had been an almost 4% average decline in household access for pumping systems in AJ&K, whereas in KPK, pumping systems recorded the greatest increase in access to water within 75 m (30%). Overall this data indicates a positive impact of the rehabilitation compared to the water access before the earthquake with the single exception of pumped systems in AJ&K which only account for 9/220 WSSs.

8.3.2.2 Water Supply Operational Performance

Household WSS beneficiaries were asked the degree to which their water supply scheme had been providing regular water since it had become functional (i.e. after the reconstruction rehabilitation). Five categories were used to describe the regularity water supply from the WSS:

1. Not at all - 2 - Occasionally - 3 - About half the time - 4 - Most of the time - 5 - All the time

This is one of the variables where the 73 water supply schemes visited and not enumerated because they weren't working at all can be added into the analysis by coding all of these 73 water supply schemes with a mean score of not working. Therefore this analysis has been performed both with all 297 water supply schemes including the 73 not working (Figure 8.25) , and just the 220 working water supply schemes with enumerated beneficiaries (Figure 8.23).

Considering the analysis of the 220 enumerated WSSs (Figure 8.23), the average regularity of supply score was 3.65, a score that falls between about half and most of the time. Region was a significant explanatory variable (prob. = 0.005), with a better water supply regularity score in AJ&K of 3.94, significantly better than 3.56 in KPK. Also, the water supply system type was a significant explanatory variable (prob. = 0.010), with pumped systems providing a significantly greater reliability score than either gravity or partial. This was in contrast to the ex-ante hypothesis that pumped systems with reliance upon motors would be less reliable producing a regular water supply because of maintenance challenges. The varying scores in the different units of analysis can result in rates that are hard to reconcile with the overall totals without taking into consideration the weighting system, hence the influence of the regularity of water scores of five partially pumped systems in AJ&K (operational all of the time) has little influence on the overall results for partial systems as there are only two such systems in AJ&K.

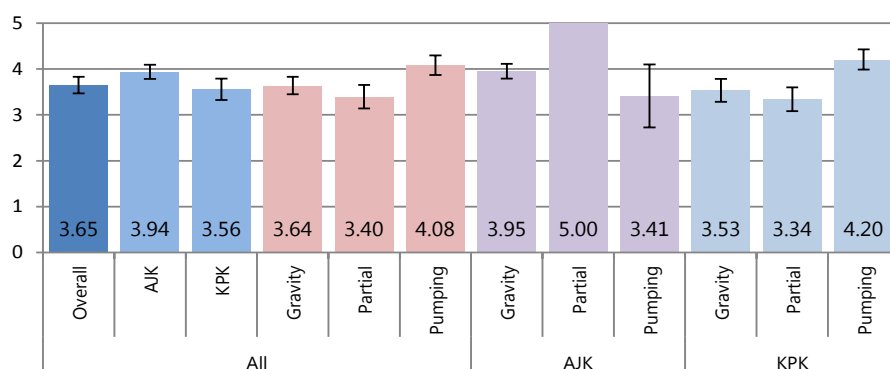


Figure 8.25 Average of mean household WSS regularity of water access scores disaggregated by region and WSS type for those 221 WSSs working with the enumerated beneficiaries

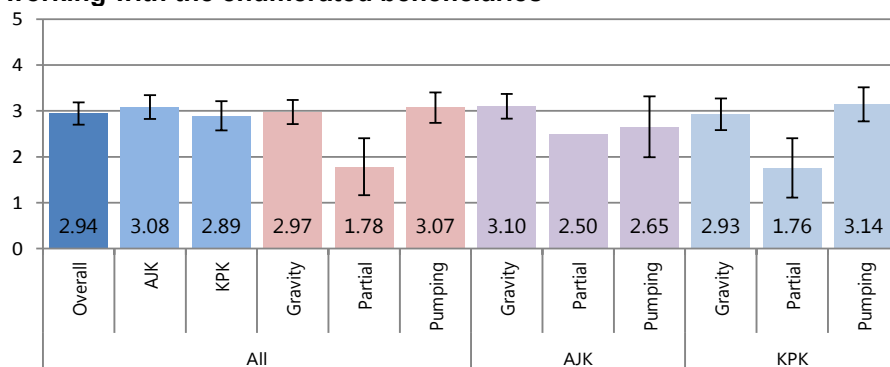


Figure 8.26 Average of mean household WSS regularity of water access scores disaggregated by region and WSS type including the 73 nonworking WSSs visited but not enumerated.

When this analysis is repeated but including the 73 nonworking WSSs that were visited and not enumerated and with the imputed assumption that all of their beneficiaries are experiencing no functionality at all, neither region nor WSS are significant explanatory variables of the variation in the

water supply regularity score, and the notable variation appears to be the particularly poor performance of partial pumping systems in KPK. Overall the regularity water supply score has dropped significantly from 3.65 to 2.94 (on average just below a score of "most of the time").

For those households who indicated that their water supply regularity ranged from not at all to most of the time were asked to qualify the reasons for insufficient supply of water, a question repeated in the same form when also asked to the WSS respondent in the WSS facility questionnaire. Figure 8.27 presents the response to this same question from these two units of observation, the WSS respondent and households but in a slightly different form. The data from WSS informant is a repeat of the data from Figure 8.13 for the most important three binary reasons for water not being sufficiently available, i.e. pipe breakages, shortage of water and unfair water distribution. The household data was averaged to the WSS that they were members of, resulting in a proportion of households citing each of these three reasons if a beneficiary household respondent indicated that they were not getting water all of the time. While these two results presented in Figure 8.27 appear to be very similar, they are slightly different matrixes are not directly comparable. The results at the WSS level are binary whereas household WSS level results is a proportion ($0 < x < 1$) and while overall it is encouraging that average rate of citation at WSS level by households is the same as WSS respondents, a further test of mutual validation is the WSS average beneficiary households within WSS citation rates for the binary options for the three reasons for water shortages. These are presented in Figure 8.28, and indicated in all cases, the average number of households citing a particular problem being statistically significantly greater when the WSS respondent cites the problem there when the WSS respondent doesn't cite the problem. For example, when the WSS respondent did not cite the issue of unfair water distribution, the average rate of citation among households within WSSs was just 15.1% as opposed to significantly greater citation rate of 57.2% when the WSS respondent did cite this as a problem. Again this is an encouraging result and suggests a consistency of data patterns between responses to the identical question from household and WSS respondents and increases the sense of robustness of data with opportunities for internal mutual data validation.

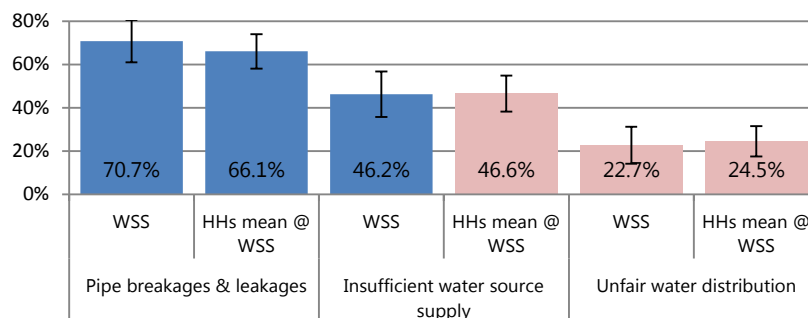


Figure 8.27 Citation rates of 3 water supply issues reducing regular water supply either directly from the WSS respondents or as they summary of the mean Citation rate of households within each WSS.

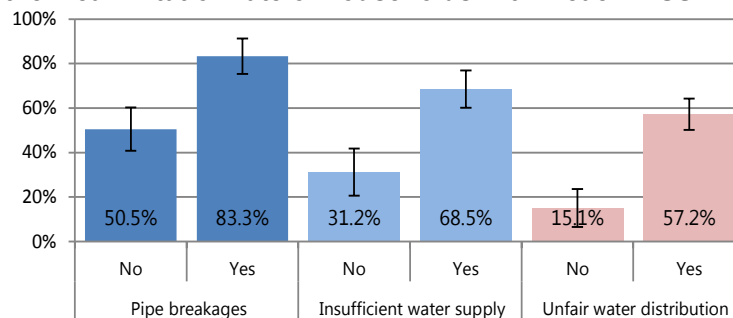


Figure 8.28 Citation rates of 3 water supply issues reducing regular water supply either directly from the WSS respondents or as they summary of the mean Citation rate of households within each WSS.

WSS beneficiary households were asked whether they were satisfied with the colour, odour or taste of the water from the WSS and the overwhelming majority of them were (Figure 8.29). Neither region nor WSS type explained any significant variation in these three satisfaction indices.

Beneficiary household respondents were asked whether they were using any type of in-house water treatment including cloth, sand, gravity filters, boiling or chemically treating the water. The responses indicated very low rates of households using in-house water treatment either at the time of the outcome survey or before the earthquake, although there was a non-significant increase in the rate of households using in-house filtering from 2.8% before the earthquake to 5.3% at the time of the survey (Figure 8.30). Neither region, donor category nor water supply type had any influence on the variation in this very low incidence of in household water treatment rates.

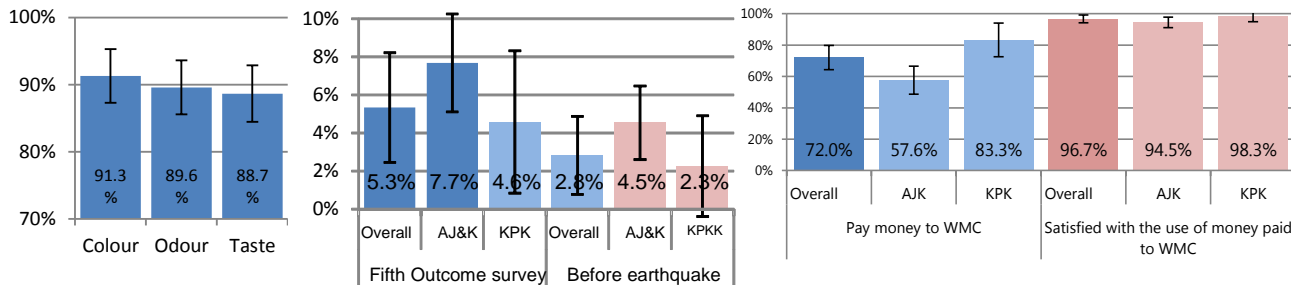


Figure 8.29 Average household within WSS approval ratings of colour, odour and taste of water supplied from WSS.

Figure 8.30 Average rate of households with WSSs indicating that use some form of in-house water treatment at the time of Fifth outcome survey and before earthquake.

Figure 8.31 Average rate of the mean number of households per WSS paying money to WMC and their average satisfaction rate with the use of the money by WMC.

Those beneficiary households of WSSs managed by WMCs were asked if they paid money to the WMC for the maintenance of the WSS and whether they were satisfied with the use of that money paid. Results indicated that for those WSSs with WMC management, an average of 72% of the beneficiaries were paying money to the WMC, but this varied significantly by region with a much higher rate in KPK (83.3%) than in AJ&K (57.6%, Figure 8.31). Of those that were paying money to the WMC, universally there was a very high rate of satisfaction, overall almost 97%, with only a little non-significant variation between regions (Error! Reference source not found.).

8.3.2.3 Water Supply Scheme Causing Conflicts

WSS beneficiary households were asked whether they thought there had been any effects (both positive and negative effects possible) on the community from the rehabilitation and operation of the WSS in their community. The overall average number of households per WSS that indicated that there were effects on the community from the rehabilitation of the WSS was 7.6% (Figure 8.32), but the rate was statistically significantly greater in AJ&K (19.4%) as opposed to KPK (3.8%).

For all of the variables displayed in Figure 8.32,, region was a statistically significant explanatory variable of variation in responses to effects on the community, whereas WSS type was not significant for any of them. Conflicts over water and ownership of the WSS source are significantly greater in AJ&K (14.7% sign and 10.1% respectively) and very infrequent in KPK (3.8% and 0% respectively). Also, AJ&K reported statistically significantly higher levels of community cohesiveness (6.5% vs. 0.1%), increased levels of hygiene (11.5% vs. 0.3%) and time saved through better water supply (9.8% vs. 0.8%) than KPK. Overall AJ&K's reporting rate of impact on communities was much higher, but for both positive and negative aspects of consequences of the rehabilitation of the WSS. Further investigation is required to unpack whether this is a non-sampling error related to style of enumeration or the mode of implementation of the rehabilitation of the WSSs in AJ&K that creates a higher level of awareness among beneficiary households of both positive and negative consequences upon the community.

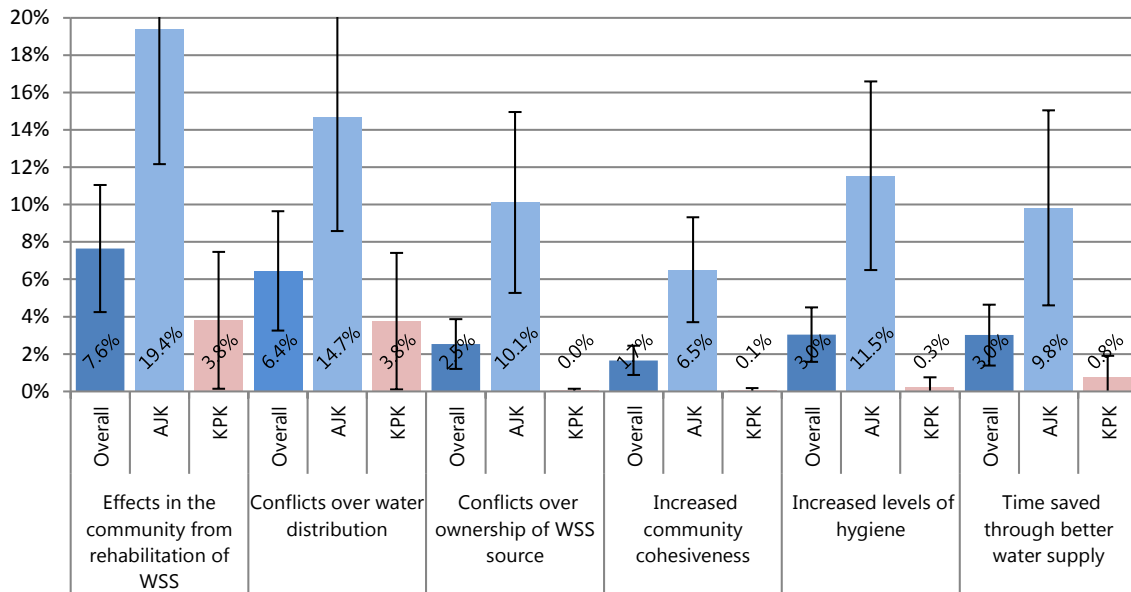


Figure 8.32 Per cent of households within WSSs indicating different impacts on the community of the rehabilitation of the WSS disaggregated by region.

8.3.2.4 Changing in Diarrhoea Incidence

Increased access to clean drinking water can contribute to reduced infant and child mortality through a reduction of incidence of diarrhoea. WSS beneficiary households were asked whether they felt that the incidence of diarrhoea had 'reduced, stayed the same or increased' since the rehabilitated WSS had come into operation, and were scored -1 for reduced diarrhoea, 0 for stayed the same and +1 for increased. As indicated by the histogram (**Error! Reference source not found.**), overall, the distribution is skewed towards the negative, i.e. indicating an average diarrhoea reduction score for households within WSS (-0.33), representing an overall reduction since the WSS became operational. Neither region nor WSS type explained any significant variation in this value (**Error! Reference source not found.**).

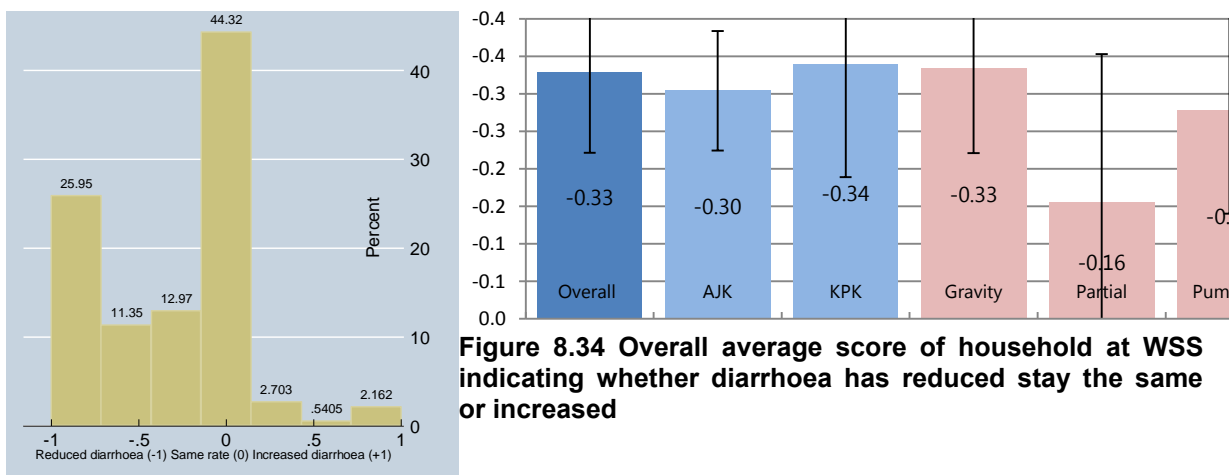


Figure 8.33 Histogram of average of household's indication of whether diarrhoea had reduced, stay the same or increased at WSS.

Figure 8.34 Overall average score of household at WSS indicating whether diarrhoea has reduced, stay the same or increased

8.4 ACCOMPLISHMENTS AND IMPACT

8.4.1 Proportion of the Population with Access to Improved Water Source

Households with improved water access were considered as those with an improved water source if the drinking water was coming from a piped supply, motorised pump or protected well. Water supply from a tanker/truck or vendor was considered unsafe, in line with the MDG definition (UN 2003). With the exception of rural Kohistan, all analytical domains show increases in improved water access between before the earthquake and 2008-09. Overall, the earthquake affected districts improve their improved water access from 57% to 63%, but this was not statistically significant. This leaves the earthquake affected districts with overall improved water access rate that is significantly lower than the non-earthquake affected districts. It should be noted that the earthquake affected districts had a lower access rate before the earthquake, but the improvement in access has been faster in the three comparable non-earthquake affected districts (64%-89%). Rural Kohistan has seen a disastrous decline in improved water access EQ from just 32% before the earthquake to just 10% in 2008-09.

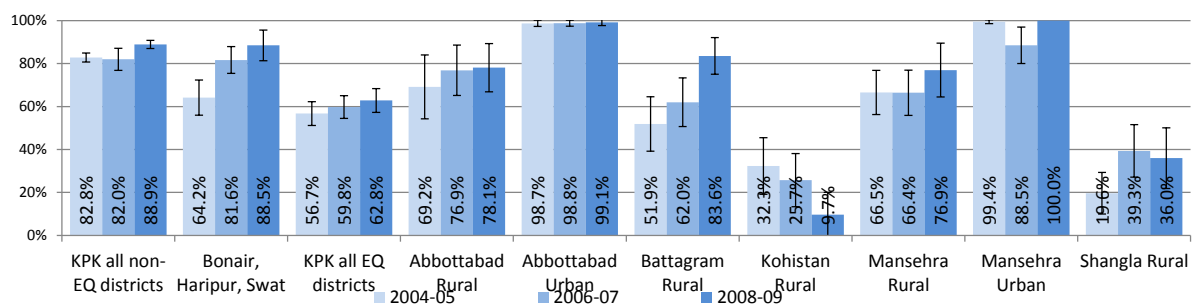


Figure 8.35 Percentage of population with access to improved water source

8.4.2 Time Taken for Households or Access Improved Water by Foot

Having access to improved water is one important component of improved water supply, but the time taken to collect their improved water is also an important consideration. The mean time taken to get to the improved water access point (Figure 8.36) is presented as the mean score as the survey categorised time taken to improved water in four time intervals; 0-14, 15-29, 30-44 and 45-59 minutes. While it is possible that there could be bias from large numbers of households moving from foot to another means of accessing an improved water source over the observation period, this is thought to be unlikely. The results presented in Figure 8.36 indicate little improvement in time taken to access an improved water access in the earthquake affected and the non-earthquake affected districts. The earthquake affected districts have a slightly higher time score, but this is significantly greater than both the three comparable districts and the non-earthquake affected districts. Unless the ERRA water supply scheme programme introduced new schemes rather than rehabilitating old ones, this is an unsurprising result in that for the most part, there is little or no change in time to accessing improved water. Unsurprisingly, urban households had drinking sources closer to their households than in the rural areas.

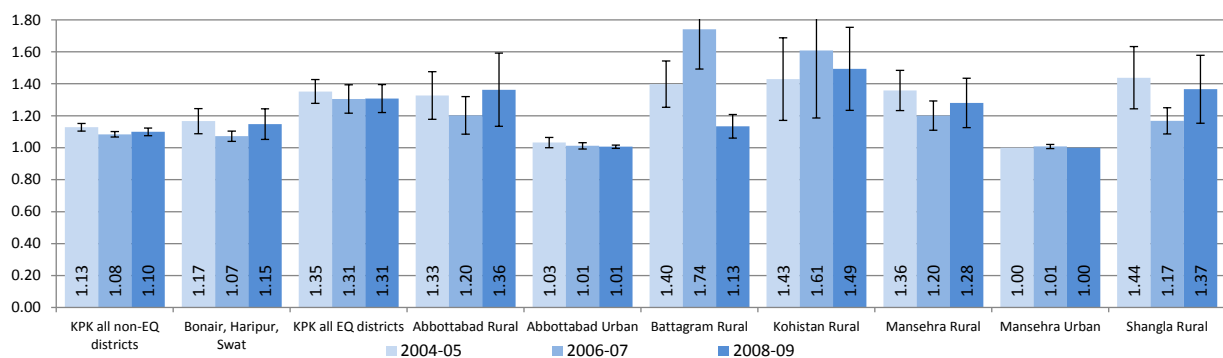


Figure 8.36 Time scores for population to access improved water by foot

8.4.3 Improved Toilet Facility

Improved sanitation is defined as households with a flush toilet (either flush to sewage, septic tank or open drain) or a raised latrine. Households with no sanitation or a pit latrine or some other toilet

facility were categorised as unimproved. Overall, the results (Figure 8.37) indicate an improvement in access to improved toilet facilities in the earthquake affected districts and the 3 comparable non-earthquake affected districts. These improvements have been significant, from 37% to 61% in the case of earthquake affected districts. Urban Abbottabad showed no significant change, largely because it has very high rates of improved sanitation already, whereas urban Mansehra did register an improvement, but not statistically significant. The lowest improved sanitation rate is found in Kohistan where the pre-earthquake access rate was just 8%, but it rose to 32% in 2006-08 (statistically significant at the 90% confidence level) but dropped (non-significantly) to 18% in 2008-09.

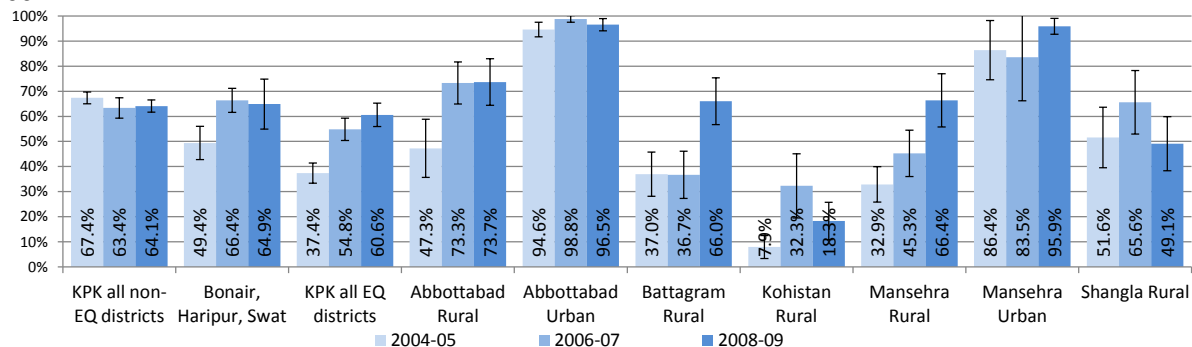


Figure 8.37 Improved toilet facility household access rate

8.4.4 Diarrhoea Incidence for Children Under 5 in the Last 30 Days

One of the expected outcomes as a result of improving access to improved water sources and toilet facilities is a reduction in diarrhoea incidence, particularly among children under 5.

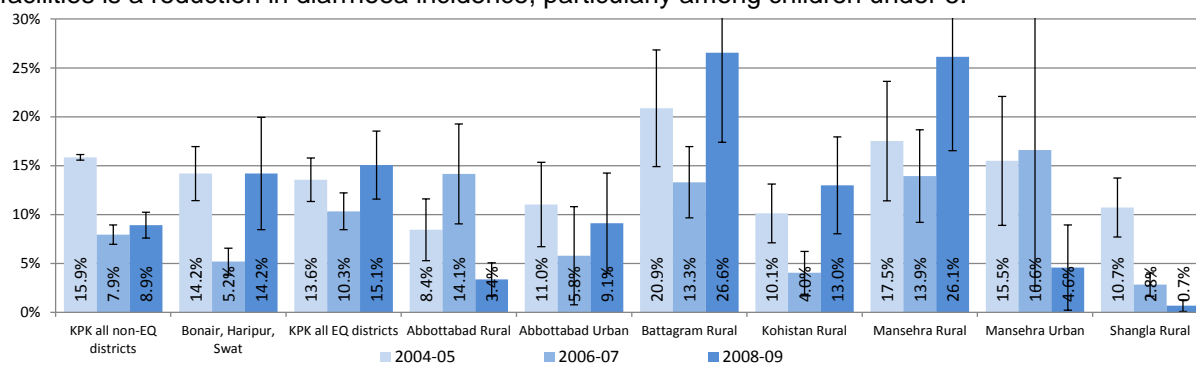


Figure 8.38 Diarrhoea incidence for children under 5 in the last 30 days

The results over the 3 observation periods indicate no significant change in diarrhoea incidence in the earthquake affected districts, while there has been a significant decrease in diarrhoea incidence in the non-earthquake affected districts. Rural Battagram and Mansehra have particularly high diarrhoea incidence rates across the 3 observations, and show significant increases. Surprisingly, the remote rural districts, Kohistan and Shangla show some of the lowest diarrhoea incidence rates, and in Shangla there has been a significant decline from a pre-earthquake rate of 11% to just 1% in 2008-09, and at odds with the data for the same districts on improved water and improved sanitation access. Without knowing the timing of the enumeration of the districts across the year, some caution should be applied to interpreting this data as diarrhoea incidence is known to be seasonal, with a higher incidence in the warmer months normally experienced.

8.5 OBSERVATIONS AND CONCLUSIONS

8.5.1 Conclusions from Water Supplies Scheme Analysis

1. 73/297 WSS not enumerated because when visited these were not found to be functional. Without further information, this suggests that the ERM database is not up-to-date, or the veracity of the data within it is not sufficient to act as a robust sample frame.
2. AJ&K schemes connected 12% more households than designed for, significantly more than in KPK, where on average 6% less households were connected than designed by the scheme.
3. 49% of water supply schemes were managed by WMC's, but the WMC management rate is significantly higher in AJ&K (85%) than in KPK (39%). To compensate for this in KPK, a much greater proportion of WSSs were managed by self-help individuals (28%) or the Public Health Engineering Department (24%).
4. Where WMC's are managing the WSSs, the majority are doing so actively (89%), meeting when needed by and large, with mostly (92%) good or fair participation by their members. Almost all (99.5%) of them are involved in WSS maintenance, 92% involved in water management and 88% involved in financial management.
5. There were only 18/118 WSSs with female members of the WMC. The rate of involvement of these members in WMCs in financial management, maintenance and water management occurs in just half of the WMC's with female management, resulting in very little influence of female members in very few WSSs.
6. Including the 73 visited but non-functional WSSs, overall, only 14% of WSSs were supplying safe water most or all of the time. Neither region nor donor funding category were significant, but AJ&K had a slightly better rate at 44.6%, and GoP funded facilities had the least number of WSSs supplying safe water most or all of the time (32.6%).
7. The reasons cited for the WSS not supplying regular water all of the time were most commonly breakages and leakages (71%) with insufficient water source supplies cited for 46% of the WSSs without regular water supply all of the time, and 23% of these WSSs also cited unfair water distribution as an issue.
8. Just 57% of WSSs had a non-leaking clean uncovered storage tank, slightly better in AJ&K (62.2%) but not significantly so. GoP funded facilities consistently had lower rates of functional storage tanks (44.8%), a rate significantly lower than either donor (56.5%) or NGO funded facilities (64.4%).

8.5.2 Conclusions of Water Supply Scheme Beneficiary Analysis

1. Overall, average household access rate within WSSs before the earthquake was 62% and after was 85%, indicating an improvement in access to safe water since the earthquake. The improvement in AJ&K was slightly better (32.5% of households) as opposed to KPK 22.2% of households), but not significantly so. Overall beneficiaries are doing slightly better now than before the earthquake.
2. Overall there were reductions in distance and time to access the household's main drinking water source with the majority of WSSs recording reductions in time and distance to the nearest main drinking water source. AJ&K performed better in terms of reduction of time and distance to main water source and significantly so in terms of time scores (2.14 for AJ&K and 1.62 for KPK).
3. ERRRA strategy aims to provide a main water supply within 75 m of all beneficiary households. The overall mean household within WSS rate of access to main water within 75 m was 81% before the earthquake and 91% at the time of the Fifth outcome survey.
4. Overall there was an increase of 9.8% of the mean number of households per WSS that were accessing their main water supply within 75m, but this did not vary significantly by region, although AJ&K had a slightly better performance with an increase in 12.9% of WSSs mean rate of household access to drinking water within 75m as a result of the rehabilitation of the water supply scheme.
5. Overall, this data indicates a positive impact of the rehabilitation compared to the water access before the earthquake with the single exception of pumped systems in AJ&K which only account for 9/220 WSSs.

6. The 220 enumerated WSSs had an average regularity of supply score of 3.65, which falls between water supply about 'half to most of the time'. Region was a significant explanatory variable (prob. = 0.005), with a better regularity score in AJ&K of 3.94, significantly better than 3.56 in KPK. When including the 73 visited but non-functioning WSSs, the overall regularity water score drops from 3.65 to 2.94, (on average just below a score of "most of the time").
7. The reasons for water supply not being regular all of the time were comparable between the household level and the facility level responses, all with pipe breakages and leakages been most frequently cited followed by insufficient water source supply with unfair distribution been sighted least often.
8. There were very low rates of in household water treatment practices both at the time of the outcome survey and before the earthquake. Although there was a non-significant increase in the rate of households using in-house filtering from 2.8% before the earthquake to 5.3% at the time of the survey, but neither region, donor category or water supply type had any influence on the variation in this very low incidence of in household water treatment rates.
9. A total of 73% of beneficiaries of WSSs with WMC management were paying money to the WMC, but this varied significantly by region with a much higher rate in KPK (83.3%) than in AJ&K (57.6%). Of those that were paying money to the WMC, universally there was a very high rate of satisfaction (overall 97% satisfaction rate).
10. The overall average number of households per WSS that indicated that there were effects on the community from the rehabilitation of the WSS was 7.6% (Figure 8.32), but the rate was statistically significantly greater in AJ&K (19.4%) as opposed to KPK (3.8%).
11. Region was a statistically significant explanatory variable of variation in responses to all the different types of effects of the rehabilitation of the WSS upon the community. AJ&K reported statistically significantly higher levels of community cohesiveness (6.5% vs. 0.1%), increased levels of hygiene (11.5% vs. 0.3%) and time saved through better water supply (9.8% vs. 0.8%) than KPK. However, further investigation is required to unpack whether this is a non-sampling error related to style of enumeration or the mode of implementation of the rehabilitation of the WSSs in AJ&K that creates a higher level of awareness among beneficiary households of both positive and negative consequences upon the community. Conflicts over water and ownership of the WSS source were significantly greater in AJ&K (14.7% and 10.1% respectively) and very infrequent in KPK (3.8% and 0% respectively).
12. Incidence of diarrhoea score was -0.33, representing a small overall reduction in average within WSS household rates of diarrhoea since the WSS became operational, with no significant variation by either region or WSS type.

8.6 RECOMMENDATIONS

- Women are the primary beneficiaries of WatSan facilities; therefore their active involvement in decision-making is essential.
- Robust institutional mechanism should be streamlined for continuous water quality monitoring and ensure adequate water quantity and service delivery.

8.7 LESSONS LEARNT

- Capacity development is important to ensure effective operation and maintenance of WatSan facilities, by targeting all stakeholders: line departments, community organisations and skilled personnel.
- Involvement of communities and line departments at all stages of planning and implementation ensures their ownership towards reconstruction efforts and need based demands.
- Awareness-raising campaigns on safe hygiene practices lead to reduction in disease incidences.

Public Infrastructure

- **Governance**
- **Transport**
- **Power**
- **Telecommunication**

9. GOVERNANCE

9.1 INTRODUCTION

9.1.1 Background

The earthquake on 8th October, 2005 caused extensive damage to life and property in parts of KPK and AJ&K. It virtually paralysed the organisational structure of five districts in KPK and four districts in AJ&K. According to the initial assessment a total of 949 buildings were damaged and required rehabilitation and reconstruction in the Governance Sector, comprising civil administration, judiciary and police. Following a subsequent assessment, this figure was revised down to 692 buildings, mainly due to the planning of co-located complexes where offices and residences of different departments are planned to be located at one place in some districts and *tehsils*. For resumption of normal functions, prefabricated structures were provided for the offices along with essential equipment, furniture and capacity building through training. Work on reconstruction and restoration of damaged building construction integrated seismic resistant features into the buildings construction in order to avoid similar damage in the future.

ERRA adopted a two-track approach: one for early restoration and rehabilitation of the government offices and the other for the reconstruction and repair of damaged infrastructure. For early restoration, the efforts of donor agencies were harnessed through various programmes. In this regard, the Technical Assistance for Management of Earthquake Early Recovery (TAMEER) and Building Enabling Governance Institutions for Earthquake Response (BEGIN-ER) projects were introduced with the assistance of UNDP.

Rehabilitation of infrastructure in the Governance Sector progressed at a steady pace throughout 2009 and 2010. While the prefabricated structures allow the uninterrupted provision of services, the repairs of buildings, where required, have been completed. As regards the construction and repair of buildings, 367 buildings were completed compared to the previous year's 354.

9.2 STRATEGIC APPROACH

9.2.1 Vision

To reconstruct/repair all damaged infrastructure in the affected areas of KPK and AJ&K and to build seismically safe, quality structures meeting current and future requirements²⁷.

9.2.2 Objectives

- To rehabilitate and reconstruct all government offices/houses damaged or destroyed as a result of the earthquake.
- To expand and improve the damaged or destroyed buildings to cater to existing needs.
- To restore, build and strengthen the capacity of relevant governments, agencies and institutions through the provision of the requisite equipment and logistical support to effectively deal with reconstruction and rehabilitation.
- To strengthen the capacities of State/Provincial departments and ensure the provision of necessary technical support.

²⁷ ERRA Governance Strategy, 2006

9.2.3 Implementation Methodology

To achieve its objectives in the Governance Sector, the focus is on the following key areas of interventions:

- Improved disaster preparedness and service delivery during the rebuilding phase of the office buildings and houses.
- An inter-sectoral approach to ensure integration, especially with the environment and WatSan sectors.
- Capacity building to ensure restoration and strengthening of State and Provincial functions in general and those of local government in particular.
- Quality assurance of supplies and works through standardisation and third party supervision.

Box 9.1 Basic Principles for Implementation in the Governance Sector

- Seismic-resistant quality structures
- Consultation with all stakeholders during planning and implementation
- Rationalisation of covered areas for government buildings
- Equitable share to each government department
- Enhance inter department coordination by making District Government Complexes with all support buildings and residential infrastructure

Responsibility for implementation and coordination within the Governance Sector has been assigned as follows:

- Quick restoration of government offices is being ensured with the assistance of donors and sponsors.
- Design and quality assurance is ensured through NESPAK consultants.
- Projects are to be primarily funded by GoP and in some cases by donors and sponsors.
- Monitoring and evaluation of the projects are to be ensured through third parties i.e. consultants of NESPAK and sample checking by the ERRA M&E Wing.

9.3 ACHIEVEMENT IN TERMS OF OUTPUTS AND OUTCOMES

As per the ERRA Governance Strategy, initially 949 buildings were due to be reconstructed and repaired; over the years these figures were revised and currently includes 692 buildings. These buildings were broadly divided into the following categories:

- District Administration Building;
- Court Buildings;
- Police Department;
- Post Office Department.

In order to ensure early restoration of governance offices, in 2007 ERRA provided prefab structures, equipment, furniture and capacity building through training of staff. 2007 also saw prominent work on planning, designing and tendering of buildings, parallel to the continuous functioning of public departments and services to population.

During 2008, a total of 18 buildings were completed and another 267 under construction, with the remaining buildings at planning and tendering stages. Restoration of the government offices and capacity building of government departments was also successfully achieved in 2008. 2009 saw steady progress in reconstruction of the buildings, with the number of completed buildings reaching 304. The number of projects under construction increased from 91 in 2008 to 354 in 2009.

By December, 2010, all 226 repairable buildings have been completely repaired, with 141 buildings completely reconstructed, including 70 from KPK and 71 from AJ&K. For more details, see table 9.1 below²⁸: 2010 witnessed various financial issues which caused delays in the reconstruction process. Projects faced delays because of land disputes, lack of qualified contractors and limited capacity of NESPAK. To handle these issues engineering wings were set up in earthquake affected areas which positively influenced the reconstruction process, resulting in an increase in the pace of reconstruction.

²⁸ Planning Wing II Data, Dec, 2010

Table 9.1 Overall Progress of Governance Sector by District

Districts	Reconstruction Status				Repairable Status		Grand Total
	Total	Tendered	Under Construction	Completed	Total	Completed	
Abbottabad	91	1	54	36	148	148	239
Mansehra	63	3	33	27	47	47	110
Battagram	67	13	47	7	1	1	68
Shangla	21	0	21	0	27	27	48
Kohistan	5	1	4	0	3	3	8
Total	247	18	159	70	226	226	473
Muzaffarabad	134	25	40	69	0	0	134
Neelum	12	2	10	0	0	0	12
Bagh	40	0	40	0	0	0	40
Rawalakot	33	0	31	2	0	0	33
Total	219	27	121	71	0	0	219
Grand Total	466	45	280	141	226	226	692

As far as the details of the under construction projects is concerned, 82 projects are 25% completed, whereas 61 projects are between 76% and 95% completed. Similarly 45 GoP funded projects are at the design stage, while none of the Donor or Sponsored projects is at this stage.

The provision of office structures, equipment, training and vehicles greatly helped in the early restoration of the administrative system in affected areas. The efforts of ERRA, fully supported by donors/sponsors, provided the resources government departments required in order to resume their functions and provide uninterrupted services. Continued service delivery by government departments through the early restoration of the governance sector allowed subsequent reconstruction activities within the affected areas and helped the community to receive the requisite administrative response from the police, courts and the general administrative branches. The Social Impact Assessment Survey 2009 conducted by ERRA's M&E Wing indicates that a large percentage of the community was satisfied with the role and functioning of the newly constructed governance building structure.

The reconstruction and repair of buildings using seismic resistant building codes will reduce the likelihood of damage and collapse in the event of any future catastrophic earthquakes. There will, however, be the need to formulate, update and rehearse Standing Operating Procedures (SOP) to deal with natural or manmade disasters at each tier of administrative, departmental and institutional levels in order to ensure continued preparedness.

9.3.1 Co-located District Complexes

ERRA's concept of co-locating the offices of different departments in one place is to allow the public better access to these facilities and to facilitate improved service delivery. The initial plan of constructing six such complexes - one each at Muzaffarabad, Bagh, Rawalakot (AJ&K) and Shangla, Battagram and one *tehsil* complex at New Balakot Town (KP) – has been revised. Now only the three complexes in AJ&K will be constructed. The District Government Complex at Muzaffarabad, built with the support of the Turkish Government, has been functional since 2008. It has 62 office buildings, as well as 92 residential blocks (200 houses) for officials. The facility has been very successful in terms of facilitating interactions between the community and service providers. Furthermore, under the Saudi Development Fund, construction of 2 District Headquarter Complexes (Bagh and Rawalakot) is underway, and likely to be completed by 2012.²⁹

The co-located District Government Complex in Muzaffarabad has proved to be an outstanding success. The local community has appreciated the multiple benefits provided to them through this facility. The officials working in the complex have found it facilitating inter departmental coordination. The main benefits are:

- Easy access for the community to the government offices.
- Saving time and money for the public.

²⁹

<http://www.serra.gov.pk/showpage.asp?GovernanceSector>

- Better coordination between different departments.
- Economy in fuel and wear and tear of Government vehicles because of reduced need for staff to driver between different departments.
- Positive impact on the environment due to reduced pollution.

9.3.2 Police Lines Abbottabad

Abbottabad is the major administrative and commercial centre of Hazara Division. Until recently the present districts of Mansehra, Battagram and Haripur were different *tehsils* of this vast district. The complex of the District Police Lines was damaged and it was decided to rebuild it.

GoP contributed Rs. 140 Million towards the reconstruction of the Police Line Abbottabad. Major features of the project are a co-located Administration Block and Residential Block, which ensures 24-hour availability of police official to the general masses. Reconstruction of the Administration Block was commenced on 7th March 2007 and completed in 2010.³⁰ The project covers an area of 34,000 square feet and cost Rs. 70 million. The Administration Block provides a range of facilities such as 7 Barracks, Offices, Magazine Stores and a Guard Room. The reconstruction of the Residential Block, which began on 5th June 2007, is now 96% completed³¹. The project covers an area of 34,321 square feet and cost Rs. 72 million. 3 *Bungalows* and 16 quarters have been completed, with another 16 projects substantially completed.

The early recovery of the governance services helped a lot in better management of the reconstructed facilities in the earthquake affected areas. Restoration of the governance infrastructure equipped with necessary furniture, equipment and training of the staff was achieved successfully. The seismically safe reconstructed buildings are much better than before the earthquake, as indicated by the latest outcome survey 2009, which covered 496 facilities and around 2,500 users.

9.4 ACCOMPLISHMENTS AND IMPACT

Reconstruction and restoration of the governance infrastructure and system has a broad impact on the quake-affected communities. Construction of the co-located government offices improved coordination, reduced cost and fatigue of communication and improved access to government offices. Capacity building and sufficient equipment are contributing to making the environment conducive for local administration and communities. Construction of the co-located complexes has brought pervasive repercussions. To some extent governance services have been restored and are now facilitating people from the earthquake affected areas. Impact assessments were carried out using household surveys for urban and rural areas. In 2009 a total of 4,168 households were surveyed. According to the ERRA Impact Assessment Report 2009, the survey results show a 56% satisfaction level for the households utilising police, civil administration and judiciary services³². With the completion of all projects relating to the government sector, the trend of improvement in state governance is also likely to improve.

Following the earthquake, the early restoration of governance set up was imperative. For example, essential records for property, births, deaths and also criminal records were destroyed, which required immediate attention. All civil administration, judiciary and police departments which were already involved with earthquake ERRA interventions and services remained extremely relevant and appropriate in terms of facilitation for the people and maintaining and improving the governance set up in comparison to the pre-earthquake situation.

The provision of offices, equipment, training resources and vehicles offered a huge support in the early restoration of the administrative system in affected areas. The efforts of ERRA fully supported by donors/sponsors provided the required resources to government departments to resume their functions. The reconstruction activities are continuing as per revised plans. The introduction of custom-made district administration complexes is a relevant concept. The co-located district complex was completed and is now functional at Muzaffarabad, providing services to the satisfaction of the community, as intended. The district and *tehsil* complexes at some other locations are at different stages of implementation. The cumulative efforts in this sector are relevant and appropriate for meeting the stated objectives.

³⁰ ERM Data

³¹ *ibid*

³² ERRA Social Impact Assessment Report 2009

Continued service delivery by government departments through the early restoration of the governance sector helped in the smooth functioning and processing, as well as in ensuring the follow-up on reconstruction activities within the affected areas. The community is receiving the requisite administrative response from the police, courts and the general administrative branches. The Social Impact Assessment Survey 2009 that was conducted by the M&E Wing indicates that the community is satisfied (56%) with the role and functioning of the governance structure. The efforts of ERRA towards the restoration of the governance infrastructure have also been effective.

9.4.1 Police satisfaction rates

The results of police satisfaction rates across the 3 observations consistently no change overall in the EQADs or non-EQADs, although there was a significant increase in police approval in the three adjoining non-earthquake affected districts in 2006-07 (Figure 9.1) Show opened districts the largest decline in police approval rating, and in the case of Manserha this is statistically significant from before the earthquake (84%→38%). Oddly, Shangla area exhibits a consistent and statistically significant police approval rating over the three observations from just under 10% to 65%.

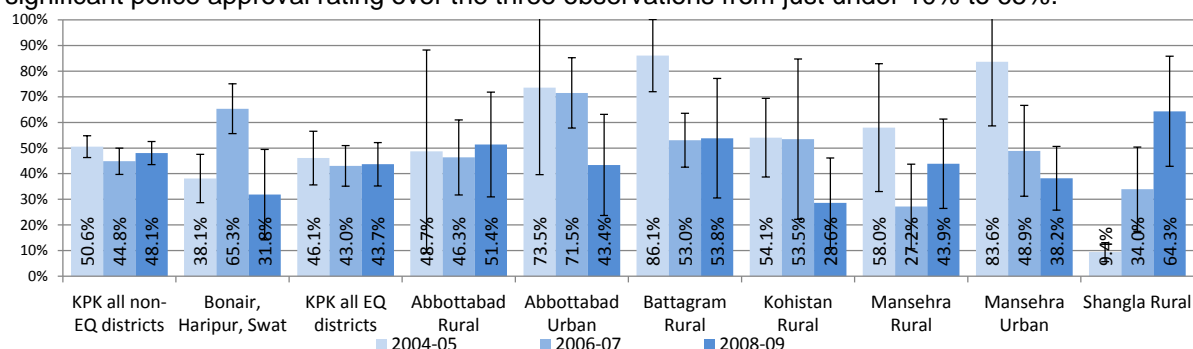


Figure 9.1 Percentage of households satisfied with the police

In comparison, the Social Impact Assessment 2009 survey revealed that the satisfaction and confidence of community members has gradually enhanced as a result of ERRA's cumulative efforts to restore the governance infrastructure. The perception is that the quality of services for general administration, police and courts has improved compared to the pre-earthquake period. With the completion and functioning of the full portfolio, trends are likely to improve and create a better state of governance.

Table 9.2 Percentage distribution of satisfaction with the quality of this service

Government service	Current	BEQ
General Administration	54.76	52.42
Police	51.42	45.62
Courts	63.31	58.42

9.5 OBSERVATIONS AND CONCLUSIONS

- The co-located District Complex at Muzaffarabad has significantly improved the quality of its services, including inter-departmental coordination, access and provision of services. The process of work on the remaining co-located complexes needs to be accelerated in order to reinforce the success achieved in creating a more conducive environment for providing services to the community.
- The Police Lines Complex at Abbottabad has been completed. There are some issues involved in the handing over process, which are expected to be resolved soon.
- The GoP funded projects are facing delays in reconstruction and are far behind the schedule.
- The pace of sponsored reconstruction projects have been observed to be much faster in comparison to GoP projects; all allocated sponsored projects have been successfully completed.

9.6 **RECOMMENDATIONS**

- With 100% progress in the reconstruction of buildings during this year, completion of all repair work and efficient functioning of the co-located District Government Complex in Muzaffarabad, the achievements in Governance sector are considered highly satisfactory. The process of work on remaining co-located complexes needs to be accelerated in order to reinforce the success achieved in creating conducive environments for providing services to the community.
- The buildings housing offices of various departments and residential accommodation could not sustain the impact of earthquakes, causing extensive damage in terms of life and property. The adverse effects were more pronounced in AJ&K, where such buildings were more recently built. Older building rules and regulations did not ensure seismic resistant construction, therefore government officials responsible for the building code compliance must ensure proper implementation of seismic resistant building codes to minimise loss of life and damage to property in the event of any future disaster.
- It is recommended to rectify the reservations of the Police Department regarding Police Line Abbottabad and hand over the building without wasting time and resources.
- Funds of the GoP funded projects must be released on time so that the reconstruction process could be completed within the timeframe.

9.7 **LESSONS LEARNT**

- Improvements in the governance infrastructure, recruitment and capacity development of staff, the establishment of a streamlined process has created an effective, efficient and service oriented public sector.
- Construction and functioning of a co-located complex has significantly increased the effectiveness and quality of services, improved inter-department coordination, ease among staff and provided income generating activities to the masses. This model can now be replicated in other areas and regions.

10. TRANSPORT

10.1 INTRODUCTION

10.1.1 Background

The October 2005 earthquake damaged 2,393 kilometres of roads in nine districts of KPK and AJ&K, which provided the dominant mode of land transport. The rehabilitation of roads and bridges is essential for relief and reconstruction activities in the immediate term and also for economic revival in the long term. The transport sector strategy envisages reconstructing and rehabilitating the major inter and intra district roads with improved specifications, rehabilitation and upgrading of important link roads. The cost in the revised strategy has been estimated at PKR 29.345 billion to carry out 233 projects, as summarised in Table 10.1.

Table 10.1 Summary of Damages in Affected Zones

Agency	Major Roads (km)	Link Roads (Km)	Total (Km)	Road Projects	Bridges	Bailey Bridges
National Highway Authority (NHA)	208	-	208		4	0
KPK	623	983	1,606	120	23	7
AJ&K	343	236	579	19	19	41
Total	1,174	1,219	2,393	139	46	48

10.2 STRATEGIC APPROACH

10.2.1 Vision

“Early reconstruction and rehabilitation of road networks damaged or destroyed due to the earthquake in a technically sound and cost effective manner ensuring improved quality, access and service delivery”.

10.2.2 Objectives

The objectives are:

- To rehabilitate and reconstruct all roads and structures that were damaged or destroyed due to the earthquake.
- To upgrade the roads and structures to higher standards if economically feasible.
- To make the road network earthquake resistant by stabilising the slopes and by retrofitting and reconstructing the structures to new standards.
- To adopt high standards for improvement of safety on the roads.
- To make maximum use of local material in the restoration and reconstruction of roads, if suitable, according to the specifications.
- To restore/strengthen the capacity of relevant government departments, agencies and institutions by providing them with staff, equipment and training for smooth execution of projects.

10.2.3 Implementation Methodology

Initial Strategy:

Once the relief operation was over ERRA prepared a comprehensive Transport Sector Policy/Strategy to carry out the rehabilitation and reconstruction of 6,480 km of damaged roads and 172 bridges in the affected areas, at an estimated cost of Rs.27.988 million. The initial strategy was mainly based on the reconstruction of roads to pre-earthquake level and was based on the initial damage assessments submitted by the line departments i.e. National Highway Authority (NHA), W&S Department, *Tehsil* Municipal Administration (TMA), Peoples Works Department (PWD) and Local Government & Rural Department (LGRD) in both AJ&K and KPK. The agency wise summary of the damages and estimated costs of reconstruction were:

- Three National Highways of 175 km length at a cost of Rs.6, 000 million.
- In AJ&K, 2521 km length of roads (45% of the total road network of 5340 km in the affected districts), 69 bridges and 75 culverts required rehabilitation and reconstruction at a cost of Rs.10, 834 million.
- In KPK, 3740 km of roads were damaged, representing 56% of the total road network of 6658 km in the five affected districts. Also 103 bridges and 68 culverts required rehabilitation and reconstruction at a cost of Rs.11, 115 million.

When ERRA started implementation of its strategy in December 2006, it was soon realised that much of the damage reported by the Provincial/State executing agencies required only minor repairs. The scope of work included patch work and rehabilitation of single roads. Rehabilitation of major inter/intra district roads was not properly addressed in the initial documentation. Realising this aspect, ERRA considered it appropriate to revise its strategy and enhance its scope.

A major policy decision was taken in June, 2007 in consultation with the Governments of AJ&K and KPK, which envisaged that the rehabilitation/reconstruction of all the major inter/intra district roads, with improved specifications and provision of high geometric standards with special attention to slope stabilisation to prevent environmental degradation, would be given first priority. This decision was based on the fact that ERRA's mandate is limited to the rehabilitation/reconstruction of those roads/bridges which were in fact damaged/destroyed due to the earthquake of October 2005.

Revised Strategy:

Rehabilitation and reconstruction of 2,393 Km of roads, covering 208 Km of National Highways, 1,606 Km of KPK, and 579 Km of roads in AJ&K, and 92 bridges.

- Rehabilitation/reconstruction of 23 major inter/intra district roads (16 in KPK and 7 in AJ&K) in the affected areas.
- The construction of the 5 Km Muzaffarabad West Bank bypass included constructing a state of the art extra-doze bridge at Jhelum River and on completion will become a landmark for Muzaffarabad city.
- Apart from this, 69 RCC bridges and 42 Bailey bridges in AJ&K and 19 RCC bridges and 6 Bailey bridges in KPK will be reconstructed. Panels for the 50 Bailey Bridges, provided under a UK Grant, are manufactured by MAYBEY Company which is the latest version of Bailey Bridges. These have excellent fatigue resistance and are ideal for small rural roads in a disaster prone area.
- Under a special package for development of Kohistan and Shangla districts, rehabilitation/reconstruction of 360 Km of roads to be carried out at a cost of Rs.2543 million. The total amount required for implementation of the above stated targets has been estimated at Rs.29.354 billion.

In order to meet the funding requirements, ERRA approached various funding agencies/donors such as Asian Development Bank (ADB), Japan Bank for International Cooperation (JBIC), Department for International Development (DFID) & World Bank, who committed funds amounting to Rs.17.988 billion. Subsequently the funds were revised from Islamic Development Bank (IDB). However, there was still a gap of about Rs.10.0 billion to achieve the estimated targets. ERRA decided to meet this shortfall from GoP funding.

10.3 ACHIEVEMENTS IN TERMS OF OUTPUTS AND OUTCOMES

Once implementation began, it became clear that most damage was relatively minor and could be addressed through routine maintenance and severe damage was only about one-third of that reported.

Priority was given to major inter/intra districts roads connecting major towns. Reconstruction entailed upgrading to improve the geometry of the roads and ensure seismic-resistance, which is consistent with the goal to Build Back Better. Implementation progress was relatively slow in the first two years, since this period was spent on planning and designing projects, securing funds, preparing PCI and tendering. It was only in the third year that the major ground work took was implemented.

10.3.1 District Wise Performance Analysis

The district wise progress achieved in the 9 affected districts in the Roads Sector until 2009-2010 is as follows:

Table 10.2 District wise progress of Transport Sector

District	Total	Designing	Tendering	Under Construction	Completed
Abbottabad	37	0	0	26	11
Mansehra	57	0	0	32	25
Battagram	14	0	0	5	9
Shangla	26	7	6	5	8
Kohistan	16	2	3	4	7
Total (KPK)	150	9	9	72	60
Muzaffarabad and Neelum	60	0	0	15	45
Bagh	19	0	1	9	9
Rawalakot	4	0	0	4	0
Total (AJ&K)	83	0	1	28	54
G. Total	233	9	10	100	114

The revised reconstruction and rehabilitation of a total of 233 projects of public infrastructure includes roads and bridges at a cost of PKR 29.345 billion. Out of 233 schemes planned under the strategy, in total only seven were completed by December 2008, whereas 82 were completed by December 2009 and 114 completed by the end of December 2010.³³ Briefly the progress achieved on various projects is as under:

10.3.2 National Highways

The earthquake has extensively damaged 4 National Highways. ERRRA has planned to undertake reconstruction/rehabilitation of these highways under its Roads Sector Strategy. These include Besian – Balakot – Naran Section (N-15), Battal – Battagram – Thakot Section (N-35), Kohala – Muzaffarabad – Chakothe Road (S-2) and Alpuri – Besham Road (N-90). Out of these, the first three National Highways are being rehabilitated under a World Bank Loan, while the fourth road is being funded from an ADB Loan. The pace of work on the three National Highways gained momentum during the current financial year and was 65% complete by December 2010. The work on the fourth road started during the current year and was around 50% complete by end of December 2010. All these National Highways have now been rehabilitated to improved geometric standards with increased width of road and the construction of earthquake resistance structures bringing them into line with the country's new seismic code.

10.3.3 Provincial & State Roads

10.3.3.1 ADB Funded Projects

Under this funding, a total of 85 road/bridge projects have been planned. The closing date of the ADB loan was 30th June 2010. However, as all the projects could not be completed by that date, the ADB granted an extension until June 2011, with a target of completing all construction activities by June 2011.

10.3.3.2 Link Roads

Under the loan, rehabilitation of 58 link roads, 49 in KPK and 9 in AJ&K, was planned. The progress achieved on these link roads by December 2010 is as follows:

A total of 54 link roads, with a total length of 492 Km, were completed and substantial progress was achieved on the other link roads. By June 30 2009, contracts for a total of 55 roads were awarded. During the year, the remaining 3 link roads were also tendered and contracts were awarded. The total cost of the awarded contracts for link roads is Rs.1, 472 million.

³³

ERA data December 2010

10.3.3.3 Major Roads and Bridges

Reconstruction and rehabilitation of a total of 27 major road/bridge projects has been planned. During the year, substantial progress was achieved on all the works. The project for reconstruction of the fourth National Highway, Alpuri-Besham road (33 Km length and costing Rs.1, 300 million), was also awarded during the year.

10.3.3.4 German Debt Swap-III

Under German Debt Swap-III, the German Government committed 10 million Euro for Road Sector projects. A total of 31 road/bridge projects have been identified. These include 11 road projects having a length of 65km in Abbottabad district and 20km of roads having a length of 105 Km and 2 bridges in Mansehra district. M/s NESPAK has been entrusted with the task of detailed design and construction supervision for these projects.

During 2009-10, the work on all the schemes continued with reasonable pace. However, after a technical survey, the Consultants and Employer dropped one bridge project and decided to undertake the construction of a causeway instead.

A total number of 5 road projects were completed during the year, and all the remaining projects are at various stages of completion. A German Consultant visited the projects to carry out Technical Audit and recommended that the pace of work on the projects be further enhanced.

10.3.3.5 DFID Funded Bailey Bridges

DFID has provided funds for reconstruction of 48 compact bailey bridges at critical locations. These are improved versions of Bailey bridges, having a load capacity of more than 40 tonnes and a design life of more than 80 years. A total of 42 bailey bridges are being constructed in AJ&K and 6 in KPK. In KPK, all 6 bridges have been launched and inaugurated. In AJ&K, 38 projects were completed during the year. The total number bridges completed in AJ&K by December 2010 was 39. The target for completion of all these bridges was November 2010. All bridges except one were been completed by the target date. All the completed bridges are open to traffic, greatly facilitating the population of the area. These bridges can take 2-way traffic at all times.

10.3.3.6 GoP Funded Projects

For the implementation of the approved Roads Sector Strategies, there was a shortfall of Rs.7.0 billion which is being met from the GoP funding. Under this funding, a total of 46 important road/bridge projects are being reconstructed in the nine affected districts. The total length of these roads is 708.9 Km. M/s NESPAK has been entrusted with the design and construction supervision tasks for these projects. Construction on all of these projects was carried out with considerable pace during the year.

10.3.3.7 IDB Funded Projects

For the development and uplift of the districts of Kohistan and Shangla, the government announced a special package using Islamic Development Bank (IDB) Funds amounting to US\$93 million. This package covers Roads, Power and Education Sectors. Under the Roads Sector, a total of 16 road and bridge projects have been identified, of which 12 projects (6 roads having a length of 101 Km and 6 of bridge projects) are in Shangla district. The total cost of these projects is Rs.1, 523 million. Four road projects are in Kohistan district, envisaging construction of 4 roads with a total length of 190 Km at an estimated cost of Rs.2,842 million.

10.3.3.8 JBIC Funded Projects

Muzaffarabad West Bank Bypass Project (Rs.1833 million)

The Government of Pakistan received an emergency earthquake recovery loan of US\$ 100 million from JBIC immediately after the earthquake for reconstruction in the affected areas. The Muzaffarabad West Bank Bypass Project is included in the list of the projects to be funded from that loan. The design of the project has been carried out under the JICA Grant. Under this project rehabilitation, widening and construction of the 5 Km long West Bank Bypass, including construction of 2.46 Km long extra-dozed Naluchi Bridge over River Jhelum Muzaffarabad is being undertaken. NHA is the executing agency for the project. The project is being executed in two packages as

detailed below. Both Packages have been tendered and awarded. The total cost of the awarded works is Rs.1, 832 million.

The first package covers the Naluchi Bridge and part of the roadwork. The total length of this section is about 925 m. The contract for Package I was awarded to M/s GRC – Central China Power Group International (Joint Venture). The commencement date of the project was 5th May 2009 with a completion date of 5th November 2011. The contracted cost of the project is Rs.1, 382 million.

The second package covers improvement of a section of existing road with a total length of about 4.07 Km, including widening and construction of a new road 0.27 Km in length and 11.3 m wide. The scope of work also covers drainage structures, river bank protection works, improvement of 2 major intersections and other ancillary works. This package was awarded to M/s FWO. The date of commencement of this package was November 2009 with a completion period of 2 years. The contracted cost of this package is Rs.451 million.

10.4 ACCOMPLISHMENTS AND IMPACT

The restoration of the road network is helping to enhance economic activities in the area and will create an enabling environment for reconstruction activities. The reconstruction of roads and bridges has helped to facilitate bringing life back to normalcy and restore inter and intra community linkages. The restoration of road networks has enhanced the pace of reconstruction activities through improved accessibility and thereby has increased income generation opportunities of the local, domestic, industrial and agricultural producers.

The improved specifications and geometry of newly constructed roads and bridges by ERRA have greatly enhanced access and significantly reduced travelling time. As a result, communities are more able and frequently availing different services as compared to pre-earthquake period. The household survey 2009 shows that an overwhelming majority (95% of households) has easier access and has thereby improved the utilisation of different civic services including public transport, general administration, courts, police station, agricultural extension offices, micro credit outlets and banks. Educational facilities have also benefitted with the improvement of students and teachers attendance. This comes as a result of the improved connectivity due to the reconstruction of new roads.

The FBS-PSLM data series analysis indicates that satisfaction rates with the road network declined significantly in the earthquake affected districts from 53% before the earthquake to 43% in 2008-09 (Figure 10.1). This compares with a non-significant increase in approval rating in the 3 comparable non-affected districts and non-significant decrease in approval rating across all non-affected districts. The actual level of household satisfaction with roads in the earthquake affected districts is lower than the non-affected districts. The individual district analysis indicates greater satisfaction in urban Abbottabad (74%) and the lowest satisfaction rate in Kohistan (12%).

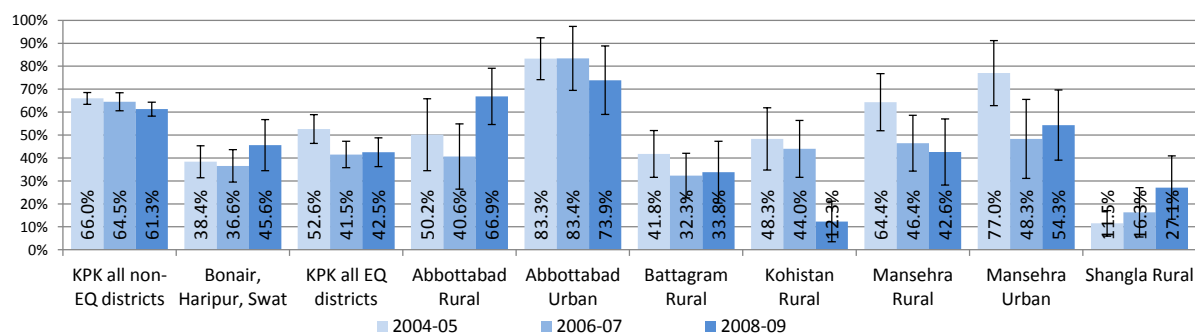


Figure 10.1 Percentage of households satisfied with road provision

10.5 OBSERVATIONS AND CONCLUSIONS

- Construction activities on two mega projects in district Muzaffarabad (Muzaffarabad-Chokhoti and Muzaffarabad-Neelum roads) will definitely have a huge impact on improving the means of communication after their completion. The current pace of reconstruction can at times result in occasional traffic blockages, which requires attention by the line agencies to accelerate the pace of reconstruction.

- It has been observed that in Battagram and Mansehra districts the accumulation of water due to improper drainage systems may damage the surface of the roads. There is an immediate need to construct proper drainage systems along all roads, otherwise the surface may wear off and result in the wastage of national resources.
- Constructing roads is a time consuming endeavour. The restoration of the road network is helping to introduce an enabling environment for reconstruction activities and to enhance economic activities in the area. The reconstruction of roads and bridges has helped return life to normal and restore community linkages. The completed projects will have long lasting effects if sustained.

10.6 **RECOMMENDATIONS**

- The overall progress of this sector remained satisfactory. However, occasional delays in the payment of bills, low capacity of local contractors' and insufficient skilled human resources impeded progress at the initial stages. ERRRA's initiatives such as the introduction of a Financial Information Management System (FMIS), the inclusion of category 06 contractors, maintenance of a minimum balance of PKR 500 millions at PERRA and SERRA, the establishment of EAP and more reliance on steel bridges have significantly improved the progress. It is recommended that these measures may be further strengthened and regularly monitored and adjusted as per the changing requirements.
- Major projects funded by ADB are critical and must be completed by a loan closing date of June 30th 2011, which is the second extension of the loan.

10.7 **LESSONS LEARNT**

- Bottlenecks in implementation such as skilled labour and delayed payments should be addressed more quickly to maintain progress and reduce time and cost-over runs.
- A well designed road network contributes to the national economy, education, health and other services, which are increasing as compared to pre-earthquake accessibility. Due to the rehabilitation and reconstruction of damaged roads, accessibility of earthquake affected communities is improving and following the reconstruction of all projects it will improve considerably.

11. POWER

11.1 INTRODUCTION

11.1.1 Background

The earthquake of October 2005 caused extensive damage to the power infrastructure in the affected areas, disrupting generation, transmission and distribution systems. Emergency measures were taken by employing manpower and material from non-affected areas to restore services in the shortest possible time. AJ&K Electricity Department (AJKED) suffered damages to the distribution system, consumer connections and some small hydro power plants. In KPK, extensive damages occurred to the distribution system and STG network of Peshawar Electric Supply Corporation (PESCO). Four small hydro stations of Sarhad Hydrel Development Organisation (SHYDO) were affected.

Initially, most of the damaged structures were repaired on an emergency temporary basis. Electricity supply was restored to pre-earthquake levels within days. The distribution and retail service delivery areas were the most damaged, but partial restoration was achieved quickly by the responsible agencies. The key focus of the early action was to provide spares and human resources from the unaffected areas and bring in reconstruction teams with adequate skills and supplies. Although restoration of electricity was achieved on an emergency basis, much of it was of a temporary nature. In order to place permanent institutional infrastructure for the relevant agencies for power generation and distribution, financial needs were identified. The cost estimates reflected technological upgrading of equipment to ensure improved efficiency and quality of services.

The Asian Development Bank (ADB) is providing the funds for reconstruction and rehabilitation of the power sector. The total loan amount is PKR 1,826 million with the grant amount of PKR 52.2 million. The Japan Bank for International Cooperation (JBIC) is providing counterpart funding of PKR 588.6 million. Islamic Development Bank (IDB) is also providing support in some projects in KPK.

11.2 STRATEGIC APPROACH

11.2.1 Vision

To restore and upgrade all services with improved infrastructure and equipment in the affected areas of AJ&K and KPK.

11.2.2 Objectives

Two key objectives of the Power Sector as outlined in its strategy are:

- Develop and improve electricity facilities for effective and efficient services.
- Develop capacities which ensure the highest state of maintenance and efficient service delivery.

11.2.3 Implementation Methodology

Five agencies, namely the Azad Jammu and Kashmir Hydro-Electric Board (AJ&KHEB), Azad Jammu and Kashmir Electricity Department (AJ&KED), Peshawar Electric Supply Corporation (PESCO), Islamabad Electric Supply Corporation (IESCO) and the *Sarhad* Hydrel Development Organisation (SHDO) are carrying out reconstruction and rehabilitation of the power infrastructure in their respective areas.

The scope of work, contract packages, implementation and incremental administrative arrangements were specified in the strategy, with a key focus on the following:

- Emergency procurement of high and low voltage lines, transformers, grid-station equipment, tools, vehicles, materials for operational and staff quarter buildings, including replacement of material already provided from other companies and projects.
- Emergency repairs and reconstruction of damaged electricity network and related buildings.
- Upgrading and expansion of the Power Sector systems to enhance coverage of electricity and support economic development related interventions in the earthquake affected areas.

11.3 ACHIEVEMENTS IN TERMS OF OUTPUTS AND OUTCOMES

The electricity supply was restored to the pre-earthquake state within a short period of time after the earthquake. The salient features for the rehabilitation of the power infrastructure were to increase generating capacity and improve the transmission systems. In AJ&K, *Kathai* hydro-power station in Muzaffarabad District has been upgraded from 1.6 MW to 3.2 MW. In the KP, capacity of *Jalkot* hydro power station has been increased from 150 KW to 225 KW. In addition, 3.5 million new electric meters have been provided to the consumers in AJ&K free of cost. Work on the reconstruction and rehabilitation projects has progressed according to plan. Most of the projects have been completed and the remaining projects are nearing completion as reflected in the tables below:

11.3.1 Reconstruction Progress – Power Sector

Table 11.1 Reconstruction Progress of Power Sector³⁴

District	# of allocated projects	Completed	Under Construction	Designing
Abbottabad	1	1	-	-
Kohistan	1	-	-	1
Mansehra	3	1	2	-
Shangla	2	-	-	2
KPK Total	7	2	2	3
Bagh	1	1	-	-
Muzaffarabad	3	3	-	-
Neelum	2	2	-	-
Poonch	2	-	2	-
AJ&K Total	8	6	2	-
Grand Total	15	8	4	3

In the power sector total 15 projects were identified (8 in AJ&K and 7 in KPK) out of which only 8 projects are completed so far, 3 of which were handed over and the remaining 5 were substantially completed.³⁵

Considering the potential of increasing the generating capacity through small hydroelectric power stations, IDB is financing a number of such stations in the Kohistan district of KP. This will be a major step in enhancing the capacity to meet increasing needs of electricity through cheaper production costs. The following projects are planned to be financed by the IDB:

- 13 small hydroelectric power generating stations of 25 to 50 KVA capacities in Kohistan District, KP.
- Electrification of villages in four union councils of Shangla District, KP.
- Grid Station at *Kuz Kana* in Shangla District, KP.

11.3.2 Upgraded Hydro Power Stations

The upgraded hydro power stations have contributed to an improvement in the provision of services and resultant benefits to the communities in the area as reflected in the following observations gathered during field visits and interaction with the people in Jalkot, Kohistan, and KP.

11.3.3 Upgraded Hydro Power Station Jalkot, Kohistan, KP

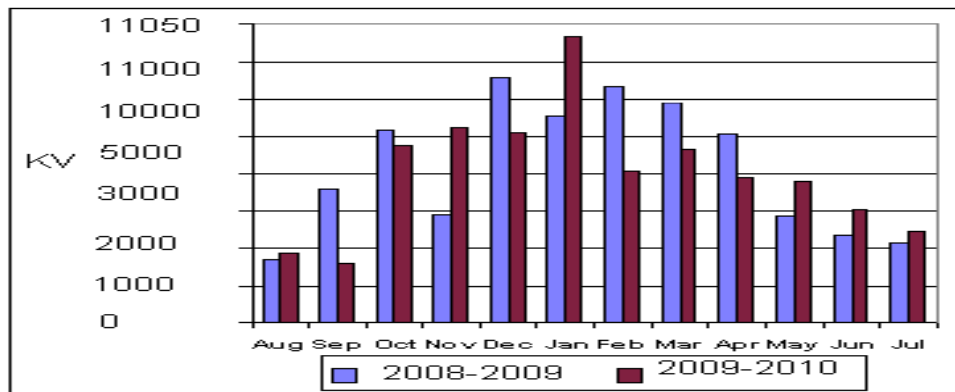
The district of Kohistan, part of KP, is a mountainous area astride the Indus River served by the Karakorum Highway. It has abundant natural resources which remain mostly untapped because of difficulties in accessing most parts of the district. A number of streams with gushing waters join the Indus River on both banks. One such stream joins the Indus River at Jalkot, a medium size village (population about 5000) of *Tehsil* Dasu District Kohistan. A hydro power station of 150 KW generating capacity had been built on this which was damaged during the earthquake of October 2005. ERRA, in its effort to "BUILD BACK BETTER", upgraded the generating capacity to 225 KW

³⁴ This sector has only projects of Donors therefore having progress of only one type.

³⁵ ERM December 2010

while rehabilitating the project. The work on rehabilitation/upgrading was completed in September 2009. Overall improvement in power generation is reflected in the table below:

11.3.4 Hydro Power Generation



The upgraded power station is fulfilling the needs of the community with its modern, faster, powerful and efficient machines.

11.4 ACCOMPLISHMENTS AND IMPACT

The emphasis in the power sector has been on up-grading and expansion of capacities with a view to meeting the future energy requirements of the target population. The power generating capacities of the hydro-power stations at Kathai and Jalkot have been enhanced to meet the growing energy demands. Also, the distribution and transmission systems have been restored, improved and expanded, including provision of new electric meters in AJ&K.

Furthermore, the 2005 earthquake disrupted power supply to approximately 70% of households that were connected to the electricity grids at that time. Electricity connections have been restored for 94% of the households that have uninterrupted access to electricity power for lighting. Cumulative efforts of early restoration of electricity, enhanced coverage and upgraded facilities are helping the revival and expansion of socio-economic development and bringing life back to normality.

Noor Wahab, a local farmer.

"I am very happy now because electricity is available in this area. Since ERRA has upgraded the power station they have installed new equipment which provides electricity around the clock. I am now able to get better yield from the crops. Since I use power to run my grinding machine and thresher, previously I was using a diesel generator which cost me a lot and it was a financial burden. The availability of electricity has saved me a lot of extra financial burden."

Ahmed Din, Student of Class 9, from Village Ajmera

"I want to become a Doctor to serve mankind. I have to study daily but due to power failure I was unable to complete my home work as I had to study by lamplight which has a bad affect on my eyes. My performance at school was also going down due to this problem. Now due to the availability of electricity I can study in better light and my academic grades have improved. Many thanks to ERRA for their continuous efforts in bringing change to our lives."

11.5 OBSERVATIONS AND CONCLUSIONS

The earthquake affected areas have a considerable potential to generate electricity through small hydroelectric power generating stations. This potential has yet to be fully realised. It is recommended that:

- Upgrading the power stations has increased coverage and improved service in the area.
- The availability of electricity has reduced affected communities' dependency on using more expensive and polluting sources of energy like kerosene oil and diesel.
- Existing hydro power stations are suggested to be upgraded to provide better coverage and improved electricity supply to the communities.
- The potential for hydroelectric generation exists in the mountainous areas in the form of numerous perennial streams with running water. This cheap source of energy should be exploited by encouraging and facilitating the private sector in building small and medium size hydro power stations to reinforce and supplement the Government's efforts to meet increasing energy demands.

11.6 RECOMMENDATIONS

- While power generation capacities are being enhanced, there is a need to replace and upgrade existing transmission and distribution lines to minimise power losses and overloading for optimum utilisation of power capacity. Snow storms and recent flooding in a few parts of AJK caused temporary disruption to supply, but did not damage the infrastructure. In addition, new grid stations will be needed to manage the distribution of the increased supply of electricity to reconstructed as well as newly built facilities and towns.
- With the expanding urban areas and new development projects under the urban development programmes additional energy would be required for the rehabilitated districts. There is a need to raise capacities of existing hydro-power stations wherever feasible and simultaneously explore alternate energy sources such as solar and wind.

11.7 LESSONS LEARNT

- Despite the substantial progress made, considerable work is needed to fully realise ERRRA's vision for the power sector. Old transmission and distribution networks and lines need to be upgraded or replaced, hydro-electric power capacity needs to be increased and alternative sources for power generation to meet the long term demands for power is essential.
- Seismic resistant construction of the power sector construction has been effective in preventing damages in case of recent flooding during monsoons (natural disasters); full compliance with the disaster resilient codes and practices ensures the continuation of un-interrupted power supply in case of natural disaster and harsh weather.
- Restoration of the power sector has contributed to sustaining wider economic initiatives and essential coverage across the widest and scattered areas has improved the quality of life.

12. TELECOMMUNICATIONS

12.1 INTRODUCTION

12.1.1 Background

Telecommunication systems in the earthquake affected areas were severely disrupted, but were temporarily restored within a short period after the earthquake. In KPK, 16 exchanges of the Pakistan Telecommunication Company Limited (PTCL) were completely destroyed and 37 exchanges were partially damaged. The building structures of the Special Communications Organisation (SCO), housing exchanges and other facilities, completely collapsed in AJ&K.

The damaged almost paralysed the telecommunication system and created hindrances in initial relief efforts. Although emergency crews tried every possible means to repair the damaged network, their efforts were hindered by complex geography and continuous aftershocks.

Immediate steps were taken to restore the communication links in the affected areas to ensure the uninterrupted communication from and to the affected areas. During this process, SCO established 78 free PCOs, and provided 200 free SCOM mobile phone connections. At the same time, 150 free telephone connections were provided to the Pakistan Army and civilian agencies involved in the relief operations. During the temporary restoration phase, 24 km of Optical Fibre Cable (OFC) were laid from Hattian to Chakari, digital exchanges at Chinari and Chakothi were made functional, and 1,136 digital lines were restored. The response was timely and quick, and proved very useful for the early recovery and relief operations.

PTCL is carrying out the rehabilitation of telecommunication infrastructure in KPK utilising its own resources and trained technical staff. ERRAs intervention is to cover the affected areas of the AJ&K. For the reconstruction and rehabilitation of telecommunication infrastructure in AJ&K, Rs 630 million was required by the SCO, which is being provided by the Government of Pakistan.

12.2 STRATEGIC APPROACH

12.2.1 Vision

To restore and upgrade, where necessary, all telecommunications services with better infrastructure.

12.2.2 Objectives

- Focus attention on the development and modernisation of telecommunication facilities for a smooth, effective and efficient functioning of the sector.
- Keep the telecommunication facilities in a highest state of maintenance so as to be readily available during the time of emergency or crisis.

12.2.3 Implementation Methodology

The SCO is being provided with the required financial resources by ERRAs from GoP resources for reconstruction work in AJ&K on an annual basis. While ERRAs manages the funds, conducts periodic monitoring and third party validation, SCO is responsible for the internal monitoring and supervision.

12.3 ACHIEVEMENTS IN TERMS OF OUTPUTS AND OUTCOMES

The restoration and rehabilitation work, including the installation of digital exchanges and provision of GSM (SCOM) and CDMA (WLL) facilities in AJ&K, has been completed. The telecommunication sector has shown an exceptional growth in the affected areas since October 2005. A flexible and systematic approach was adopted to facilitate the community in EQAA with a variety of communication facilities and improved service delivery. Prior to the earthquake the private cellular companies were not allowed to operate in this area due to various reasons. However, after the earthquake, the SCO and the private companies have been allowed to provide mobile phone connections. There has been a substantial increase in mobile telephone connections, which are now over one million 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.

Timely and appropriate procurement of additional upgraded equipment and materials such as exchange equipment, Optical Fibre Cable, towers and generators facilitated completion of the telecommunication infrastructure.

The SCO has restored all the telecommunication links within AJK through alternate measures and arrangements. A total of 42 exchanges were damaged, out of this some were repaired and only 17 were planned to be reconstructed with the financial assistance of ERRRA. A total of 12 exchanges (9 permanent and 3 transitional) were installed, whereas five new satellite stations were established to facilitate public communication.

As a private sector entity, PTCL managed its reconstruction and rehabilitation cost and completed within a short span of time, since the losses included damage to telephone exchanges, boundary walls, lines, etc, costing Rs 45 million, whereas SCO by contrast, experienced much higher losses amounting Rs 630 million.

12.4 ACCOMPLISHMENTS AND IMPACT

ERRA has been injecting the necessary resources so that the SCO could ensure the provision of communication in the earthquake affected areas. Impact Survey 2009 depicted that connections and usage of mobile phones and services rapidly increased from 24% before the earthquake to 68% at present (AJ&K), the current mobile connections are around 1.2 million. This increasing trend has been a result of the enabling environment and policies of ERRRA which has streamlined the issuing of licenses for cellular telecommunication companies, especially in AJ&K. Enhanced communication coverage to the affected population has facilitated early restoration and reconstruction efforts, fast and easy communication, ease in business and job provision.

The provision of mobile phone facilities, installation of new digital exchanges and improvements in the quality of service has made a significant impact on the quality of life in the area. Providing permits/licenses to cellular telecommunication companies to establish and operate their services has enhanced the interface of the community in affected areas with the rest of the country and the world. The facilities enable the people to remain well informed, conduct business transactions, be more time efficient and save energy and resources. Job opportunities have increased due to the demand of hardware and services related to the installation of communication towers, mobile telephone sets internet cafes and related services. Reliable communication and enhanced coverage has improved the ability of communities in EQAA to warn and coordinate such a disaster again in the area.

12.5 OBSERVATIONS AND CONCLUSIONS

- The Telecommunication Sector in AJ&K has shown exceptional growth in the post-earthquake period. Significant progress has been made in improving connectivity through fixed lines (SCO) and wireless communication (WLL), as well as mobile communication (SCOM). The introduction of wireless and mobile communication has brought in qualitative improvements in the communication sector in AJ&K. The boom in the telecoms sector has resulted in a substantial increase in employment opportunities.
- The whole system however, is dependent on the availability of power. For sustained operations, it is recommended that alternate energy resources, such as solar and wind power, should be developed by the PTCL and SCO through their own resources to augment a regular electricity supply, enabling them to provide uninterrupted services.

12.6 RECOMMENDATIONS

- To remain competitive in the long term, keeping in view a recent mushrooming of private sector companies, SCO has to retain highly-skilled staff and continuously maintain state-of-the-art tools and facilities provided after the reconstruction of the infrastructure.

12.7 LESSONS LEARNT

The experience of coping with the disastrous earthquake of October 2005 brought out:

- The need for effective, reliable and multiple means of communications, including widespread ownership of mobile phones, which is essential to be in place before a disaster.
- The physical infrastructure must have seismic resistant features to withstand the adverse effects of any future disaster and have robust systems for dealing with power outages.
- Modern telecommunications infrastructure has also provided powerful and flexible tools to enable cities to cope with crisis and quickly relocate and restore displaced or disrupted social and economic activities.

Cross-cutting Programmes

- **Disaster Risk Reduction**
- **Environmental Safeguards**
- **Gender Equality**

13. DISASTER RISK REDUCTION

13.1 INTRODUCTION

13.1.1 Background

Disaster Risk Reduction (DRR) is defined as a systematic process of using administrative decisions, operational skills and organisational capacities to implement policies, strategies and capabilities to lessen the impacts of natural hazards and associated environmental and technological disasters³⁶. The geographical terrain and topography of the affected areas of AJK and KPK feature topographical inadequacies, steep gradients and flood prone areas. In this context, it was important that ERRA integrate disaster risk reduction as a key cross cutting theme in all its sectoral strategies for sustainable impact on the communities.

The earthquake exposed the inadequacies in pre-earthquake construction and regulations. Cognisant of the vital importance of seismically-resistant reconstruction, essential requirements of Disaster Risk Reduction (DRR) were integrated into the reconstruction activities under all the ERRA sectoral strategies.

The objective of incorporating the DRR regime in the reconstruction and rehabilitation effort is to protect and rebuilt infrastructure from the adverse effects of natural hazards such as earthquakes, floods, landslides and fires. For an effective response to deal with any future catastrophe, a Disaster Risk Management Programme is in progress to prepare and equip the communities in the earthquake affected areas.

13.2 STRATEGIC APPROACH

13.2.1 Vision

“To support safe lives and livelihoods of communities and contribute to the reduction of negative impact of hazards in the area”.

13.2.2 Objectives

The objectives of the strategy are to:

- Enhance awareness and build capacities of local communities in Disaster Risk Management to render local communities disaster resilient.
- Mainstream disaster risk reduction in district and *tehsil* planning processes in order to prevent further build-up of risks through risk-conscious investments and activities and to respond to disasters through effective preparedness.
- Provide hazard and risk maps and other related information to district authorities, for integrating disaster reduction, mitigation and management in their planning processes.

13.2.3 Implementation Methodology

The requirements of DRR have been incorporated in all new projects in the affected areas where reconstruction and repair of buildings is taking place. Particular focus has been on the housing sector where an ‘owner driven approach’ in the Rural Housing Sector demanded increased awareness of the population for the successful implementation of this programme. Seismic resistant techniques have been adopted during the construction of buildings and rehabilitation of other infrastructure. In order to build DRR capacities of the communities, ERRA has initiated a programme of Disaster Risk Management (DRM). The programme aims at institutional development and capacity building of local communities by forming Union Council Disaster Management Committees (UCDMCs). For a timely and appropriate response in an emergency, Union Council Emergency Response Teams (UCERTs) are being formed, given the required training and equipment. The process of mainstreaming the DRR aspects during the planning processes at the districts and *tehsil* level and preparation of hazard indication maps is continuing.

³⁶

Terminology of Disaster Risk Reduction, International Strategy for Disaster Reduction – www.isdr.org

13.3 ACHIEVEMENT IN TERMS OF OUTPUTS AND OUTCOMES

13.3.1 Seismic Zoning and Fault Line Maps

ERRA, in coordination with NESPAK, undertook an extensive survey for seismic zoning, to categorise land for reconstruction of private and public buildings in accordance with their seismic vulnerability. As a result of this zoning, all reconstruction in areas with high peak ground acceleration values are required to have a stronger foundation as compared to areas with lower peak ground acceleration values. Moreover, as a result of fault line mapping, the GoP declared some parts of the affected areas seismically unsafe (Red Zone) in both AJK & KPK. Likewise ERRA has disallowed the construction of public facilities within 100 meters either side of the fault line. It was initiated during phase-1 of DRR Programme (June-2007 to June-2009) in Mansehra and Muzaffarabad districts.

A mapping technique was developed by two scientists of Geometrics and Risk Analysis, from the University of Lausanne, Switzerland through United Nations Development Programme (UNDP) technical support. These scientists; Pascal Horton and Alexander Alloy visited the DRM Programme area from 5 May to 15 May 2009. The technique employed a simulation of specific hazards, debris flow and snow avalanche in a specific time span. The results were verified through ground checks with known case studies and were found to be reliable. This technique is being used for the first time in Pakistan.³⁷

13.3.2 Micro Zonation Studies and Land Use Plan

Micro Zonation Studies were commissioned for urban planning and development, keeping in view the existing hazards in the area. The aim of the studies was to ensure all urban development activities are undertaken in a controlled manner. A team of foreign consultants assisted by Pakistani Agencies carried out these studies for urban cities of Muzaffarabad, Bagh, Rawalakot and Balakot to reduce disaster risks in the future.

Seismic micro zones are targeted in selected towns and seismically resistant construction techniques employed and ensured for its proper implementation. Consequently, 33 villages were relocated to safe places.

13.3.3 Detailed Hazardous Land Survey

As a result of the surveys conducted by Geological Survey of Pakistan (GSP), initially 33 villages were relocated to safe places and 16 villages were identified as hazardous by the AJK Government, due to the threat of flash floods have also been relocated. A detailed hazard land survey is currently being undertaken for the entire affected area of AJK and KPK by the GSP, to identify houses located in the high hazard zones that need to be relocated.

13.3.4 GIS Based Hazardous Assessment System

NESPAK has developed a software based Hazard Assessment System. Grid coordinates of all new buildings are fed into the system, which compares the existing data base and indicates if it is safe to construct the building at that spot. In case it is considered unsafe, it also suggests an alternative site in the same vicinity. The whole system is complemented with a physical inspection by a team of geo-tech experts for final opinion, if deemed necessary.

13.3.5 Satellite Imageries

In order to check deforestation, unplanned urban sprawl and uncontrolled developmental activities, ERRA worked with SUPARCO to obtain satellite imageries with regular intervals to ensure that all reconstruction and rehabilitation work does not spiral out of control, degrading the environment and ultimately leading to increase hazards.

13.3.6 Experience Sharing and Learning

ERRA organised two International Conferences on the Earthquake Risk Management in collaboration with the UN and other international partner organisations in Islamabad from 28-30 April 2007 and 19-21 April 2010. Topics covered in the conference included accounts of the devastation caused by the

³⁷ ERRA DRR Handout June 2009, Vol II

Pakistan earthquake of 2005, strategies put in place to respond to the disaster and a review of best practices and lessons learnt emerging from the relief and recovery operations. International experts from more than fifteen countries presented case studies from their respective countries for cross examination of experiences.

13.3.7 ERRA Disaster Risk Management (DRM) Programme

Consolidating upon the successful results achieved in integrating seismic resistant designs and principals in the reconstruction of buildings and other infrastructure, the focus now is to prepare the communities in dealing with future disasters. To this end, the Disaster Risk Management Programme was initiated in 2008, which has completed its first phase successfully on 30th June 2009 covering the two districts of Mansehra and Muzaffarabad. Based on the results of this phase, the programme has been extended to the remaining seven districts of the earthquake affected areas until May 2011. Based upon the success of Phase 1 of the Disaster Risk Management Programme (DRMP), the World Bank agreed to provide funds for extension of the programme in the remaining seven earthquake affected districts.

13.3.8 Community Based Disaster Risk Management (CBDRM)

The CBDRM component of the programme aims at strengthening the capacity of local communities at district and union council level to manage and respond to disasters immediately without relying on external assistance. This concept is a paradigm shift from the reactive relief syndrome to proactive response. The main focus is supporting communities to move from traditional reliance on receiving relief and compensation for losses to an active participation in a holistic disaster management and to build the required capacity for immediate response. For this purpose, in its first phase the DRM Programme established community based institutions, namely the Union Council Disaster Management Committees (UCDMCs) and Union Council Emergency Response Teams (UCERTs) in 111 union councils in Muzaffarabad, Mansehra and Neelum Districts. In Phase II it was further extended in the remaining seven districts, covering 192 UCs. The training programme has been successfully completed in Mansehra, Abbottabad Battagram, Muzaffarabad, Neelum, Rawalakot, Shangla and Bagh districts and is currently being undertaken in Kohistan district.

Table 13.1 Training coverage of UCDMS and UCERT

Region	Total No of UCs	UCDMC				UCERT				Grand Total
		# of UCs trained	Male	Female	Sub Total	# of UCs trained	Male	Female	Sub Total	
Khyber Pakhtunkhwa (KPK)										
Mansehra	59	59	1141	208	1349	59	2148	433	2581	3930
Abbottabad	51	51	616	121	737	51	1704	714	2418	3155
Kohistan	38	13	189	0	189	12	558	0	558	747
Battagram	20	20	298	0	298	20	981	50	1031	1329
Shangla	28	28	418	0	418	24	1115	82	1197	1615
Sub Total	196	171	2262	329	2991	166	6506	1279	7785	10776
Azad Jammu & Kashmir										
Muzaffarabad	43	43	607	298	905	43	1186	516	1702	2607
Neelum	9	9	157	39	196	9	287	130	417	613
Bagh	29	29	309	116	425	29	987	396	1383	1808
Rawalakot	26	26	261	121	382	26	803	456	1259	1641
Sub Total	109	107	1334	574	1908	107	3263	1498	4761	6669
Grand Total	305	278	3596	903	4889	237	9769	2777	12546	17445

Total UCDMC: 4,899 and Total UCERT: 12,546 and Grand Total 17,445

13.3.9 Stockpiles at Regional and Union Council Levels

To further strengthen the response capacities of district authorities and local communities, Stockpiles of emergency tools and equipment are being established at both union council and district/regional levels. Union council stockpile has been provided to all union councils of Mansehra and

Muzaffarabad districts. Regional/District and union council Stockpiles for the remaining districts are being procured. So far, a stockpile worth about 20.4 million Rupees has been distributed to district authorities in Mansehra and Muzaffarabad Districts.

13.3.10 Mainstreaming Disaster Risk Reduction (Mainstreaming DRR)

Mainstreaming DRR contributes to the implementation of the Hyogo Framework for Action 2005-2015³⁸, which is effectively integrating disaster risk considerations into sustainable development policies, planning and programme at all levels. In compliance with international and national commitments to make development risk sensitive, the following measures have been taken in connection with mainstreaming DRR:

- A memorandum of understanding (MoU) has been signed between the Government of KP and ERRA on 07 June 2010 in the presence of Chief Minister PKK and the Deputy Chairman ERRA for sustainability of ongoing DRR programmes.
- The outputs and outcomes of the programmes will be taken over by the provincial government who will activate and strengthen the institution of the District Disaster Management Authorities (DDMAs) to continue with the work. A similar MoU is to be signed with the Government of AJ&K.
- A Guide Book on mainstreaming disaster risk reduction in planning processes at the district level has been compiled. The guidebook provides standards and indicators with guiding principles and key questions about different development sectors to guide the end user on how and where to incorporate the disaster risk considerations in the development planning processes.
- A checklist/performa has also been developed to ensure risk conscious development planning. This checklist incorporates the critical information which is a prerequisite for project planning prior to its approval. This checklist was recommended to be an integral part of document planning (PC-I) since major stakeholders were consulted for its development. Furthermore, a guide book for development practitioners to fill the checklist/performa developed for PC-I during designing, planning, implementation, monitoring and evaluation has been developed.
- Awareness raising efforts on mainstreaming DRR and a series of workshops/conferences and meetings were organised for partner organisations, stakeholders and district officials in Mansehra, Abbottabad, Bagh, Battagram, Shangla, Rawalakot and Muzaffarabad Districts.
- Relevant training material on DRR has been developed and shared with relevant stakeholders.

13.3.11 Awareness Raising on DRR in Educational Institutions in the EQAA

Awareness raising efforts are continuing in the earthquake affected areas and the surroundings of Rawalpindi and Islamabad. Lectures on DRM were delivered in different universities of Islamabad. Exercises to practice school evacuation drills were conducted in different schools on the occasion of 4th and 5th Remembrance Day of the October 2005 tragedy. Few specific activities carried out under this theme were:

- Awareness raising efforts are continued by delivering lectures on DRM in different universities.
- A DRM Chair has been established in the Hazara University, AJK University, a significant development in promoting knowledge and awareness about disaster preparedness and management at higher educational institutions.
- A Memorandum of Understanding (MoU) has been signed with the National University of Sciences and Technology (NUST) on 6th August 2010. ERRA DRM programme products are available for research by the University.
- Exercises to practice school evacuation drills were conducted in different schools on the occasion of 4th Remembrance Day of the October 2005 tragedy.

³⁸

The Hyogo Framework for Action (HFA) is the key instrument for implementing disaster risk reduction, adopted by the Member States of the United Nations. Its overarching goal is to build resilience of nations and communities to disasters, by achieving substantive reduction of disaster losses by 2015 – in lives, and in the social, economic, and environmental assets of communities and countries.

Box 13.1 Success Story of DRM Programme

The real indicator for the success of the DRM programme will be long term, but immediate results have shown success of this programme. The monsoon flood disaster of 2010 proved the readiness and effectiveness of trained teams by DRM programme in EQAAs. Trained volunteers met expectations and performed well in responding effectively in the emergency situation in a number of union councils. Volunteers gathered for meetings in their respective union councils to assess the flood situation, participated in rescue and relief activities, evacuated families to safer places and provided first hand information to district authorities and other concerned organisations by conducting damage and needs assessments. In some union councils volunteers utilised union council stockpiles for rescue efforts and clearance of blocked roads due to land sliding.

The July/August 2010 floods were more severe than floods in 1992. However, in the 1992 floods, a lot of casualties occurred in the EQAAs due to non preparedness and lack of awareness among the masses. But this time people were aware and an institutional arrangement existed at union council level, which helped them in providing early warning and proper handling of the emergency situation.

It is amazing to mention that when DRR staff visited certain union council to assess their contribution in saving the lives and property during the recent floods, locals from flood affected villages highly appreciated the support rendered by ERRAs trained volunteers in CBDRM. They insisted that the scope of training and stockpiles should not be limited to union council level, instead they strongly recommended that CBDRM training should be imparted at village level. This indeed is a matter of great satisfaction and positive indicator for the success of model introduced by ERRAs.

13.4 ACCOMPLISHMENTS AND IMPACT

13.4.1 First Intervention of the Kind in the Country

Disaster Risk Management was not a well-known concept until the October 2005 earthquake. Implementing the pilot DRM programme was indeed a pioneering activity undertaken by ERRAs. There was no model inside the country to follow or to draw a parallel from. In such a situation every parameter of the programme had to be drawn, modelled and presented completely as a tailor made design. The ERRAs DRM programme is the only major programme initiated at this scale. The programme made considerable contribution in awareness building and generated knowledge for others to learn and follow.

13.4.2 Programme Components Linked with HFA Priorities

The DRM programme is formulated by considering the key priority areas of HFA. The three pillars of the programme are assessment and mapping, mainstreaming DRR and awareness raising & capacity building, which satisfies the priorities of HFA. Due to the success of the model and compliance with HFA priorities, UNISDR has selected ERRAs DRM Programme model among 14 case studies out of 40 contributions from around the world for publication of good practices and lessons learned by local governments in DRR.

13.4.3 Operationalisation of NDMA Framework

National Disaster Management Authority (NDMA) Pakistan has devised a framework and identified nine priority actions for disaster risk management in the country. Through this programme the key ingredients of the NDMA framework have been put into action. DRM structure is introduced at the union council levels, which has enhanced the response capacity of DDMAAs. The systems and processes introduced in the affected areas can serve as a lesson learning platform for further fine tuning of the NDMA framework and then the model can be replicated across the rest of the country with similar settings.

13.4.4 Institution Building, Knowledge Transfer and Capacity Development

It was necessary to establish an institution at the community level which would be responsible for responding in case of a disaster. In the NDMA's disaster management framework, the need of such an institution is indicated as capable of managing localised hazard events. Therefore, through this project two institutions UCDCM and UCERT are established at each union council.

13.4.5 Ownership, Transfer & Sustainability

To ensure its sustainability, it is imperative to transfer project gains to the concerned governments. In this connection, a mechanism has been evolved so that the concerned authorities i.e. PDMA and SDMA take ownership for the continuous sustainability. In this connection MoUs have been signed with PDMA and SDMA.

13.4.6 Community Acceptance

The sensitisation of the affected communities to start a disaster preparedness programme was highly welcomed, as the trauma of the October 2005 earthquake was still fresh in their minds. This enormously facilitated the skill and knowledge transfer process. Victims brought out their personal experiences of how they helplessly watched their relatives losing their battle against wounds and injuries in the absence of training in emergency health, search and rescue techniques and the absence of emergency tools and equipment. Due to the devastation suffered during the earthquake, the process of organising the Disaster Management Committees and Emergency Response Teams received an overwhelmingly positive response from residents, Union Councils and district-level local governments.

13.5 OBSERVATIONS AND CONCLUSIONS

- Disaster Risk Reduction, as a cross cutting theme in ERRA's reconstruction and rehabilitation Endeavour, has fostered a culture of seismic resistant construction in the earthquake affected areas. This fundamental change in attitudes towards future construction will have an enduring impact, helping the communities to mitigate the effects of any future disaster.
- While working out strategies for the reconstruction and rehabilitation effort in the earthquake affected areas, ERRA introduced seismic resistant building codes and techniques to be followed. A rigorous awareness campaign and required training for construction of houses under the owner driven approach made the Rural Housing Programme a resounding success.
- During the construction of buildings and other infrastructure in various sectors like education, health and governance, seismic resistant codes are being followed.
- Concerted efforts are continuing to create awareness of mainstreaming DRR aspects in the planning at different levels.
- Organising training and providing material support to communities at union councils' level is expected to greatly help in immediate and effective response during future calamities. Disaster Management Committees and Emergency Response Teams formed in the union councils are also likely to prove effective in dealing with future disasters.
- The preparation of hazard and risk maps of the area is in process. These maps will help in future planning by concerned departments at different levels.
- To ensure the regimen of seismically resistant buildings at national level, there is need to have institutional coverage by including the DRR requirements in the PC-1 of the projects as proposed by ERRA.
- Female participation in CBDRM trainings in Kohistan and Battagram districts was lower due to the cultural sensitivities with respect to participation of womenfolk in outdoor activities.
- Weather constraints and current flooding in the area badly hampered training schedule. The teams could not continue training in Kohistan district due to flash flooding, which caused havoc in the district. The teams have been shifted to Battagram, leaving Kohistan until the situation come to normal and routes re-open.

13.6 RECOMMENDATIONS

- The government officials working in the earthquake affected areas have gained relevant experience in combating natural disasters. Based on this experience there is a need to formulate Standard Operating Procedures (SOPs) specifying a response at each level for managing such disasters.
- Considering the huge loss of lives of the school children during 2005 earthquake, there is a need to impart training on a priority developing effective response to mitigate the effects of any future disaster particularly to the teachers and students of the educational institutions. A suitable programme may be launched to meet this important need.
- Stockpiles related to all nature of hazards including flooding and land sliding should be supplied and made available to each union council of all districts, instead of few districts.

- Innovative and culturally appropriate social mobilisation techniques to be designed and applied for active engagement of females in culturally sensitive areas like Kohistan and Battagram.

13.7 **LESSONS LEARNT**

- Developing appropriate and timely responses to deal with possible disasters prevents extensive damage as evident in recent months from the two earthquakes in Haiti and Chile. The earthquake in Haiti, although of lesser strength (7.0 at Richter scale as compared to 8.8 in Chile), caused extensive damage. Chile was saved because of formulating and implementing disaster resistant building codes. It is imperative that our governments at national, provincial and local level formulate appropriate building codes and ensure their implementation to save devastation as suffered in the earthquake of October 2005.
- Stockpile of emergency tools & equipment is the integral part of capacity building of local government and community for prompt and effective disaster response. Based on the consultation with local population and administration stockpile items may be provided subject to on the ground situations (based on prevalent hazards in the area) and local needs, instead of following a uniform policy. Engagement of beneficiaries and stakeholders in stockpile procurement and evaluation process avoid unnecessary mistrust and strengthen ownership.
- A community based approach, which aims to understand the way communities deal with different disasters, their level of understanding of disaster, and their capacity to manage it in an effective and sustainable manner, is the best way to implement disaster management programmes.
- Community participation should not be viewed only as a consultation process but also as an effective empowering process to address the root causes of vulnerability. It would be helpful to develop a system to monitor the impact of disasters at community and national levels. Improved risk and vulnerability mapping, disaster awareness and early warning systems at community level would also be useful. Above all, socio-economic analysis and a community-based livelihood approach should be integrated in disaster management planning and programmes in affected communities.
- Cultural sensitivity of beneficiary communities needs to be respected in disaster management trainings. To ensure participation of all segments of the society particularly handicapped and women folk, separate trainings may be arranged for them. For female trainees, provision of female trainers and necessary privacy, safety and logistical support is a must.

14. ENVIRONMENTAL SAFEGUARDS

14.1 INTRODUCTION

14.1.1 Background

Devastation in the physical environment caused by the earthquake in 2005 included land shearing, liquefaction and slides, that continued long after the earthquake due to regular and severe aftershocks which caused siltation of water-courses (natural and man-made), damage to forest resources due to landslides and rock-fall, damage to agricultural land (especially the terraced fields), roads, water mills and fish farms, and above all, a huge amount of debris resulting from the destruction of buildings. Proper and safe disposal of debris was a big environmental challenge.

The flora and fauna of the affected area suffered a great loss as well. The destruction of the biological environment was related to the damaged root system of about 0.322 million acres in KPK and AJ&K. In addition to the broader humanitarian damage, the earthquake had a severe impact on the region's institutional capacity through loss of life and physical infrastructure.

Severe aftershocks destroyed 90% of forest area, damaging the root system of about 135,250 acres in KP and about 187,000 acres in AJ&K. The damage to forest ecosystems was further aggravated by landslides during the succeeding monsoon season. In short, the earthquake damaged institutional capacity, forests, natural resources, and land stability and also caused debris, medical waste, hazardous material and human waste,.

To address all the challenges, compounded by a shortage of skilled manpower and lack of adequate resources, an "Environmental Recovery Programme for the Earthquake Affected Areas" was designed jointly by the Ministry of Environment (MoE), UNDP, United Nations Environment Programme (UNEP), ERRA, relevant government agencies and local and international NGOs.

14.2 STRATEGIC APPROACH

14.2.1 Vision

To protect natural resources, prevent environmental degradation, restore damaged areas, arrange safe disposal of debris and establish principles and practices for environment friendly rehabilitation and reconstruction in the earthquake affected areas with a sustainable use of resources.

14.2.2 Objectives

The objectives of the strategy are to:

- Coordinate environmental activities with socio-economic activities.
- Introduce environment as a cross-cutting theme in each sector strategy of ERRA.
- Rehabilitate and restore damages in an environmentally friendly manner with the least possible stress on the natural resource base.
- Mitigate damages to watersheds and slopes, introducing long term sustainable measures for improved watersheds and stable mountain slopes.
- Quickly restore the institutional capacity of concerned agencies and departments for their effective participation in the implementation of the strategy.
- Mainstream a participatory approach whereby communities, local authorities, Government organisations, NGOs, and UN agencies, including FAO, WHO, United Nations Environment Programme (UNEP), UNICEF, and the International Organisation for Migration (IOM), join hands for the sustainable use of local resources in the reconstruction and rehabilitation process.

14.2.3 Implementation Methodology

A multi-dimensional intervention approach, based on the comparative needs, urgency and time required for implementation was adopted by ERRA. This consists of:

- Short-term interventions (Solid waste management and debris removal)
- Medium-term interventions (Environmental Impact Assessments)

- Long-term interventions (Natural Resource Management [NRM], slope stabilisation, and reforestation)

The environment sector has not only been established as an independent sector in ERRA, but also a cross-cutting intervention to ensure sustainability and environmental safeguarding across all relevant sectors of ERRA.

A three-tiered approach has been adopted by ERRA, at strategy formulation, project preparation (by line departments), and when discussing with donors and sponsors. Moreover, Environmental Planning Cells have been established at ERRA, PERRA and SERRA and at the DRU level. The ERRA Environmental Protection Cell is the lead agency responsible for planning, coordination and implementation of the strategy. The Environmental Protection Cell has its lower formations at the Provincial and District levels for planning and monitoring purposes, which are further supported by two implementation arms working in AJ&K and KPK.

14.3 ACHIEVEMENTS IN TERMS OF OUTPUTS AND OUTCOMES

An overall performance of ERRA indicates that out of 466 total projects in the environment sector, 146 projects were completed by the end of December 2010. In comparison to previous years, data trends show only one project was completed by December 2008 and nine by December 2009. An overall performance of ERRA indicates that in 2010 major progress of the sector was achieved, though there are still 312 projects at various stages of completion.

Table 14.1 Overall Progress of Environment Sector

District	Total	Completed	Under Construction	Tendering
Abbottabad	54	43	11	0
Mansehra	194	61	126	07
Battagram	46	25	21	0
Shangla	35	08	27	0
Kohistan	09	01	08	0
Total (KPK)	338	138	193	7
Muzaffarabad	83	03	79	01
Neelum	18	03	15	0
Poonch	07	02	05	0
Bagh	17	0	17	0
Sudhnoti	03	0	03	0
Total (AJ&K)	128	08	119	1
G. Total	466	146	312	8

14.3.1 Short-term Interventions (Debris Removal, Hospital Waste Management)

The debris removal projects were planned in two phases; removal of debris from township areas and recycling of debris for further reuse. For the first phase, training has been provided to the Municipal Corporation, to facilitate the successful relocation of debris. A rubble removal project of PKR, 409.26 million for Muzaffarabad city is on-going with a total release of PKR 226 million. As a result, 8.5 m.cft of rubble has been removed and disposed to the allocated site in *Taali Mandi* (Muzaffarabad District). The second phase has been linked with the city development master plan. A recreational park has been developed in *Makri* (Muzaffarabad District) on a rubble dump. The project employed 57 persons at the time of implementation thereby creating job opportunities. In Bagh District, a project of PKR 92.42 million was approved and implemented by UNDP and Local Government of AJ&K. As a result, 3.7 m.cft of rubble has been removed and disposed to the allocated site.

A Rubble Recycling Plant has been donated by the Belgium Government via the Belgium Building Research Institute with a grant of € 500 million, which was distributed in Muzaffarabad. A team of five members were trained in the UK on operating the rubble recycling plant. The grant was provided free of cost for the construction of various roads, reducing stress on the general environment to provide materials. The grant was also processed for use in the reconstruction of facilities.

The second intervention in the short term period addresses the issue of proper hospital waste management. As per ERRA policy, all projects funded by ERRA and donor organisations incorporate incinerators within their designs before approval at the tertiary level (THQ and DHQ). ERRA's Environment Strategy proposed to establish a permanent system for hospital waste management, however proper hospital waste disposal is yet to be fully practiced.

According to the deductions from the ERRA M&E Outcome Survey 2010 the method of waste disposal for infectious waste was enumerated. Overall, 34% of facilities were appropriately using an incinerator for the disposal of infectious waste. There were, however, significant differences by donor category. Use of incinerators was much higher in AJ&K, KPK performance was considerably less with none of the nine GoP or the five donor facilities using an incinerator.

14.3.2 Medium-term Interventions (Environmental Assessments)

During the reconstruction process in the affected districts, a Limited Environmental Assessment (LEA) was carried out to identify the impacts and measures for risk minimisation, halt further environmental degradation and recommend mitigation measures. The LEA was driven by the Environmental Safeguard guidelines from the World Bank, the environmental strategy of ERRA and the requirements of the Pakistan Environmental Protection Agency (PEPA). As an outcome of the LEA, the Environmental Management Plan (EMP) was developed to provide an implementation mechanism for the mitigation measures, to reduce if not eliminate the negative impacts.

According to the Environment Strategy, all reconstruction and rehabilitation projects undertaken will have some form of environmental assessment conducted. The environmental assessments were conducted for AJ&K's construction of roads. A total of twenty six (26) Environmental Impact Assessments (EIAs) conducted for road, education and urban development projects while four Initial Environmental Examinations (IEEs) have been conducted for health facilities.

14.3.3 Long-term Interventions (Natural Resource Management, Slope Stabilisation, and Reforestation)

The concern and practices for environmentally friendly reconstruction and rehabilitation is the basic motive of the intervention. Significant progress has been made in terms of the rehabilitation of damaged public and physical infrastructure and completing the projects.

Basic layout designs have been approved for the reconstruction and rehabilitation of office buildings and infrastructure for eight forest divisions in AJ&K and seven forest divisions in KPK. As planned, 17 projects are under construction.

Excessive use of wood for fuel and timber for reconstruction of houses also added to the burden on forests in the affected areas. Severe aftershocks destroyed 90% of forest area, damaging the root system of about 135,250 acres in KP and about 187,000 acres in AJ&K. The damage to forest ecosystems was further aggravated by landslides during the succeeding monsoon season. For the reforestation and rehabilitation of damaged forest lands, projects have been prepared for 15 forest divisions in AJ&K and KPK. All 15 projects are under implementation in adherence with basic indicators.

Table 14.2 AJK Forest Rehabilitation

Name of Project / District AJK	Area as per PC-I (Acres)	Plantation Done (Acres)	No. of Seedlings planted (Million)
Muzaffarabad	7,320	3211 (43.86%)	1.40
Jehlum Valley	7,366	2990 (40.59%)	1.30
Karen Forest	4,756	2090 (43.94%)	0.90
Bagh Forest	7,035	3279 (46.60%)	1.40
Sudhnuthi	830	800 (96.38%)	0.39
Rawalakot	2,590	1912 (73.82%)	0.83
Total	29,897	14282 (47.77%)	6.22

Table 14.3 KPK Forest Rehabilitation

Name of Project / District KPK	Area as per PC-I (Acres)	Plantation Done (Acres)	No. of Seedlings planted (Million)
Kaghan / Mansehra	3,000	2343 (78.10%)	1.00
Siren / Mansehra	2,000	1958 (97.90%)	0.85
Agror Tanawal/ Mansehra	700	500 (71.42%)	0.21
Alpuri/ Shangla	2,300	1099 (47.78%)	0.16
Hazara Tribal / Battagram	1,072	1072 (100%)	0.76
Gallis / Abbottabad	6,000	5623 (93.71%)	1.30
Total	15,072	12595 (83.56%)	4,28

For reconstruction and rehabilitation of wildlife and fisheries facilities, three projects in AJ&K and eight projects in KPK have been identified. In AJ&K, detailed designs and plans are under preparation while in KPK, fisheries projects are under implementation by the Works and Services (W&S) Department. However, work is yet to commence in certain high altitude snow covered areas.

Four projects have been prepared for large watershed management areas in AJ&K and KPK which are being designed jointly by UNDP and respective forest divisions. For the development and protection of Kerli Lake, Hattian Bala, Muzaffarabad District – AJ&K, UNDP has started detailed land use planning of Hattian Bala watershed area.

Considerable progress regarding identifying and executing projects has been achieved. Adequate data on slopes and slides has been gathered and services related to road construction are being coordinated for slope stabilisation. A significant amount of resources and efforts have been incorporated for institutional capacity building. ERRA trained 690 government employees from various line departments and delivered 10 different types of training. Additionally, a team of five members were trained in the UK on the operation of removing rubble and recycling plants.

Stabilising the slopes has remained an important element throughout the rehabilitation and reconstruction process. An umbrella PC-1 was prepared for a slope stabilisation project. The Environmental Recovery Programme, with a value of USD 12 million was launched and 30 slope stabilisation projects have been completed (18 in Muzaffarabad and 12 in Mansehra) and 22 projects are still under construction in AJ&K and KPK.

14.4 ACCOMPLISHMENTS AND IMPACT

The environment is the only cross cutting sector that covers all projects of the earthquake affected area. Due to the sustained efforts of ERRA, a general awareness has been created among the people and government functionaries in the affected areas about the importance of protecting the natural environment in these areas.

14.5 OBSERVATIONS AND CONCLUSIONS

- It has been observed that hospital waste was not given proper attention and should be managed strictly to minimise health risks. Facility staff should be encouraged and educated appropriately in order to optimise use of the installed incinerators.
- The general progress towards implementation is rather slow (25%), which is attributed towards negligence and marginalisation from the concerned departments. Another issue requiring immediate attention is that remaining projects are at the lowest level which can likely create diverse social repercussions.
- Long term financial support and organisational attention at the line department level is required for sustainability of environmental interventions, results and their continuity.

14.6 RECOMMENDATIONS

- It has been observed that hospital waste was not given proper attention and should be managed strictly to minimise the health risks. Even the installed incinerators were not utilised by facility staff. Unfortunately, after five years of calamity merely 30% work has been completed. This is a vivid manifestation that progress of the work is immensely slow. The most prominent reason for this is that the environment sector is

undergoing extreme negligence and marginalisation from the concerned departments. In order to ensure sustainability of the projects long-term financial support and concentration that the sector environment deserves is required to address these problems.

14.7 LESSONS LEARNT

- Establishment of institutional mechanisms, appropriate and necessary authority to enforce compliance is pre-requisite for promotion of environmental protection.
- Environmental Impact Assessment and Initial Environmental Examination studies for different sectoral projects reduced further degradation of environment in earthquake affected areas.
- Rubble removal activities provide employment and income for populations whose livelihoods have been disrupted, while eliminating the health and safety hazards of accumulated debris, garbage and waste. Involvement of communities in forestry is critical for sustainable forest management.
- Environmental risks associated with hospital waste and (occupational) health risks, safe hospital waste management are very important not only in reconstruction but for post-disaster activities.
- Regular monitoring and evaluation of each project on a district level was a convenient way of ensuring the achievement of targets and ensuring the quality of outcomes.

15. GENDER EQUALITY

15.1 INTRODUCTION

Although the devastation of the earthquake of October 2005 affected all, women, boys, girls and the elderly were often least able to deal with the impacts. Women in these areas already had very limited access and control over the basic social services and resources due to collective norms, traditional taboos and predominance of a patriarchal pattern of society. They were further dragged into a vicious circle of abject poverty, poor maternal health and hygiene conditions and uneven access to social services including education and clean drinking water.

The earthquake brought about significant change in their roles. As a result of the disaster, females lost their earning members of the family, males in most of the cases. As a result, their responsibilities increased as they had to bear the additional burden of caring for orphaned children and PWDs, in addition to making arrangements for their family's sustenance. The vulnerability of women increased significantly as an aftermath effect of the earthquake; there was a greater need and demand by women to access socio-economic services and support to bring back routine life for their families.

To address these issues, ERRA launched a comprehensive programme to deal with the conditions of women, men, girls, boys and other vulnerable groups through mainstreaming gender dimensions within reconstruction and rehabilitation efforts for six priority sectors (education, health, livelihood, WatSan, social protection and housing). ERRA's gender mainstreaming aims at achieving sustainable human development by ensuring equal opportunities and benefits of the reconstruction and rehabilitation process to men, women, boys, girls and other vulnerable groups. The necessary infrastructure to institutionalise gender mainstreaming has been put in place within ERRA and adequate technical and professional expertise is being provided to ensure integration of gender dimensions across reconstruction and rehabilitation efforts.

Critical support for gender equality promotion has been provided by donor organisations. The Canadian International Development Agency (CIDA) provided technical assistance on gender issues to ERRA; the UNDP/DFID funded TAMEER project provided Gender Coordinators and helped frame the Gender Policy. UNIFEM funded the set up of Gender Reconstruction Rehabilitation Networks (GRRNs), whereas other INGOs and NGOs supported in different activities.

15.2 STRATEGIC APPROACH

15.2.1 Vision

"ERRA envisions promoting principles of inclusion, equality and sustainability in reconstruction and rehabilitation efforts to increase the likelihood that benefits accrue equally to women, men, boys and girls and to vulnerable groups"

ERRA plans that the benefits of reconstruction and rehabilitation accrue to women, men, girls, and boys, as well as to members of vulnerable groups, recognising that often they have different needs and priorities, face different constraints, have different aspirations and contribute in different ways".

15.2.2 Objectives

To achieve its strategic vision, ERRA has developed the following set of objectives:

- Enhance the capacity of ERRA to integrate gender considerations at all levels (policies, strategies, and programmes).
- Develop, with the respective programme heads, operational strategies for gender dimension across all sectors, especially for social protection, livelihood, health, education, water and sanitation, and housing.
- Increase information sharing and foster linkages with key internal and external stakeholders.
- Improve performance measurements of Gender Equity (GE) results.
- Increase availability of tools (i.e. sector checklists and guidelines), documentation of lessons learned and best practices promoting GE in the context of rehabilitation and reconstruction.

15.2.3 Implementation Methodology - Three Prong Approach

For Gender based interventions, a three pronged approach for achieving gender equality was adopted:

1. Specific measures were designed to address gender inequalities, prioritising the needs and interests of women.
2. Adoption of a complementary approach towards reducing gender disparities through targeted activities and a mainstreaming approach.
3. Fostering coordination between all stakeholders.

ERRA started gender related reconstruction and rehabilitation activities with the objective to streamline gender considerations and strengthen gender capacity within ERRA at the programme design, planning, implementation and monitoring and evaluation stages. In order to acquire the strengthening capacity of gender mainstreaming, there are two fundamental issues were considered and adopted: AWARENESS of gender related issues; and PROMOTION from issues to gender sensitive planning, implementation, monitoring and evaluation that ultimately lead towards gender equality. Gender awareness planners, policy makers, implementers, monitors and evaluators can better plan reconstruction and rehabilitation activities keeping gender differences in view.

For the implementation of Gender Mainstreaming initiatives a Gender Team was established at the ERRA headquarters, 2 Senior Gender Coordinators were positioned within SERRA and PERRA and 8 Gender Coordinators were appointed within the DRU. In order to develop coordination regarding gender related issues and gaps between ERRA, the government and other stakeholders a core gender group was established which comprised representatives from ERRA, Federal Ministers, Pos and Donors. To share information and experiences at the district level, a District Gender Reconstruction Rehabilitation Network (GRRN) was also established.

Initially, the focus of monitoring and evaluation was restricted to gender mainstreaming at the activity and output level, which gradually shifted to a full range of outcome and impact level results. As such, monitoring and evaluation has been carried out in a manner that covers all those areas where men, women, girls, boys and other vulnerable groups have been involved in reconstruction and rehabilitation work.

15.3 ACHIEVEMENTS IN TERMS OF OUTPUTS AND OUTCOMES

During 2007, gender mainstreaming achieved notable progress; in September 2007 the ERRA Council approved a Gender Policy to provide guidelines for the planning and implementation of gender dimensions which was considered a hallmark in achieving the main gender objectives. The capacity of PERRA, SERRA, and DRUs had also been strengthened and were provided with gender coordinators to ensure gender integration in the programme essentials. Furthermore, in the same year Key Performance Indicators (KPIs) were crystallised in the connection of gender considerations in all relevant sectors.

In 2008, ERRA took another initiative for a better understanding of the gender policy among different stakeholders; the Gender Policy was translated into the Urdu language and forwarded to the Gender Disaster Network for further action. Two meetings of the Gender Core Group were held and Gender Action Plans were developed and updated in the same year. Gender Coordinators from DRUs with the assistance of sectoral coordinators developed Gender Action Plans. Furthermore, a Memorandum of Understanding (MoU) was signed between the Ministry of Women Development (MoWD), SW&WD departments (AJ&K and KPK) and ERRA in February 2008. Capacity building material on gender was shared with line departments and DRUs. During 2008 a continuous participation of Gender Teams in Core Groups of WDCs, TVS, Social Protection and Urban and Rural Housing was observed. Two Steering Committee meetings were held to pursue the establishment of WDC. In addition, workshops were arranged at the district level for government officials, DRU and CSOs staff. For the establishment of Gender Reconstruction Rehabilitation Networks in quake affected districts, ERRA signed an agreement with UNIFAM, which intended to create linkages between policy and operational levels in March 2008. Six out of eight forums, including 48 local organisations, were functional in the same year.

Like previous years, 2009 the steady progress continued; a research study on “Economic Opportunities for Women in Earthquake Affected Areas” was completed in March 2009. The GRRN arranged a Health Discussion Forum and Education Discussion Forum in April 2009. A total of 24 capacity building sessions were arranged on “Gender Equality & Mainstreaming” with the support of CIDA for the officers of PERRA, SERRA & DRUs & Pos in April 2009 and a “Networking Conference” was held at the ERRA Headquarters in Islamabad on May 27 2009. Furthermore, in June 2009, a Gender Mainstreaming Trainer’s Manual was developed for the better understanding of stakeholders. CIDA sponsored a seminar entitled “Gender Equality Sector Results in PERRA” on August 25 2009 to share the lessons learnt. A Gender Equality Technical Assistance Report: “Making a Difference” was launched on November 25 2009. Moreover, the extension of GRRN Project for one more year was approved and signed by the United Nations Women’s Fund (UNIFEM) & ERRA on 31st December 2009. A proposal for a livelihood component under the Project “Making Markets Work for Women Headed Household” by SW&WD Department AJ&K for WDC Muzaffarabad was also submitted to ERRA Gender Equality Cell in November 2009.

15.3.1 Key Results, and Activities

This year activities similar to 2009 were organised, which included discussion forums, seminars and district level networking meetings. Some of the major events were:

- April 19 to 21 2010, a three day ERRA International Conference was held in Islamabad. A Gender Advisor organised a gender session which was chaired by the Country Programme Director for UNIFEM, Ms. Alice Shackelford. Gender session papers were presented on “Ensuring Gender Equality in ERRA’s Earthquake Response,” and “Lessons Learnt in Gender Mainstreaming in Earthquake Relief Work”.
- A seminar was organised with the financial assistance of Action-Aid Pakistan, Care International & Sungi Foundation on March 9 2010 for “Emerging gender roles in the context of changing socio economic environment and our response in line with Islamic teaching” to celebrate International Women’s Day.
- The first GRRN meeting of the second phase of the project was conducted at the Womens Development Centre, Muzaffarabad on July 22 2010. A Gender Advisor gave an update on gender related activities and introduced the “Harassment at Workplace Act 2010.”
- “Harassment at workplace Act, 2010” was approved by the Deputy Chairman on April 27th 2010. In line with these recommendations, a three member Committee has been constituted at ERRA to hear and address complaints of harassment. A similar committee has been formed in PERRA and will also be formed in SERRA soon.
- A GRRN Review and Work Planning Meeting was held in Abbottabad on 12th October to review the gender programme activities of PERRA and SERRA and make the work plan for the remaining period of the GRRN Project.
- A GRRN Coordination meeting was held to discuss the Exit Strategy of the GRRN project at PERRA office in Abbottabad on 24th November, in which representatives from all KPK districts participated.
- The SERRA Gender team held District Network meetings in Rawalakot (Poonch) and Bagh in August 2010.
- The PERRA Gender Team held District Network meetings in Mansehra, Abbottabad and Shangla.
- Regarding the previous performance of GRRN, the project was extended for another year from 2009 to 2010. However, because of the late release of funds, the project activities could not begin until June 2010. Discussions were held with UNIFEM to extend the project. The project has been further extended for 6 months, until June 30 2011. UNIFEM has also agreed to fund the positions of all the gender staff for the same time period.
- UNDP Goodwill Ambassador Ms. Misako Konno, a Japanese actress by profession, UNDP Country Director, Mr. Toshihiro Tanaka, and Assistant Country Director UNDP Ms. Rabia Khattak visited Muzaffarabad on July 22-23 2010, along with a team of media persons.
- A training Workshop on Gender Auditing and Gender Responsive Budgeting was organised in Abbottabad in August 2010 for officers of PERRA and DRUs and SWWD.
- The MoU for the One-year project “Making Markets Work for Women” with a budget of Rs. 3.69 million was signed on May 24 2010 and the first training is scheduled to begin on January 4 2011.
- During 2010, the SWC/WDC Muzaffarabad has continued giving protection to survivors of violence, providing them with medical and legal assistance. Since the establishment of WDC-

Muzaffarabad (August 2010), the total number of beneficiaries at WDC is 802 under different categories. Shelter provided to 225 violence victims, medical aid was given to 150 patients, 73 were provided legal aid, 137 cases were referred for psycho social support, 55 vocational trainings were conducted and 162 persons were facilitated with miscellaneous services such as facilitation for NIC, BISP, etc.

- WDC Abbottabad is 45% complete, WDC Mansehra is 20% complete and Battagram and Kohistan WDC work awards have been issued.
- SWC Mansehra is 20% complete and work awards have been issued for SWCs of Battagram and Kohistan.

15.3.2 Main Outcome of Gender Mainstreaming

- ERRA is considering gender aspirations with the provision of better facilities in education, health, water and sanitation sections, both women and men are equally receiving the benefits of these interventions.
- Increase in enrolment of students in educational institutions functional in EQAAS stands at 21% for girls and 16% for boys. Participation of parents in School Management Committees/Parent Teacher Associations assisted in the counselling of parents in the importance of education.
- Due to the improved healthcare delivery system so far 69,440 patients accessed health facilities, out of which 44% are females. Reconstructed health facilities are equipped with MCHC services, separate waiting rooms and wards for male and female patients, medicines and other essential equipment as entitled to BHU, RHC, THQ, and DHQ.
- People are accessing safe drinking water at their door-step and applying hygienic practices in their daily life, which is contributing to improving sanitation and hygienic behaviours. As water collection is the responsibility of women, 57 minutes per day have been saved, which is equal to almost 43 days in a year if calculated per person per day.
- Participatory and gender inclusive processes at the community level 1216 Women Village Reconstruction Committees (WVRCs) set-up, representing 22% of all VRCs.
- The medical rehabilitation services reached 35, 553 beneficiaries, of which 40% are women.
- Gender Awareness Workshops were provided to more than 900 persons.
- A fully sex-disaggregated and analysed Targeted Vulnerability Survey (TVS) by the Social Protection Cell, 233,344 vulnerable women (elderly, with disability, orphaned, WHH, women/girls) were identified through the TVS.
- Rural Landless Programme provided 5 *Marlas* of land to 12,311 landless House Holds (HHs), out of which 10% are Female Headed Households (FHHs). Data from the TVS identified 96,581 FHHs were shared with the BISP to be included in the programme.
- The Gender-sensitive Legal Assistance Programme of the Social Protection Cell entertained 2,6321 out of which 29% of cases were registered by women and 91% were successfully resolved.
- Women-specific interventions of the Livelihoods Programme were carried out, 14% of Community Livelihood Rehabilitation Plans (CLRPs) in AJ&K and 20% of CLRPs in KPK under implementation are women-specific interventions. Khushhali Bank benefited 60,229 clients under its earthquake livelihoods.
- Through direct outreach to women under the Rural Housing Programme 43,516 women (10% of beneficiaries) got benefits out of which 28,505 were widows.
- Under participatory and gender inclusive processes at the community level 1,216 Women Village Reconstruction Committees (WVRCs) were set-up, representing 22% of all VRCs.
- CLRP provided enormous livelihood opportunities. Vocational Training Centres, Kitchen Gardening, Handicraft and other programmes are helping women with income generation. Due to ERRA Gender Mainstreaming interventions, a Women Community Based Organisation was established several villages; Tumba, tehsil Sum Elahi Mung, and Mansehra District that are effectively working and performing their role in society.

15.4 ACCOMPLISHMENTS AND IMPACT

Over the last five years, ERRA has made significant progress in promoting women's rights and empowerment and bringing about gender equality in earthquake affected areas. The biggest achievement is that gender equality has gone from being an alien concept, to one widely understood and accepted among all stakeholders. There is wide recognition of the changed role of women in the

aftermath of the earthquake and its long-term impact on social and family relations. The woman's role has been transformed from caregivers and contributors to the family income, to household heads and at times even the main income generators.

The **main impacts** of ERRA's gender mainstreaming initiatives have been:

- Greater support for women and improvement in their situation in earthquake affected areas
- Clearer understanding of the concept of gender mainstreaming amongst management and staff
- Commitment to integrate gender in programme design and implementation has been strengthened
- Tools for operating GM have enabled the concepts to be translated into reality
- ERRA's reputation has been built as an institution that is committed to gender equality.

15.5 OBSERVATIONS AND CONCLUSIONS

The following recommendations have been forwarded for future course correction and fine-tuning of gender mainstreaming programmes across the priority areas:

- Funds for rehabilitation projects must be released on time over a given period; GRRN could not fulfil its commitments due to the late release of funds.
- "Harassment at the Workplace Act, 2010" should not be confined to the ERRA premises only, vulnerable women of earthquake affected areas must be focused and should be aware that their role has changed after the earthquake.
- Providing sex-disaggregated data in all sectors, particularly in the water and sanitation sector, to trigger a comparative analysis in terms of financial and geographical programmes, beneficiaries and overall socio-economic changes in the lives of men, women, girls, boys, elderly and vulnerable groups.
- Systematic sharing of data will help in generating a better gender analysis which would further lead towards an improved design and implementation of reconstruction and rehabilitation initiatives.
- Due to the involvement of stakeholders at different levels and capacities, the estimated pace of work is sometime difficult to maintain.

15.6 RECOMMENDATIONS

- The Construction of educational institutions in Shangla and Kohistan districts with a particular focus on girls' educational facilities must be accelerated
- Availability of data on girls' and boys' enrolment, retention, teachers' training for men and women and on the existence of other facilities in completed schools must be ensured so that quality of education can be measured.
- In earthquake affected areas, each district and region has its own social and cultural diversity, while developing gender initiatives this element must be understood that may not bring any backlash against women and girls.

15.7 LESSONS LEARNT

- A key lesson learnt is to apply a participatory inclusive approach with both men and women to promote gender equality with the involvement of all stakeholders. Continuous running of the government policies strengthening women role in local governance is substantially required.
- Mainstreaming gender dimensions go beyond policy statements and should better prepare communities for future emergencies. Grass roots participation of earthquake affected men and women in reconstruction and rehabilitation processes provided a better way to respond to the disaster
- Participation of women in reconstruction and rehabilitation initiatives has proved their potential and willingness to engage in non-traditional activities. Participation in training for education, health and WatSan has enhanced their awareness to further participate in community-based social work.

16. ANNEX 1 COMPARATIVE ANALYSIS OF TIME-SERIES FBS DATA 2004-2009 – QUASI MULTI-DIMENSIONAL POVERTY INDEX

16.1 BACKGROUND TO PSLM DISTRICT LEVEL SURVEYS

Measuring the recovery from a widespread disaster is challenging. While an organisation involved in recovery reconstruction can measure output and outcomes by monitoring the progress of the reconstruction of the infrastructure and the functioning of this infrastructure in delivering the services, ultimately the rationale for all of this work is to improve the lives and livelihoods of those in the affected areas. To get estimates of the impact of the rehabilitation and reconstruction on the lives and livelihoods of the affected population a sample household survey is required.

Large-scale disasters rarely affect the whole country, but only a small proportion of it. It is these parts of the country for which representative data is required for the smallest unit of administration of the reconstruction and operation of services. In the case of Pakistan, this unit is the district. Most countries conduct regular household surveys which are multi-topic in nature, invariably enquiring about access to education, health and employment opportunities, assets and some measure of poverty among other topics. Often the sample is not large enough to produce representative data for the small area estimates often required for useful post-disaster reconstruction monitoring. Also there maybe a long time between the last survey and the disaster, which can reduce the validity of the survey results. In terms of monitoring the impact of the earthquake, Pakistan was fortunate in terms of both national household survey sample size and its timing in relation to the earthquake. The Federal Bureau of Statistics (FBS) in 2004 initiated a series of Pakistan Social and Living Standards Measurement (PSLM) surveys which included a short questionnaire with district representative data to be enumerated every 2 years. The first such survey was undertaken in 2004-05 and in the Khyber Pakhtunkhwa (KPK) districts; the enumeration took place between 14th January and 15th May 2005. This includes district level data on livelihoods, access to education and health services, among others between 6 and 11 months before the earthquake, rural-urban district level representative data just before the earthquake, and an excellent baseline on which to monitor the impact of the earthquake and subsequent recovery of livelihoods.

Although the survey was also enumerated in Azad Jammu and Kashmir (AJ&K), this was done with a lower sampling intensity. Unfortunately, despite requests from ERRA, AJ&K microdata was neither provided to ERRA nor publicly available. The results published from the Pakistan Social and Living Standards Measurement Survey (PSLM) district surveys do not include AJ&K estimates from the three surveys so far. Therefore unfortunately this analysis using PSLM district data to measure the impact of reconstruction and rehabilitation after the earthquake can only be conducted for KPK.

This analysis uses the data from the three district level surveys available: 2004-05, 2006-07 and 2008-09. Each cluster had 16 households in rural areas and 12 households in urban areas. The reason for the difference in cluster size was due to the observation in previous surveys that urban households within a cluster were more similar than rural households. Therefore a more efficient distribution of survey resources in the urban areas was to reduce cluster size from 16 to 12 households and compensate by having a larger number of clusters to produce similar levels of precision in both rural and urban domains. Table 16.1 presents a number of households for the entire survey, all KPK non-affected earthquake districts, all KPK earthquake districts, the individual KPK earthquake affected districts disaggregated by rural and urban where available and a comparison of three non-earthquake affected KPK districts (Bonair, Haripur and Swat). These three districts were selected because they were judged to be more similar to the earthquake affected districts than all 19 non-earthquake affected districts, they are also contiguous with four of five KPK earthquake the affected districts, i.e. Abbottabad, Mansehra, Shangla and Kohistan (Figure 16.1).

PSLM Survey Stratum	2004-05	2006-	2008-
All Pakistan	73,431	73,953	75,776
KPK all (19) non-earthquake	10,157	10,186	9,920
Bonair, Haripur & Swat non-	1,518	1,541	1,256
KPK all EQ districts	2,337	2,338	2,344
Abbottabad Rural	336	336	336
Abbottabad Urban	191	190	192
Battaaram Rural	432	431	432
Kohistan Rural	399	400	400
Mansehra Rural	432	431	432
Mansehra Urban	120	118	120
Shangla Rural	427	432	432

Table 16.1 Number of households surveyed in the 3 district level PSLM surveys to date by impact analysis analytical



Figure 16.1 Map of KPK earthquake affected districts and three adjacent districts (Bonair (Buner), Haripur and Swat) used for comparison.

This PSLM survey series is designed to provide rural and urban district representative data and therefore involves a large national sample size to ensure robust estimates at the district level, which can be seen from the numbers of households for the individual rural/urban earthquake affected districts in the three survey rounds to date. All the individual rural district domains have at least 300 households across all three surveys. The urban domains are the most under represented with the minimum number of households being 118 for urban Mansehra. Urban Abbottabad was better represented with approximately 190 households in each of the rounds. While these urban domains with fewer households will result in estimates with wider confidence intervals than the rural domains, this is not a huge weakness for the analysis of ERRA's impact, as much of the work of ERRA's recovery programme is focused in the rural areas.

16.2 STRUCTURE OF FBS PSLM DISTRICT LEVEL QUESTIONNAIRE AND ANALYSIS

The questionnaire used for the district level survey contains questions under the following areas of enquiry:

- household member education status
- household member health seeking behaviour in the last 2 weeks
- household members 10 years and under employment status
- asset ownership and perceptions of economic well-being
- household description details
- access time and transport used to local services
- immunisation and diarrhoea for children under 5 years
- pre-and postnatal experiences for married women 15-49 years
- use and satisfaction with facilities and services

The focus of much of the questionnaire is determining the type of access that households have to a range of government services. This includes the proximity, quality of service provision and whether they have any complaints about service quality, inter-alia. Many of these indicators are analysed for all the strata indicated with the exception of all of Pakistan. They are presented in graphical form with bars indicating +/- 90% confidence interval widths around the estimate value represented in the bar chart. These 90% confidence interval bars can be interpreted as the range within which the values of the estimates from 9/10 repeated observations would be expected to fall if the survey were to be repeated 10 times on the same population at the same time. This allows for a visual interpretation of the precision of the estimates. The resulting charts allows for a comparison between all earthquake affected KPK districts, all non-earthquake affected KPK districts, and three non-earthquake affected KPK districts (Bonair, Haripur, Swat) thought to be more similar to the earthquake affected areas. This detailed information is presented here and will not be repeated in every chart caption presenting

estimates and confidence intervals from these 10 units of analysis. Values on the charts are displayed to one decimal place, but when referred to in the text, they are rounded to the nearest integer.

16.3 ERRA'S 2009 IMPACT SURVEY

In the summer of 2009, ERRA conducted an impact survey which has already been reported upon (ERRA 2009). The survey was largely based upon the same questionnaire as the PSLM district survey series, with modifications to enquire about the particular nature of the rural housing programme and to include pre-earthquake recall questions in lieu of pre-earthquake baseline data being available. The advantage of ERRA conducting its own survey was that it produced estimates from AJ&K earthquake affected districts, but without the pre-earthquake baseline data available from FBS, the baseline-end line comparison had to rely upon estimates from before the earthquake, five years ago, which was not as accurate as having pre-earthquake baseline data. Only estimates of gross and net enrolment ratios from the KPK earthquake affected districts generated from the ERRA 2009 impact assessment are presented in this paper. This is done to illustrate the challenge of interpreting two estimates for the same indicator from the same cohorts from approximately the same time. This is to be avoided whenever possible, as this almost inevitably forces a decision over which of the two estimates to use. Given that the baseline (2004-05), midline (2006-07) and end line (2008-09) are all coming from FBS's PSLM district survey series, preference is given to the PSLM estimates over the ERRA estimates. In line with this justification, the estimates from ERRA's 2009 survey will not be reported here beyond attendance ratios to illustrate the challenge of having different estimates.

16.4 QUASI- MULTIDIMENSIONAL POVERTY INDEX (MPI)

As a means of summarising the multidimensional nature of poverty, a quasi- multidimensional poverty index is calculated and presented. The Multidimensional Poverty Index (MPI, Alkire and Santos 2010) was devised to create an index that represented the multidimensional aspects of poverty beyond consumption based estimates. It can be seen as an extension or a development of the UNDP Human Development Index (HDI), first published in 1990's Human Development Report. The HDI combined life expectancy, education (literacy + enrolment rates) and GDP per capita.

The new Multidimensional Poverty Index (MPI) combines estimates of education, health and standard of living outcomes to produce three estimates; MPI poverty headcount rate, MPI poverty intensity, and the product of these two MPI. In their paper, Alkire and Santos (2010) present estimates for 104 countries. The data sources for the estimates draw largely from 3 surveys that are conducted in many countries; the World Health Survey, Demographic and Health Survey or the Multi Indicator Cluster Survey. Without access to this data at the district level for Pakistan, a quasi MPI definition has been formulated to generate non-consumption multi-dimensional poverty estimates from the indicators available in the PSLM district survey series.

Sector	Multidimensional poverty index indicator definitions	Quasi Multidimensional Poverty Index indicator definitions
1. Health 2 indicators weighted equally at 1/6	Child mortality: If any child has died in the family	Child immunisation: Any child in the household under 5 that had not been vaccinated at all.
	Nutrition: If any adult or child in the family is malnourished	Household economic deterioration: Household that feels their economic situation is much worse than one year ago.
2. Education 2 indicators weighted equally at 1/6	Years of schooling: If no household member has completed 5 years of schooling	Years of schooling: If no household member has completed 5 years of schooling
	Child school enrolment: If any school-aged child is out of school in years 1 to 8	Child school enrolment: If any child out of school aged between 5 and 12.
3. Standard of Living 6 indicators weighted equally at 1/18	Electricity: If household does not have electricity	Electricity: Electricity not available as the main fuel used for lighting
	Drinking water: If does not meet MDG definitions, or is more than 30 mins walk away	Drinking water: If does not meet MDG definitions, or is more than 30 mins walk away

Sector	Multidimensional poverty index indicator definitions	Quasi Multidimensional Poverty Index indicator definitions
	Sanitation: If does not meet MDG definitions, or the toilet is shared	Sanitation: No toilet facilities or regular latrine.
	Floor material: If the floor is dirt, sand, or dung	Roof and wall material: Both roof and wall made of wood/bamboo.
	Cooking Fuel: if household cooks with firewood, charcoal/coal or dung cake.	Cooking Fuel: if household cooks with firewood, charcoal/coal or dung cake.
	Asset ownership: The household doesn't own more than one of the following : radio, TV, telephone, bike, or motorbike; and also does not own a car or tractor	Asset ownership: The household doesn't own more than one of the following : radio, TV, telephone, bike, or motorbike; and also does not own a car or tractor

Table 16.2 Actual and proxy definition of the 10 MPI indicators using PSLM district level data

The correspondence between the formal and the quasi MPI is close for education and standard of living sections, but weakest in the health sector. No anthropometric data is available for this survey and therefore for child mortality the proxy used was that any child in the household under five years of age had not received any vaccinations at all. This is a reasonable proxy, as vaccination rates are known to be a significant contributor in reducing infant and child mortality rates. A more precise definition of vaccination efficacy was not possible because enumeration dates for some of the surveys were not available. Nutritional information was also absent from the district level surveys as no anthropometric measurements were undertaken. The proxy chosen in this case was that the household feels their economic situation is much worse than a year ago. The causal link here is that if a household has experienced a significant decline in their economic situation, they are more prone to be also suffering poorer nutritional status, although this is not always the case since households smooth food consumption more effectively than they are able to smooth income. Still there is value in creating a multi-dimension indicator of poverty that combines estimates from health, education and economic well-being, as these are all dimensions of poverty likely to be adversely affected by an earthquake and to be addressed by the reconstruction rehabilitation efforts.

The PSLM district surveys do not collect consumption data and therefore the alternate "conventional" measure of poverty based upon household consumption is not possible. Critics of the MPI argue that there is no added value in packaging multiple estimates of different aspects of poverty together with a set of arbitrary weights. The choice of MPI's six "living standard" indicators are likely to be correlated with consumption or income, but they are unlikely to be very responsive to economic fluctuations (Ravallion 2010), which might occur after a large-scale economically disruptive disaster.

Those that are advocates of the MPI see it as a limited development of the Human Development Index. It is constrained by having to choose indicators from those that are widely collected within the same survey. In the case of this analysis, all of the indicators required in the definition of MPI weren't available hence the substitution of proxies to create a quasi-MPI estimate from the PSLM district data. Another advantage for assessing impacts post-disaster is that the MPI is likely to be more sensitive to capturing the deterioration of services and livelihoods and the subsequent reconstruction of them than consumption based poverty estimates would be. And with a biennial series of surveys, it is important to have an instrument that is responsive to these shocks and recovery from the shocks.

The quasi-MPI estimates presented here are absolutely not comparable with the published MPI estimates for Pakistan (Alkire and Santos 2010). These were generated from the Demographic and Health Survey 2007, adhering to the definition of MPI.

16.5 QUASI-MPI HEADCOUNT RATE (% OF PEOPLE WHO ARE MPI POOR)

The quasi-MPI headcount rate was calculated as the number of households who have an MPI score of greater than 0.3 as the ratio of the total number of households, weighted by household member

weight, to provide a headcount rather than household rate. The resulting quasi MPI headcount rates from the three survey rounds are presented in Figure 16.2 .

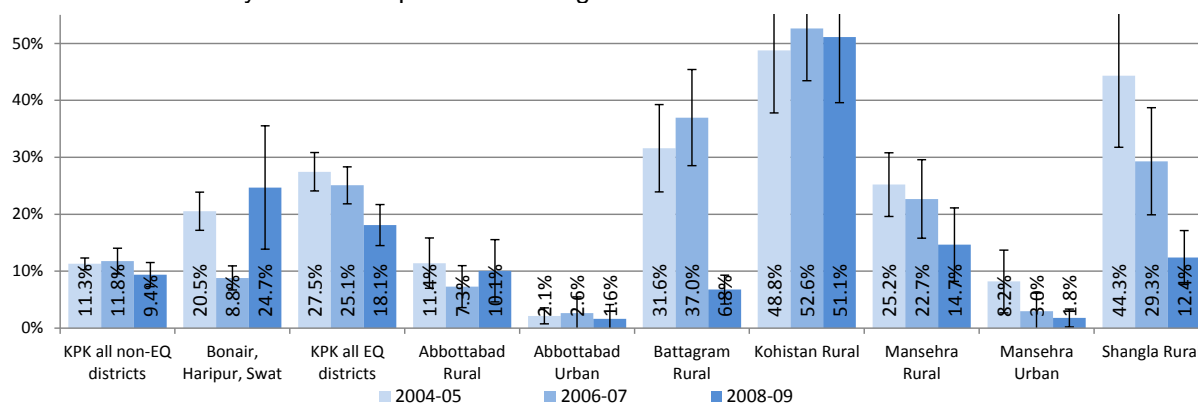


Figure 16.2 Per cent of people who are MPI poor.

The results indicate that overall, the headcount rate for all the earthquake affected districts in KPK declined from 29.1% in 2005 to 20% in 2008-09, a significant decline. The quasi-MPI headcount rate was much higher in the earthquake affected districts than in the non-earthquake districts before the earthquake (29% versus 12%). Within all of the non-earthquake affected districts, the rate of decline of the number of MPI poor is non-statistically significant and much lower than the rate of decline within the earthquake affected districts. The districts selected to be more comparable to the earthquake affected districts were Bonair, Haripur and Swat, which present a variable picture with the initial MPI headcount rate of 20.5% dropping to half that and then jumping to 25% in 2008-09.

The enumeration of the 2008-09 round took place in Swat district between 30th of September 2008 through 9th April, 2009, with 41% been enumerated in 2009, when by February at the latest, Taliban occupation of Swat had already prompted large-scale displacement. If the three districts comprising the non-EQADs that are thought to be similar to the EQADs, Bonair, Hairpur and Swat are plotted separately, then the probable impact of disruption to livelihoods can be seen in the 2008-09 Swat quasi-MPI an estimate of 41% (Figure 16.4), which is a significant increase over the 2006-07 estimate of 5.6%.

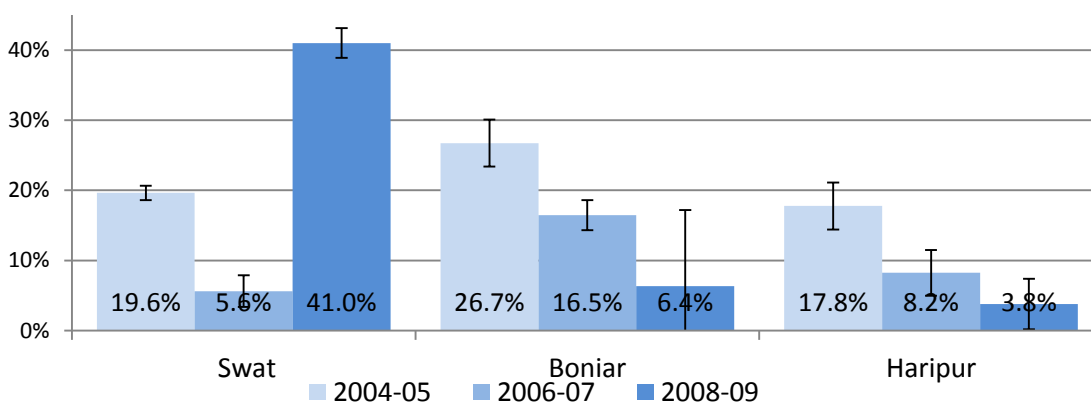


Figure 16.3 Per cent of people who are quasi-MPI poor in Swat, Bonair and Hairpur

The two other adjoining districts show a consistent and gradual decline in quasi MPI headcount rates over the three observations, strong evidence that the inhabitants of Swat district have experienced a shock to their livelihoods and lives.

Within the earthquake affected districts, most have registered a decline over the period of observation, with the notable exception of rural Kohistan which has maintained a stubbornly high poverty headcount rate of around 50%, significantly higher than almost all of the other earthquake affected districts. The other remote rural district, Shangla, in contrast started with a relatively high quasi-MPI headcount rate of 44%, but has seen a significant drop to just 12%.

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16.6 AVERAGE INTENSITY OF QUASI-MPI POVERTY

The average intensity of MPI poverty is calculated as the average weighted MPI score for all those households that have an MPI weighted score of greater than 0.3. The results from

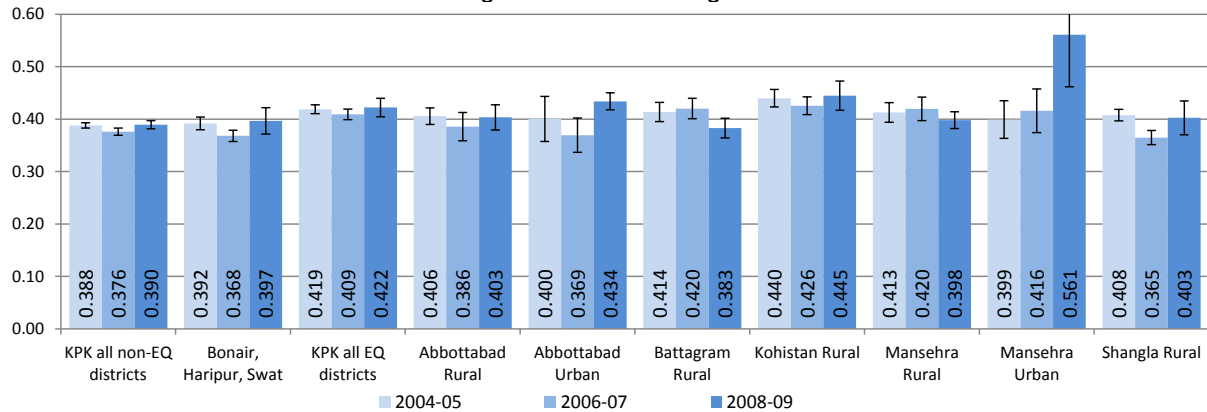


Figure 16.4 indicate that this measure is much more stable over time and across the analytical domains than the headcount rate of quasi-MPI poor (Figure 16.2). The only notable significant difference is an increase in the average intensity of MPI poverty in Mansehra urban in 2008-09 where it increases to 0.56 from the 2006-07 estimate of 0.42 a statistically significant increase. Otherwise, for all of the cohorts there is relatively little variation in the relative values and the change in these values over time, so the differences are largely not statistically significant.

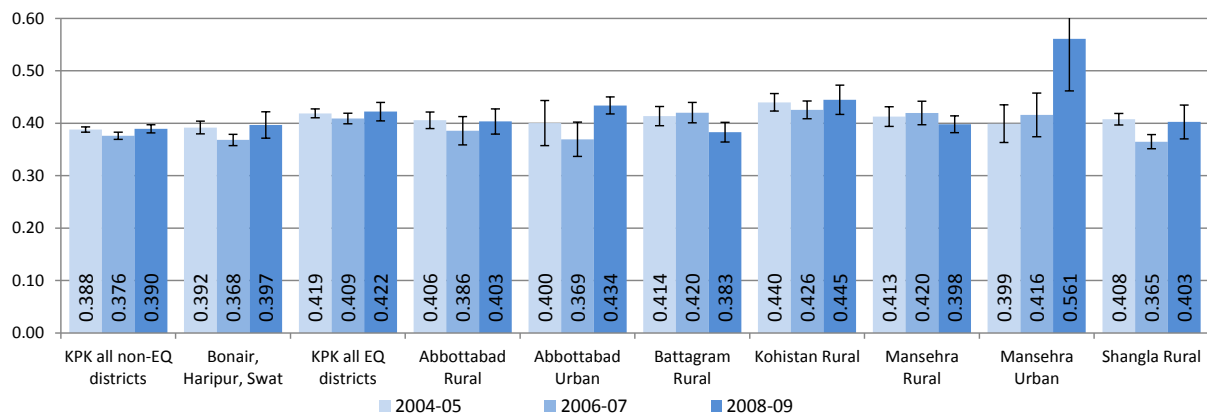


Figure 16.4 Average intensity of MPI poverty

16.7 QUASI MPI

The Multi-dimensional Poverty Index (MPI) is a product of the headcount rate of MPI poor multiplied by the intensity of that MPI poverty, i.e. the product of the results from Figure 16.2 and

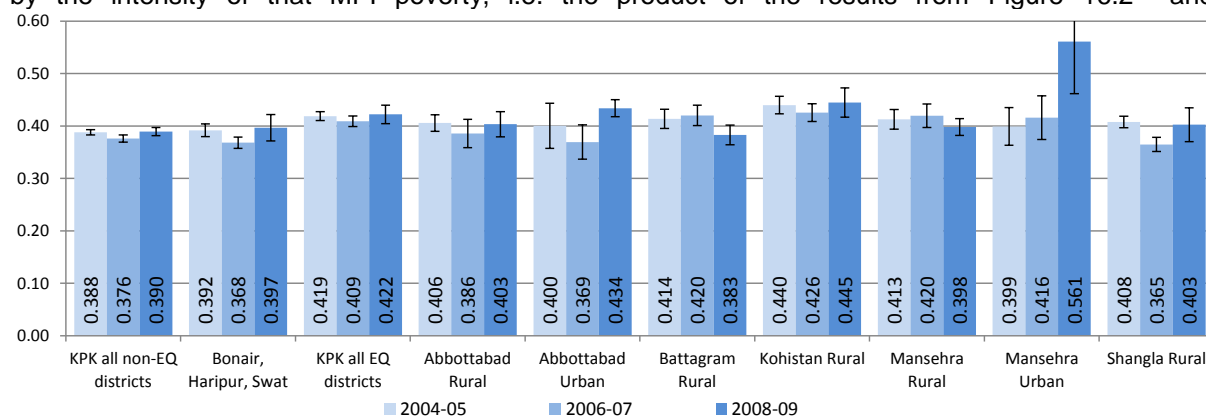


Figure 16.4. Given that the average intensity of poverty does not vary significantly for the most part, almost all of the variation in the MPI will be driven by the changing MPI poverty headcount rate.

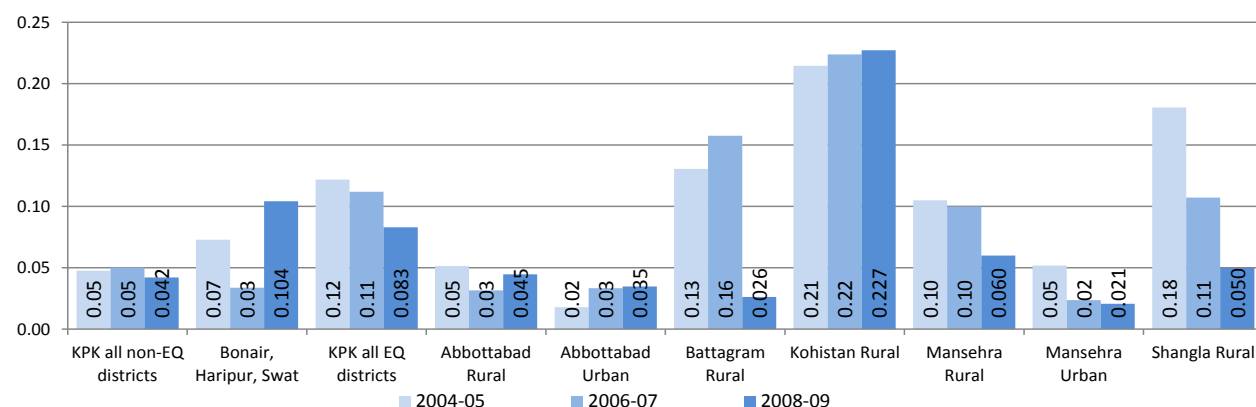


Figure 16.5 Multi-dimensional poverty index.

16.8 CONCLUSION ON MPI RESULTS

The patterns in quasi-MPI are driven almost entirely by the patterns in the per cent of people who are quasi MPI poor. These indicate that the greatest decline among the three multi-district cohorts were experienced in the earthquake affected districts, yet the overall quasi-MPI levels remain higher than the rest of the non-earthquake affected districts, with the exception of the 2008-09 estimate for Bonair, Haripur and Swat, a result that was likely to been heavily influenced in 2008-09 by the Taliban occupation of Swat. Of particular concern among the district estimates is rural Kohistan, which consistently returned the highest quasi-MPI poverty headcount rate, with no sign of any decline over the five-year period. There have been declines in most other earthquake affected districts. Kohistan is a remote rural area and these results suggest a particular focus is required to address the apparent chronic multidimensional widespread poverty that persists in this specific district.

16.9 RESULTS SUMMARY TABLE

Table 1 summarises 3 comparisons of most of the indicators presented above, which were indicated by:

1. Impact of earthquake observable; 2006-07 value less than 2004-05.
2. Build Back Better; the 2008-09 value is an improvement over the pre-earthquake 2005 value for the earthquake affected districts in KPK.
3. Whether the earthquake affected districts are performing better than all of the non-earthquake affected districts in 2008-09.
4. Whether the earthquake affected districts are performing better than Bonair, Haripur and Swat non-earthquake affected districts.
5. Name of the worst performing unit of analysis from rural-urban district stratum including Bonair, Haripur and Swat.

If the response to indicators 1-3 defined above is yes, a ✓ is indicated. If this improvement is significantly different then this is represented by ✓*. If the earthquake affected districts are worse than the contrasting districts, this is represented by ✗, and if this is significantly so, represented by ✗*. If the worst performing district is identified as Kohistan*, this means that Kohistan values were significantly poorer than any other districts. Therefore the * suffix to either a tick or cross mark indicates a statistically significant difference. The only indicators omitted from the table below on those displaying multiple categories within a single chart, i.e. problems with educational institution, reasons for not attending school and types of complaints experienced after visiting a health centre.

	Indicator	1. Impact of earthquake (2006-07 < 2004-05)	2. Built Back Better (2008-09 > 2005)	3. EQ districts > non-EQ districts in 2008-09	4. EQ districts > Bonair, Haripur, Swat non-EQ districts in 2008-09	5. Worst performing unit of analysis in 2008-09
Quasi-MPI	Quasi-MPI Headcount Rate (% of people who are MPI poor)	✗	✓*	✗	✓	Kohistan
	Average intensity of quasi-MPI poverty	No change	✗	✗	✗	Urban Manserha
	Quasi-Multidimensional Poverty Index (MPI)	✗	✓	✗	✓	Kohistan
Economic well-being, assets unemployment & telephone connectivity	Households perceive economic situation is much worse than 1 year ago.	✓	✗	✗	✓*	Bonair, Haripur & Swat
	Household asset score	✗	✓*	✗*	✗*	Kohistan*
	Unemployment rate – 16-65	✗	✗*	✗*	✗	Urban Abbottabad
	Unemployment rate – 16-30 male only	✓	✓	✓	✓	Kohistan
	Telephone connectivity rate	✗	✓*	✗*	✗	Kohistan
Education	Walking time to primary school	✗	✓	✗*	✗	Rural Abbottabad
	Gross attendance ratio primary classes 1-5	✓	✓*	✓*	✓	Shangla
	Net attendance ratio primary classes 1-5	✓	✓*	✓	✓	Kohistan
	Net attendance ratio 5-15 years	No change	✓*	✓*	✓	Kohistan
	Household education satisfaction rate	✓	✗	✗*	✓	Kohistan*
	Literacy rate for those 10 years and older	✗	✓*	✓	✓*	Kohistan*
Health	Time taken to get a health centre on foot	✗	✗	✗*	✗*	Kohistan*
	Health facility patients have no complaints	✗	✓*	✓	✓*	Bonair, Haripur & Swat
	Households receiving lady health worker visit in last 30 days	No change	✗	✗*	✗	Kohistan
	Antenatal care provision	✗	✓	✗	✗	Kohistan
	Tetanus toxoid immunisation rates for pregnant women	No change	✗	✗*	✗*	Kohistan*
	Institutional birth rate	✗	✓*	✗*	✗*	Kohistan
	Skilled birth attendance	✓	✗	✗*	✗*	Shangla
	Rates of postnatal care provision	✗*	✗	✗	✗*	Kohistan
	Immunisation coverage for children < 5	✗*	✗*	✗*	✗*	Kohistan
	Basic health unit satisfaction rate	✓*	✗*	✗*	✓	Kohistan*
Family planning service satisfaction	✗*	✓*	✓	✓	N/A	

	rates					
Water and sanitation	Population with improved water access	x	✓	x*	x*	Kohistan*
	Time taken to access drinking water by foot	x	✓	x*	x	Kohistan
	Improved toilet facility	x	✓*	x	x	Kohistan*
	Diarrhoea incidence in children < 5 in last 30 days	x	x	x*	x	Battagram
Government services	Police satisfaction rate	✓	x	x	✓	Shangla*
	Road satisfaction rate	✓	x	x*	x	Kohistan
	Veterinary service satisfaction rate	✓*	x*	x*	✓	Kohistan
	Agriculture extension satisfaction rate	✓*	x*	x*	✓	Kohistan

Table 16.3 Summary results for most indicators presented

16.10 SUMMARY OF RESULTS

Table 16.4 Summary results by sector for most indicators presented

Summary Sector Scores	Impact of earthquake (2006-07 < 2004-05)	Built Back Better (2008-09 >2005)	EQADs > non-EQADs in 2008-09	EQADS > Bonair, Haripur, Swat districts in 2008-09
MPI	0/3	2/3 (2)	0	2
Economic well-being, assets, unemployment & phone connectivity	2/5	3/5 (2)	1/6	2/6 (1)
Education	3/6	5/6 (4)	4/6 (2)	5/6 (1)
Health	2/11 (1)	4/11 (3)	2/11 (0)	3/11 (1)
Water & Sanitation	0/4	3/4 (1)	0	0
Government services	4/4	0/4 (0)	0	0

The timing of the 2005 observation was almost perfect in terms of a pre-earthquake baseline. The subsequent observation (2006-07) could be up to 1.5 years after the earthquake. It is interesting therefore to see that for the most part, at a household level, it is not possible to see the impact of the earthquake has registered a decline in the 2006-07 value as opposed to the pre-earthquake 2005 value, just 6/29 (Table 16.4). The potential interpretations of this exist; either the earthquake's impact on the population was much less than hypothesised or, the time between the earthquake and the enumeration was sufficient for most households to restore their lives and livelihoods so that they were at least comparable to the pre-earthquake state. Either way this should be read as a success, that despite such a large and devastating disaster, a reliable regularly implemented national household survey with large district level samples was unable to pick up the negative impact of the earthquake for most of the indicators observed.

On the other hand, government services have almost universally declined dramatically since the earthquake in the EQADs. While households have restored their lives and livelihoods by 2006-07, the government has failed to restore its services to pre-earthquake conditions.

The MPI indicators showed declines within the earthquake affected districts, but these were all significantly worse than all earthquake affected districts. The education sector performed reasonably well, with most indicators registering an improvement in the earthquake affected districts, often significantly so and these fared favourably with the non-earthquake affected districts. The one exception in this sector was the household education satisfaction rate. The health sector presented a much more mixed and less consistently successful picture. Only 3 out of 11 health indicators showed a significant improvement over the observation period in the earthquake affected districts and only for the level of complaints after a BHU visit did the earthquake affected districts perform better than the other districts in KPK. There was a non-significant increase in the population with improved water access, but no improvement was made in time to improve the drinking water source. The earthquake affected districts saw a significant improvement in the rate of households with improved toilet facilities,

but no significant decrease in the incidence of diarrhoea in children under five in the last 30 days. The livelihood and asset sector showed significant improvements within the earthquake affected districts for underemployment rate household asset scores in telephone connectivity, but all of these were at significantly poorer levels than the non-earthquake affected districts. The indicators reflecting satisfaction rates with government services were universally negative and often significantly so. The results registered not a single improvement between 2005 and the last observation of 2008-09 for police, roads veterinary nor agriculture extension services.

The summary of the rural-urban district analysis indicating the worst performing district for the indicators presented in Table 16.3 clearly demonstrates that Kohistan consistently (22/31) performs the worst. In seven cases the level of performance in Kohistan is significantly worse than any of the other rural-urban district values. Apparently Kohistan has a culture that makes external intervention and reconstruction rehabilitation more difficult than Shangla for example. It is felt that this resistance to outside assistance has contributed to Kohistan performing very badly in terms of recovery and Shangla with an MPI indicating chronic high levels of poverty. Shangla, also performs badly, often being second to Kohistan, but in 3 out of 31 cases it performed the worst, and in one case significantly worse than any other of the rural-urban district values. The two occasions where Bonair, Haripur and Swat performed the worst, were household respondent perception questions rather than more objective measures of performance, and therefore are perhaps a softer measure of poor performance than perhaps, net attendance ratio. Urban Manseha performed the worst in two instances, with an average intensity of quasi-MPI poverty which has no explanation and underemployment rates.

Performing badly for unemployment is expected since unemployment rates in rural areas are likely to be lower (depending upon the exact definition) as there are less opportunities for the urban poor to engage in agricultural related activities.

16.11 REFERENCES

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