



**Government of Pakistan
Earthquake Reconstruction and
Rehabilitation Authority (ERRA)
Prime Minister Secretariat (Public)**



BUILD BACK BETTER



RECONSTRUCTION AND REHABILITATION STRATEGY

FOR

TELECOMMUNICATION SECTOR

July 2006 to June 2009

Abbreviations and Acronyms

A&P	Apparatus and Plant
Ae	Aerial
AJK	Azad Jammu and Kashmir
BTS	Base Transceiver Station
ERRA	Earthquake Relief & Rehabilitation Authority
CDMA	Code Division Multiple Access
CMH	Combined Military Hospital
FAC	Final Acceptance Certificate
GSM	Global System of Mobile
WLL	Wireless Local Loop
GoP	Government of Pakistan
M&E	Monitoring and Evaluation
MIS	Management Information System
MoF	Ministry of Finance
MOU	Memorandum of Understanding
NBP	National Bank of Pakistan
NTC	National Telecommunication Corporation
NWFP	North West Frontier Province
OFC	Optical Fibre Cable
OSP	outside Plant
PTCL	Pakistan Telecommunication Company Limited
PCO	Public Call Office
SBP	State Bank of Pakistan
SCO	Special Communications Organization
SCOM	Special Communications Organization Mobile Phone
UG	Underground

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EXECUTIVE SUMMARY

The earthquake on 8th October, 2005 in Northern Pakistan damaged and disrupted life and services in the affected areas. In four Districts of Azad Jammu and Kashmir (AJK) and five in North West Frontier Province (NWFP), public and private housing, social service delivery, governance structures, communication etc. was either severely damaged or completely destroyed.

In the telecommunication sector, key organizations in the earthquake affected areas are mainly PTCL and SCO in addition to private sector's mobile phone operators. PTCL is the main service provider in the earthquake affected areas of the NWFP. According to its survey, sixteen exchanges of PTCL were completely destroyed, 37 exchanges were partially damaged and boundary walls worth of Rs. 15.48 Million was destroy/damaged due to the earthquake. The total loss calculated by it is around Rs. 45.30 Million. Being a profit oriented entity; it is going to rehabilitate its services from its own resources. Special Communications Organization (SCO) is the only public sector service provider in telecom sector in the State of AJ&K. Many of the structures in the earthquake affected areas were either destroyed or severely damaged. The earthquake also claimed lives of many of SCO employees and their families. Despite serious damages to the telecom network, immediate steps were taken to restore the communication to ensure uninterrupted operation of survived telecom systems. The organization suffered a loss of around Rs. 630 Million. Being public sector organization, it has requested to the government to provide the financial support for the restoration of its facilities.

Telecommunication infrastructure, severely damaged due to the earthquake, was restored on urgent basis but most of the restoration was of temporary nature. The natural disaster has surely posed a huge challenge but

also has provided an opportunity to think and build back better. In order to ensure better and efficient service delivery, the Earthquake Rehabilitation and Reconstruction Authority (ERRA) have devised this "Strategy for Rehabilitation and Reconstruction of Telecommunication Sector" to ensure that communication need of the people of the affected population are met and the overall objective of the government policy of "**Build Back Better**" is also achieved.

1. INTRODUCTION

1.1 Background

The earthquake on 8th October, 2005 in Northern Pakistan damaged and disrupted life and services in the affected areas. In four Districts of Azad Jammu and Kashmir (AJK) and five in North West Frontier Province (NWFP), public and private housing, social service delivery, governance structures, communication etc. was either severely damaged or completely destroyed. The overall loss of public and private assets (direct damage at book value) in the nine most affected districts was estimated at Rs. 135.2 billion (US\$2.3 billion), and the resulting loss in income (indirect loss) was estimated at Rs. 34.2 billion.

Telecommunication, which is one of the important components for communication and efficient service delivery, was also severely damaged. Although telecommunication services were restored immediately yet lot of the restoration is of the temporary nature. The natural disaster has surely posed a huge challenge but also has provided an opportunity to think and build back better.

The Government of Pakistan recognizes the need of telecommunication infrastructure for the people of the affected areas. To this end, the Earthquake Rehabilitation and Reconstruction Authority (ERRA) has devised this "Strategy for Rehabilitation and Reconstruction of Telecommunication Sector" to ensure that communication needs of the affected population are met and government's objective of "**Build Back Better**" is also achieved.

1.2. Key Organizations in the earthquake affected areas:

There are two major telecommunication service providers in the earthquake affected areas:

- PTCL: PTCL is the main service provider in the earthquake affected areas of the NWFP. According to its survey, sixteen exchanges of PTCL were completely destroyed, 37 exchanges were partially damaged and boundary walls worth of Rs. 15.48 Million was destroy/damaged due to the earthquake. The total loss calculated by the PTCL is around Rs. 45.30 Million. Being a profit oriented entity; it is going to rehabilitate its services from its own resources.
- Special Communications Organization (SCO) is the only public sector service provider in the State of AJ&K. Most of the telecom buildings of SCO in the earthquake affected areas were either destroyed or severely damaged. The earthquake also claimed lives of many of SCO employees and their families. Despite serious damages to the telecom network, immediate steps were taken to restore the communication to ensure uninterrupted operation of survived telecom systems. The organization suffered approximate loss of Rs. 630 Million. Being a public sector organization, it has requested the government to provide the financial support for the restoration and reconstruction of the damaged infrastructure of the organization.

1.3. Overview of Damage and Needs

According to the information provided by SCO, the detail of the damage equipment is given below in Table 1:

Table 1 (detail of the damage equipment)

S.No.	District	Detail of Equipment Damages
1.	Muzaffarabad	17x Semi Digital Exchanges 4x Microwave Terminals 3x BTS 2x Power System / Battery Bank 4000 pairs OSP and 27 Km Aerial Cables
2.	Rawalakot	1x Digital Exchange 3x Semi Digital Exchange 8x Microwave Terminals 1x BTS 1x Power System / Battery Bank 1200 pairs OSP and 170 Km Aerial Cables
3.	Bagh	16x Semi Digital Exchanges 2800 pairs OSP and 230 Km Aerial Cables
4.		110 Km OFC (the cost effect included cost of Cable, Laying and Jointing)

Note: - Semi Digital exchanges will be replaced with new digital exchanges, for which media, building, OSP and accessories will also be required.

Due to the earthquake, some of the building structures managed by SCO were completely collapsed. The detail is given in the table 2:-

Table 2. (Detail of collapsed telecom buildings)

S.No	District	Detail of Building	Areas (Sq Ft)
1.	Muzaffarabad	Exchange Building (1) Danna (2) Pattika (3) Ghari Dopatta (4) Hattian BTS Buildings (1) Sathra Park (2) Naluchi (3) CMH (4) Ghun Chatter	1075 1348 1348 1678 820 820 820 820
2.	Rawalakot	Exchange Buildings (1) Datoot (incl BTS)	1139
3.	Bagh	Exchange Buildings (1) Lass Dana	1343
Total			11211

Some buildings relating to telecommunication infrastructure were not destroyed but were badly damaged. Most of those building are unsafe for further utilization and therefore requires reconstruction. The detail is given in the table 3:

Table 3. (Detail of partially damaged telecom building)

S.No	District	Detail of Building	Areas (Sq Ft)
1.	Muzaffarabad	Building (1) Old Muzaffarabad (2) New Muzaffarabad (3) Chakkar <u>Administrative Block (Office / Living)</u> (1) Sector HQ AK (2) 61 Composite Signal Battalion	15384 3000 1678 5558 10000
2.	Rawalakot	Building (1) Rawalakot (2) Bandi Abbaspur (3) Khad Bazar (4) JhekaGala BTS Building (6) Damni Khas <u>Administrative Block (Office / Living)</u> (1) Rawalakot	3960 3065 3065 3065 820 3500
3.	Bagh	Buildings (1) Bagh (2) Dhirkot (3) Ghaziabad BTS Buildings (1) Hullar Syedan <u>Administrative Block (Office / Living)</u> (1) Bagh	6000 1343 9688 820 9688
Total			83699

Due to the destruction of telecommunication building (as given in Table 2 above and damages to the structures (as given in Table 3 above), the requirements worked out for the reconstruction of its physical infrastructure is given below in Table 4:

Table 4. (Requirements for the reconstruction)

S/No	District	Location	Sq Ft
1	Muzaffarabad	<u>Exchange Buildings</u> (1) Old Muzaffarabad (2) New Muzaffarabad (3) Danna (4) Pattika (5) Ghari Dopatta (6) Hattian (7) Chikar (8) Chinari (9) Chakothe <u>SCOM BTS Buildings</u> (1) Nalochi (2) CMH (3) Ghun Chattar <u>Administrative Block (Office / Living)</u> (1) SCO Sector HQ AK Muzaffarabad (2) 61 Composite Signal Battalion Muzaffarabad	15384 3000 1075 1348 1348 1678 1678 820 820 820 820 820 820 5558 10000
2.	Rawalakot	<u>Exchange Buildings</u> (1) Rawalakot (2) Bandi Abbaspur (3) Mohari Farman Shah (4) Jheka Gala (5) Chirala (6) Birpani (7) Topa Kharian <u>SCOM BTS Buildings</u> (1) Datoot (2) Damni Khas <u>Administrative block (Office / Living)</u> (1) Rawalakot	3960 3065 3065 3065 820 820 820 1139 820 3500

3.	Bagh	<u>Exchanges Buildings</u>	
		(1) Bagh	6000
		(2) Lass Dana	1343
		(3) Dhirkot	1678
		(4) Ghaziabad	3065
		<u>SCOM BTS Building</u>	
		(1) Hullar Syetan	
		<u>Administrative block (Office / Living)</u>	820
		(1) Bagh	9688
Total			85337

The SCO has worked out the detail of equipment that needs to be replaced or installed in order to be functional in delivery and service. The detail of the need assessed is indicated in Table 5 below:

Table 5. (Equipment installation/replacement requirement)

S.No.	Items
1.	A&P Switches and accessories
2.	A&P Microwave and accessories
3.	GSM Equipment (BTSS) and accessories
4.	Optical Fibre Media (Cable, Laying and Transmission Equipment) and Accessories
5.	Power System including Miscellaneous Equipment / Spares / Stores (Generators, ACs, Tower, Electricity Earthing and Ordinance Stores)
6.	OSP (UG & Ae)
7.	Building

2. THE STRATEGY

2.1. Vision

ERRA's vision for the reconstruction and implementation strategy is to **Build Back Better**. For the Telecommunication Sector, it means restoring and upgrading, where necessary, of all services with better infrastructure in AJ&K.

2.2. Objectives

The main objective is to restore the damaged infrastructure of the telecommunication sector and that can be summarized as under:

- (a) focus attention on the development and modernization of telecommunication facilities for a smooth , effective and efficient functioning of the sector ;
- (b) Telecommunication services should be kept in highest state of maintenance so as to be readily available during time of emergency/crisis;

2.3. Scope

The scope is to reconstruct, rehabilitate and upgrade the telecommunication infrastructure in AJ&K damaged or destroyed due to the earthquake.

2.4. Methodology

SCO will follow either its own financial procedure for implementation or donor's guideline, whichever is applicable. All the tendering formalities will be completed for various segments such as procurement of equipment and construction of buildings etc. The overall supervision will be carried out by the SCO. The SCO will be responsible for internal monitoring and supervision. ERRA will be the fund manager and would do periodical monitoring or third party validation in case of requirement.

3. Relief and Recovery Phase:

Despite serious damages to the telecom network, immediate steps were taken to restore the communication needs in the affected areas by SCO to ensure uninterrupted operation. The detail of relief and development activities is as under:

Relief Activities

- a. Established 78 Free PCOs in disaster hit area.
- b. 50x Free Thuraya Satellite Phone PCOs.
- c. 200 Free SCOM (SCO,s Mobile Phone)connections for Civil Management and International Agencies.
- d. 100 Free SCO CDMA (WLL) connections for relief operations in Muzaffarabad, Bagh and Rawalakot.
- e. 150 free telephone connections to Army troops and civil agencies involved in relief operations.

Temporary Restorations:

- a. Laying of OFC – Hattian –Chinnari - Chakothi. 24 Km OFC was re-laid between Hattian, Chinnari and Chakothi. The digital exchanges at Chinnari Chakothi were made functional and 1136 digital lines were restored.
- b. Shifting of Danna MW Site. Danna MW site was feeding Chakkar and Hattian Digital Exchanges. Due to slope failures, the site was closed and 20 Km aerial OFC was laid between

Ghari Dopatta – Hattian and Chakkar to feed Hattian and Chakkar digital exchanges.

- c. Installation of New Digital Exchanges. Following three new digital exchanges were installed in Neelum Valley after Earthquake with Satellite Based Connectivity:-

- | | | | |
|----|-----------------|---|------------|
| 1) | Authmuqam | - | 512 Lines |
| 2) | Dhanni, Nosehri | - | 400 Lines |
| 3) | Jura | - | 400 Lines. |

- d. SCO GSM (SCOM) in AJ&K.

(1) 50,000 Lines GSM (SCOM) System was introduced.

- e. SCO CDMA (WLL) in AJ&K. SCO CDMA system for AJ&K was formally inaugurated.

4. COMPONENTS AND BUDGET ESTIMATES

Although telecommunication link was restored within days but nearly all the repairs were temporary and needed to be replaced by permanent solutions. In order to recover from the effects of devastation suffered due to the earthquake, there is dire need of financial resource for reviving telecom infrastructure in AJ&K.

The total cost for reconstruction of telecom infrastructure in the affected area has been estimated to be Rs.630 million. Consolidated cost estimates for the reconstruction and rehabilitation of telecommunication infrastructure by SCO are given in table 6:

Table 6. (Estimated cost for reconstruction of SCO's damaged equipment and physical infrastructure)

S.No.	Items	Cost effect in Pak Rupees.
1.	A&P Switches and accessories	93.00 M
2.	A&P Microwave and accessories	46.20 M
3.	GSM Equipment (BTSS) and accessories	25.80 M
4.	Optical Fibre Media (Cable, Laying and Transmission Equipment) and Accessories	70.00 M

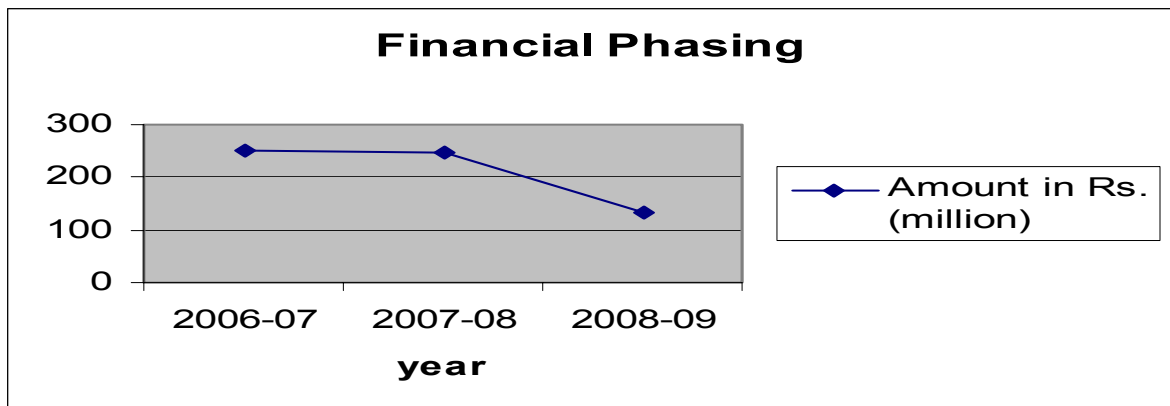
5.	Power System including miscellaneous Equipment / Spares / Stores (Generators, ACs, Tower, Electricity Earthing and Ordinance Stores)	45.00 M
6.	OSP (UG & Ae)	220.00 M
7.	Buildings, land ,prefabricated shelters	130.00 M
	Total	630.00 M

According to the work plan given in table-8, the financial phasing is given in table 7:

Table 7. (Financial phasing)

	<i>2006-07</i>	<i>2007-08</i>	<i>2008-09</i>
Amount in Rs. (million)	250	246	134

Table 8 indicates the financial phasing in graphical form:



5. IMPLEMENTATION ARRANGEMENTS

Following are the major stakeholders that will be involved in the overall reconstruction and rehabilitation of the telecommunication sector at different levels:

- Financing Institution
- Earthquake Reconstruction and Rehabilitation Authority (ERRA)
- Special Communications Organization (SCO)

5.1 Financing Institution

The funds required for the reconstruction and rehabilitation telecommunication infrastructure will be arranged by ERRA either from the Government of the Pakistan or from any donor in the shape of grant or loan to the tune of Rs. 630 Million. The financing institution will assist ERRA in:

- Providing Rs. 630 Million for the reconstruction and rehabilitation of Telecommunication infrastructure.
- Providing no objection certificate to the operational guidelines for the proper implementation of the project and any subsequent changes or adjustments.
- supporting ERRA to oversee and monitor the overall program
- Developing a system for monitoring and evaluation of the entire component.
- Providing technical support for all kinds of required work.

5.2 Earthquake Reconstruction and Rehabilitation Authority (ERRA)

The Government of Pakistan has established ERRA at the Federal level as focal body for overall policy planning, standard setting, regulation, coordination and monitoring of the reconstruction and rehabilitation program. It serves as a focal point for the overall operations in the earthquake-affected areas.

5.3 Special Communications Organization:

It will be responsible:

- SCO will follow its own financial procedures or donor's guideline, whichever is applicable, for the implementation of work plan indicated in this document.
- ERRA will be the fund manager and will be responsible for overall supervision.
- All the tendering formalities, where required, will be completed for various segments such as procurement of equipment and construction of buildings etc.
- The overall supervision of the implementation will be carried out by SCO.
- Provide details of all reconstruction work to ERRA on monthly and quarterly basis for monitoring and evaluation with regular intervals.
- Follow all the accounting and auditing procedures required to ensure transparency.
- Ensure that the funds provided by ERRA will only be utilized in the earthquake affected areas on the project and schemes indicated in this document.
- Any change in the policy, schemes etc shall not be made without the approval of ERRA.
- SCO may make changes in the scope as required during implementation due to technical considerations.

6. ORGANIZATION AND MANAGEMENT:

6.1 Financial Details

The Special Communications Organization (SCO) will be given the required amount by ERRA for reconstruction work in the earthquake affected areas on yearly basis as given in table 7 above. SCO will follow its own financial procedures or donor guideline, whichever is applicable, under supervision of ERRA.

6.2 Disbursement Procedures

The following procedure shall be employed to ensure efficient transfer of amount:

- Upon request from the relevant entity, the Government of Pakistan or financing institution shall transfer the amount to SBP.
- ERRA will request SBP to transfer the amount in the ERRA's account.
- ERRA shall transfer the amount to the SCO account.
- The SCO shall provide regular updates to ERRA on monthly and quarterly basis by indicating financial and physical progress.

6.3. Monitoring and Evaluation:

ERRA will be the fund manager and coordinator of all activities of reconstruction and rehabilitation. SCO shall be responsible for project supervision and implementation. It will send regularly progress report to ERRA for evaluation and monitoring to ensure transparency. ERRA may carry out third party validation and impact monitoring, if required.

7. WORK PLAN

The implementation schedule of the rehabilitation plan will be spread over three years. **Table 9** presents a quarter wise details of three-year indicative work plan for the sector

