



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



**BUILD BACK BETTER**



**RECONSTRUCTION AND REHABILITATION STRATEGY**

**FOR**

**POWER SECTOR**

**July 2006 to June 2009**

**Abbreviations and Acronyms**

AJ&K	Azad Jammu and Kashmir
AJKELD	AJK Electricity Department
AJKHEB	AJK Hydro-Electric Board
AJKED	AJK Electricity Department
ERRA	Earthquake Reconstruction & Rehabilitation Authority
GoP	Government of Pakistan
IESCO	Islamabad Electric Supply Corporation
JBIC	Japan Bank of International Cooperation
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 Network
NWFP	North West Frontier Province
PERRA	Provincial Earthquake Reconstruction and Rehabilitation Authority
PESCO	Peshawar Electric Supply Corporation
SBP	State Bank of Pakistan
SERRA	State Earthquake Reconstruction and Rehabilitation Authority
STG	Secondary Transmission and Grid
SHYDO	Sarhad Hydel Development Organization

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## **EXECUTIVE SUMMARY**

On 8<sup>th</sup> October, 2005, the Earthquake in Northern Pakistan damaged and disrupted life and services in the affected areas of Azad Jammu and Kashmir (AJ&K) and North West Frontier Province (NWFP). In four Districts of AJ&K and five district of NWFP, public and private housing, social service delivery, governance structures, communication, power etc. was either severely damaged or completely destroyed. It was a largest catastrophe in the nation's history that affected millions of people. The destruction in electricity badly affected the basic amenities and needs of the people.

The organizations that were providing electricity in the affected areas were Islamabad Electric Supply Corporation (IESCO), Peshawar Electric Supply Corporation (PESCO), Sarhad Hydel Development Organization (SHYDO), AJK Electricity Department (AJKELD) and AJK Hydro-Electric Board (AJKHEB). These agencies took the challenge and electricity was restored to pre earthquake level within a short time by using temporary installation and emergency purchases of equipment.

Electricity Department of Azad Kashmir (AJKED) is responsible for distributing electricity in AJK – including the affected districts (Muzaffarabad, Bagh and Rawalakot). It purchases electricity in bulk from two distribution companies (Islamabad Electricity Supply Company (IESCO) in the southern parts of AJK, and from Peshawar Electricity Supply Company (PESCO) in the northern part). AJKED constructs and operates the distribution networks, provides consumer connections and manages the billing, collection and other operational matters. Prior to the earthquake, AJKED served about 363,000 consumers, of which 323,000 were residential, about 38,000 were commercial and 1800 were industrial consumers. IESCO manages the Secondary Transmission and Grid (STG) network in the southern part of

AJK. AJKHEB manages projects in Muzaffarabad, Neelum, Bagh, Rawalakot, and Kotli.

The objectives of the reconstruction strategy for next five years are 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 by other companies and projects, repairs and reconstruction of the damaged electricity network and related buildings, provision of cash for supply of electricity to the affected areas to compensate responsible agencies for the Government's decision to grant 3 months of payment relief and upgrading and expansion of power sector systems to improve access of the poor to electricity, and provide electricity to promote economic development in the earthquake affected area.

Initially, the reconstruction cost of Rs 1848 million was estimated. However, it has been enhanced in the final reconstruction plan to Rs. 2406 Million (US \$40.11 Million) in order to achieve the objective of **Build Back Better** as the better equipment and structures has been recommended in the final reconstruction strategy.

Asian Development is completely covering the whole portfolio of this sector through loan and grant component. Japan Bank of International Cooperation (JBIC) will provide the counterpart funding share of Government of the Pakistan of US \$ 9.81 Million (Rs 588.6 Million) from the commitment already made with the Government from Earthquake Reconstruction Fund.

ERRA, established by Government of Pakistan at Federal level, will be overall responsible for the overall policy planning, standard setting, regulation, and coordination and monitoring of the reconstruction and rehabilitation program. It serves as a focal point for the overall operations in the earthquake-affected area. ADB shall transfer the funds in ERRA's account for further transfer to the five main companies. ERRA directly and

through Provincial Earthquake Reconstruction and Rehabilitation Authority (PERRA for NWFP) and State Earthquake Reconstruction and Rehabilitation Authority (SERRA for AJK) will oversee the implementation.



## **1. INTRODUCTION**

The earthquake on 8<sup>th</sup> October, 2005 severely damaged and destroyed the public and private housing, social service delivery, governance structures, communication, power supply etc. The loss of lives and property posed a huge challenge to the nation for relief and early recovery in the first stage and reconstruction and rehabilitation at the second stage in the four affected Districts of Azad Jammu and Kashmir (AJK) and five in North West Frontier Province (NWFP).

Power Sector, which is one of the important components, was also severely damaged. However, most of the damaged structure was repaired on urgent basis. Electricity bulk supply was restored to near 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 thrust of the early actions was to provide spares and manpower from unaffected areas, and bring those “reconstruction teams” with spare parts to the affected areas to restore the power installations. Most of the immediate repairs after the earthquake were of temporary nature. Due to urgency, repair was done by borrowing equipment. Therefore, urgent replacement of borrowed store item is required and at the same time, temporary solutions have to be replaced by permanent one on priority basis.

The Government of Pakistan recognizes the basic need of the electricity for the people.

To this end, the Earthquake Rehabilitation and Reconstruction Authority (ERRA) have devised this “Strategy for Rehabilitation and Reconstruction” for Power Sector to ensure that basic need of electricity of the people of the affected population is met and the overall objective of the government policy of “Building Back Better” is also achieved.

## **1.2. Key Organizations in the earthquake affected areas:**

The organizations that are providing electricity in the affected areas are Islamabad Electric Supply Corporation (IESCO), Peshawar Electric Supply Corporation (PESCO), Sarhad Hydel Development Organization (SHYDO), AJK Electricity Department (AJKELD) and AJK Hydro-Electric Board (AJKHEB).

### **1.2.1. Azad Jammu and Kashmir**

- Electricity Department of Azad Kashmir (AJKED) is responsible for distributing electricity in AJK – including the affected districts (Muzaffarabad, Bagh and Rawalakot). It purchases electricity in bulk from two distribution companies (Islamabad Electricity Supply Company (IESCO) in the southern parts of AJK, and from Peshawar Electricity Supply Company (PESCO) in the northern part. AJKED constructs and operates the distribution networks (11 kV and 0.44 kV), provides consumer connections, and manages the billing, collection and other operational matters. Prior to the earthquake, AJKED served about 363,000 consumers, of which 323,000 were residential, about 38,000 were commercial and 1800 were industrial consumers.
- IESCO manages the Secondary Transmission and Grid (STG) network in the southern part of AJK – this includes one 132 kV line and grid station (Rawalakot) and two 33 kV grid stations (Bagh and Hajira).
- AJKHEB manages projects in Muzaffarabad, Neelum, Bagh, Rawalakot, and Kotli.

### **1.2.2. NWFP**

- PESCO has full responsibility for electricity distribution in the affected districts of NWFP (Abbottabad, Mansehra, Battagram, Kohistan and Besham). It manages both the STG and distribution (11 kV and 0.44

kV) networks, provides consumer connections, and handles billing, collection and other operational matters. Prior to the earthquake, the average monthly demand for electricity in the two circles of PESCO which were impacted (Abbottabad and Mansehra) by the tremors was about 48 million kWh.

- SHYDO manages network in Mansehra, Shangla and Kohistan districts.

### **1.3. Overview of Damage and Needs**

The main components of the power sector, which were impacted by the earthquake, are the secondary transmission (STG) and distribution systems. The estimates have been prepared the relevant agencies, which are as under:

- ***Electricity Department of AJK (AJKED)*** for the distribution network and four hydro generation sites (capacity about 35 MW) in AJK;
- ***Sarhad Hydro Development Organization (SHYDO)*** for five mini/micro hydro generation units in the Mansehra and Kohistan district, which are owned by SHYDO;
- ***Peshawar and Islamabad Electricity Supply Companies (PESCO and IESCO)***. PESCO's estimate covers STG and distribution systems in the Northern Areas, while IESCO's numbers refer to STG networks in AJK which are owned and operated by IESCO.

The initial assessment indicated the following damages in power sector:

<b>Region/Implementing Agency</b>	<b>Description of Damages</b>
AJKELD	Distribution System, including Consumer connections; some small/micro hydro plants
IESCO	STG network, 3 districts of AJK – primarily buildings/civil works; some equipment was also destroyed when buildings collapsed
PESCO	Extensive damage to Distribution System and STG network in five districts (Abbottabad, Mansehra, Battagram, Kohistan and Besham) of NWFP
SHYDO	Civil works at four small hydro stations have been damaged
AJKHEB	132 Kv transmission line from Jagran to Muzaffarabad and four power stations ( 2 in Muzaffarabad,& 2 in Neelum)

**1.3.1 Categories of damage.** Five agencies are responsible for power generation, transmission, and distribution in the affected areas and the principal for the rehabilitation and reconstruction of the power sector is that these agencies will be responsible for their respective functions and geographic areas.

As regards hydro sites, powerhouse equipment was damaged in one station (Kathai) in AJK. At the other stations, the damage is confined to civil works including approach roads, intake structures, fore bay and penstocks.

In case of STG, a major component of the cost covers equipment which was damaged or destroyed when the control room buildings collapsed. Residential buildings, store rooms etc, were also damaged or collapsed completely. Some equipment items (e.g. transformers) were dislocated from their foundations, but did not suffer structural damages. Those have been placed back on original foundations and are operational. For two

transmission lines, a number of towers were damaged and needed to be replaced or relocated.

Damage to the distribution infrastructure in both AJK and in the affected districts of NWFP (i.e. the service area of PESCO) was extensive, and included 11kV and 0.44 kV distribution lines and feeders, transformers and other equipment, as well as consumer service connections. About 18,700 consumer connections in PESCO area, and about 61,000 in AJK, have been disrupted and need to be replaced. Some residential and office buildings of PESCO and AJKED have been damaged/destroyed, and need to be reconstructed. The damage to distribution networks is roughly equally divided between the utilities' assets (lines, transformers, civil works, etc) and consumer service connections (including new meters, service drops, service masts, etc).

**1.3.2 Damage by district.** The impact on distribution infrastructure appears to have been greater in AJK than in NWFP. By contrast, the estimate of damages to STG facilities appears to be larger in the NWFP districts. In the initial assessment, the damage to distribution networks in AJK was worked out Rs. 173 million; damage to IESCO's STG networks, which were located in AJK was assessed Rs. 66 million; and damage to hydro stations owned by AJK Government was estimated at about Rs. 50 million. Damage to distribution networks in NWFP were estimated at about Rs. 125 million, and to PESCO's STG network were estimated to about Rs. 173 million etc. The power sector reconstruction cost in the initial surveys was as under:

**Table 1: Initial assessment for reconstruction**

	Unit	Quantity	Cost of Damage (Rs. M)
Hydro Power Plant	nos.	10	70.69
132kV Line	Km	2.00	34.00
132/33kV Substation <sup>1</sup>	nos.	5	88.72
33kV Line	Km	10.00	4.00
33/11kV Substation <sup>2</sup>	nos.	5	70.10
11kV lines	Km	100.00	35.08
11/0.4kV substation <sup>3</sup>	nos.	566	75.29
LT lines	Km	110.00	27.71
Service connection	nos.	79,723	124.44
Buildings	-		165.71
Spares	-		20
Tools & Vehicles	-		4.00
Tent Villages - Electricity supply for 1 year			180.00
Tent Villages - Electricity Installation			90.00
Electricity Relief to affected areas (3 months)			657.00
Electricity Installation	-	-	200.00
<b>Total Costs - Power Sector</b>			<b>1,848.74</b>

The total reconstruction cost initially estimated was around Rs 1848 million. However, it has been enhanced in the final reconstruction plan to Rs. 2406 Million (US \$40.11 Million) due to the philosophy of **Build Back Better** as the better equipment and structures has been recommended in the final reconstruction strategy.

The service recovery and reconstruction needs in the power sector from now and for the next 5 years can be summarized as follows:

- 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 the damaged electricity network and related buildings.
- Provision of cash for supply of electricity to the affected areas to compensate responsible agencies for the Government's decision to grant 3 months of payment relief.
- Upgrading and expansion of power sector systems to improve access of the poor to electricity, and provide electricity to promote economic development in the earthquake affected area.

## **2. THE STRATEGY**

### **2.1. Vision**

ERRA's vision for the reconstruction and implementation strategy is to **Build Back Better**. For the Power Sector, it means restoration and up-gradation to provide of all services with better infrastructure and equipment in the affected areas of AJ&K and NWFP.

### **2.2. Objectives**

The main objective is to restore the damaged/destroyed infrastructure of the Power Sector and can be summarized as under:

- (a) Development and improvement of electricity facilities for the smooth , effective and efficient services;
- (b) Develop capacities, which ensure highest state of maintenance and efficient service delivery.

### **2.3. Scope**

The scope is to reconstruct, rehabilitate and upgrade the Power Sector infrastructure in the affected districts of NWFP and AJ&K.

### **2.4. Goals**

The key elements of the reconstruction strategy in the power sector are:

- To strengthen the implementation capacities of the agencies in the power sector, which were adversely affected by the earthquake through appointment of new staff, and provision of incremental staff and consultants for the reconstruction phase



- To strengthen the disaster management capacity of the all agencies in the power sector through provision of necessary staff, training and emergency equipment.
- Replace temporary structures with permanent structures, which are earthquake resistant
- To procure and replace the equipment borrowed from other regions and agencies.
- To ensure replacement of damaged and destroyed equipment, which not only meets the requirement for the services, and is compatible with the existing the generation, supply and distribution system but also provides for improvement in system efficiency and effectiveness, where possible.
- Reconstruct and rehabilitate the office building, staff quarters and civil structures related to generation, supply and distribution to meet seismic requirements of the area.
- To immediately replace all damaged and destroyed meters to curtail revenue loss to the distribution and supply agencies concerned.

All agencies, Islamabad Electric Supply Corporation (IESCO), Peshawar Electric Supply Corporation (PESCO), Sarhad Hydel Development Organization (SHYDO), AJK Electricity Department (AJKELD) and AJK Hydro-Electric Board (AJKHEB), shall follow all the procedures and tendering formalities for procurement and implementation as required under the guideline of ADB and rules under which the particular agency is operating.

### **3. COMPONENTS AND BUDGET ESTIMATES**

A reliable and strong electricity network acts as a catalyst in accelerating the pace of overall development and rehabilitation activity in any region. Although restoration of electricity was done on emergency basis yet much was of temporary nature. In order to permanently functionalize the relevant agencies for power generation and distribution, financial needs have been identified in Table 2. The cost estimates reflect technological up-gradation of the equipment to ensure improved efficiency and quality of service, which will benefit the area through increased economic activity. Transformers that were overloaded prior to the earthquake and damaged would be replaced with a suitable sized transformer for the estimated load; it will serve during the next five years. In terms of cost allocation, as sustained provision of electricity is pre-requisite for other construction activities, most of the power sector works would be completed during the first year of implementation. It will consume the major portion of the costs in the short term with some civil construction activities possibly spilling over to the next few years (medium to long term periods). The total budget requirements of all the agencies are as under:

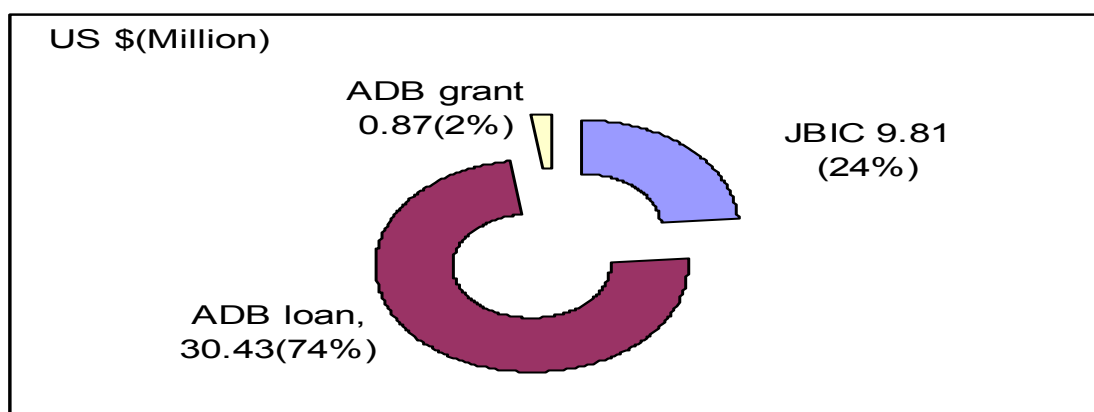
Table 2: FUND REQUIREMENTS FOR POWER SECTOR

BUDGET - FUNDS REQUIREMENTS											
(\$ million)											
Component/IA	2006				2007	2008	2009	TOTAL	SOURCE		
	Qtr II	Qtr III	Qtr IV	Total					ADB Grant	ADB Loan	Govt Counterpart
<b>A. Federal</b>											
1 IESCO	0.500	0.600	0.600	1.700	1.070	-	-	2.770	2.078	0.693	
2 PESCO	4.389	3.249	3.259	10.898	7.159	2.000		20.056	15.042	5.014	
<b>Sub-Total Federal</b>	<b>4.889</b>	<b>3.850</b>	<b>3.860</b>	<b>12.599</b>	<b>8.229</b>	<b>2.00</b>		<b>22.827</b>	17.121	5.707	
<b>B. AJK</b>											
Electricity											
3. Deptt	2.000	3.000	2.750	7.749	4.470	2.000	-	14.219	10.664	3.555	
Electricity											
Deptt											
4 consultancy	0.044	0.069	0.069	0.181	0.275	0.275	0.139	0.870	0.870		
Hydro Electric											
5. Board	0.00	0.399	0.499	0.998	0.749	-	-	1.747	1.3125	0.437	

	<b>Sub-Total</b>											
	<b>AJK</b>	<b>2.143</b>	<b>3.468</b>	<b>3.318</b>	<b>8.929</b>	<b>5.493</b>	<b>2.275</b>	<b>0.14</b>	<b>16.836</b>	0.870	11.974	3.992
<b>C.</b>	<b>NWFP</b>											
<b>6</b>	SHYDO	0.249	0.050	0.050	0.349	0.096	-	-	0.445		0.334	0.111
	<b>Sub-Total</b>											
	<b>NWFP</b>	<b>0.249</b>	<b>0.050</b>	<b>0.050</b>	<b>0.349</b>	<b>0.096</b>			<b>0.445</b>		0.334	0.111
		<b>7.282</b>	<b>7.367</b>	<b>7.227</b>	<b>21.877</b>	<b>13.818</b>	<b>4.274</b>	<b>0.139</b>	<b>40.11</b>	0.870	29.43	9.81
	ADB Grant	0.04	0.07	0.07	0.18	0.27	0.27	0.14	0.870			
	ADB Loan	5.43	5.48	5.37	16.28	10.16	3.00	-	29.43			
	GOP											
	Counterpart	1.81	1.82	1.79	5.42	3.39	1.00	-	9.81			
	Total								40.11			

The total funds requirement for the power sector is US \$40.11 Million and out of which ADB grant US \$0.870 Million is, ADB loan is US \$30.43 Million and JBIC will provide funds equivalent to US \$9.81 Million, as counterpart funding required from Government of Pakistan. The arrangement is given in the table 3:

**Table 3. Funding arrangement**



The needs are identified after considering scope, implementation arrangements, and incremental and technical assistance requirements for the power component. Only the AJK Electricity Department has requested for consultancy service. All other agencies have sufficient expertise to complete their job with the existing capacity.

The detail cost estimates for each implementing agency are given in table 4.

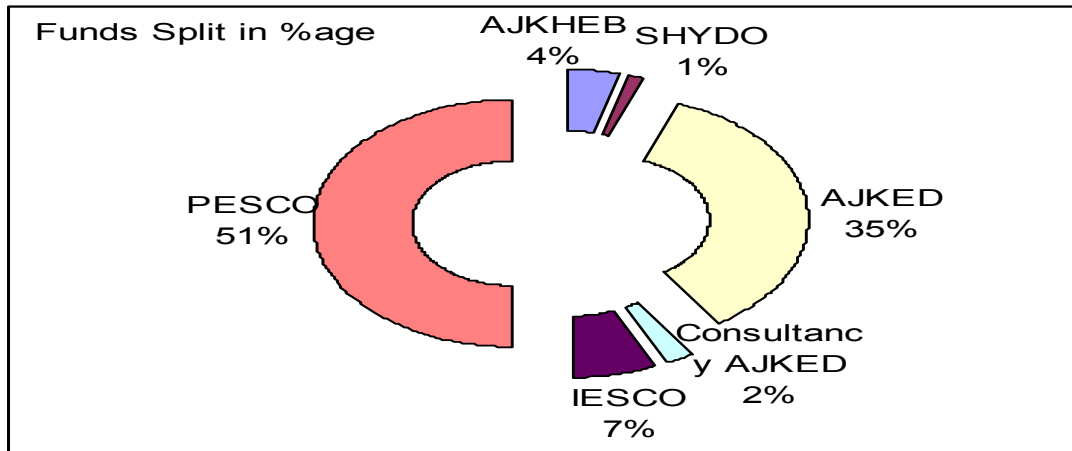
**Table 4 Cost estimates**

Sr. No	Implementing agency	Total cost (US \$ in Million)	Cost estimates and scope
1	<b>AJK Hydro Electric Board</b>	<b>01.747</b>	Annex-12
2	<b>AJK Electricity Department</b>	<b>14.219</b>	Annex-13
3	<b>Consultancy requirement of AJK Electricity Department</b>	<b>0.870</b>	Annex-14

4	<b>SHYDO</b>	<b>0.445</b>	Annex-15
5	<b>IESCO</b>	<b>2.771</b>	Annex-16
6	<b>PESCO</b>	<b>20.056</b>	Annex-17
	<b>TOTAL</b>	<b>40.11</b>	

Out of the total funds required for reconstruction of power sector, PESCO is given 51%, AJKHEB is given 4%, SHYDO is given 1%, AJKED is given 35% for reconstruction and 2% for consultancy and IESCO is given 7%. The detail is given in the table below:

**Table 5. Split of funds among the concerned agencies in %age**



#### **4. IMPLEMENTATION MECHANISM**

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

- Asian Development Bank.
- Earthquake Reconstruction and Rehabilitation Authority (ERRA)
- Japan Bank of International Cooperation (JBIC)
- Islamabad Electric Supply Corporation (IESCO), Peshawar Electric Supply Corporation (PESCO), Sarhad Hydel Development Organization (SHYDO), AJK Electricity Department (AJKELD) and AJK Hydro-Electric Board (AJKHEB).

##### **4.1 Asian Development Bank:**

ADB will provide all funds required for the reconstruction and rehabilitation of Power Sector to ERRA in the shape of loan and grant.

##### **4.2 Earthquake Reconstruction and Rehabilitation Authority (ERRA)**

The GoP has established ERRA at the Federal level with the responsibility of overall policy planning, standard setting, regulation, coordination and monitoring of the reconstruction and rehabilitation activities. It serves as a focal point for the overall operations including in the earthquake-affected area. ADB shall transfer the funds in ERRA's account, which will further transfer to the five main companies.

##### **4.3 Japan Bank of International Cooperation (JBIC)**

JBIC shall provide the counterpart funding share of Government of the Pakistan of US \$ 9.81 Million (Rs 588.6 Million) from the commitment already made with the Government from Earthquake Reconstruction Fund.

##### **4.4 Islamabad Electric Supply Corporation (IESCO), Peshawar Electric Supply Corporation (PESCO), Sarhad Hydel Development Organization**

**(SHYDO), AJK Electricity Department (AJKELD) and AJK Hydro-Electric Board (AJK**

**4.4.1 AJKELD and AJKHEB:**

The proposed scope of the AJKELD and AJKHEB power sector components are given in Annex 12, Annex-13 and Annex-14. The AJKELD and AJKHED will review the portfolio in the light of the selection criteria and after seeking approval of the Provincial Steering Committee (PSC) submit the same for the approval of both ADB and ERRRA.

**4.4.1.1 Contract packages**

The contracts have been packaged keeping in view the peculiar circumstances of the Project area, nature and location of works, and in all cases these are not attractive for International Contracting. A total number of 25 packages are expected to be procured both for civil works and goods. The tentative list of the contract packages recommended for procurement is placed at **Annex1 &2**.

**4.4.1.2 Implementation Arrangements and Incremental Administration**

The incremental staff and related costs proposed for the implementation of the power component (AJKELD) are given in **Annex-13** and **Annex-14** . A PIU has been proposed in the PWD for implementation of the civil works portfolio of AJKELD; where as procurement of equipment would undertaken directly by AJKELD. The civil works to be undertaken and equipment to be procured by AJKHEB will be done directly by AJKHEB. This has been done keeping in view the comparative advantage, capacities of PWD, AJKELD and AJKHEB to implement this portfolio, and limited time available for reconstruction activities. The implementation of civil works component of AJKELD would be undertaken by district staff of PWD which will be specially hired for the reconstruction activity, under the overall supervision of the Project Coordinator in PWD stationed at Muzaffarabad. AJKELD incremental staff requirements for



procurement and installation of equipment under the power component, is provided at **Annex-14**. No incremental staff is required by AJKHEB to implement works and supply contracts under their portfolio. The overall cost for the incremental administration amounts to \$0.62 million and will be paid out of the grant component of the ADB. The works payments will be released directly by DRU to the contractors after verification by PWD or AJKELD district staff. For procurement of equipment and electricity supplied to camps, funds will be released directly to suppliers and AJKELD respectively by SERRA after verifications by AJKELD. For incremental administration, support funds will be released to AJKELD or PWD as three months advance. On the other hand SERRA would release three-month budget to AJKHEB for all physical activities (works and supply) to be undertaken by them, against which AJKHEB will provide liquidation and request for reimbursement on a monthly basis.

#### **4.4.1.3. Consultants Packaging and Hiring**

The cost of the TA package (Rs. 14.7 million), and detailed TORs of consultants required to support AJKED in the reconstruction effort are given in **Annex-11**. The consultants under the TA package will be hired directly keeping in view the comparative advantage and capacity of the consultancy firms, which have previous work experience in AJK. The overall cost for the consultancy packages amounts to \$0.25 million. This will be paid out of the grant component of the ADB.

#### **4.4.2 SHYDO:**

Most of the works, which were to be undertaken by SHYDO were of emergency nature and required immediate response to restore electricity to the affected areas, SHYDO has already prepared the PC-1 following the scope of work identified in **Annex-15** (estimated cost Pak Rs. 26 million). Most of contracts for goods and civil works have been procured and awarded, using existing government procedures, and work have been completed on some of these contracts. SHYDO will provide the details of advertisement, bid

evaluation/approval reports and the signed contracts for the works to reclaim the expenditures already incurred to ERRA.

#### **4.4.2.1. Scope of work**

The proposed scope of the SHYDO power sector sub-component costing \$ 0.45 million is given in **Annex-15**. SHYDO has already reviewed the portfolio in the light of the selection criteria and after seeking approval of the Provincial Steering Committee (PSC) will submit the same for the ERRA's approval.

#### **4.4.2.2. Contract packages**

The contracts have been packaged keeping in view the peculiar circumstances of the Project area, nature and location of the work and in all cases these are not attractive for International Contracting. A total number of 10 packages are either procured or are expected to be procured (only procurement of vehicles is outstanding) both for civil works and goods. The tentative list of the contract packages is attached as **Annex-3**.

#### **4.4.2.3. Implementation Arrangement and Incremental Administration**

As provided under the Loan Agreement, SHYDO will act as the implementation Agency for this component. Funds would flow directly from PERRA to SHYDO according to the budget estimates. This has been done keeping in view the comparative advantage, capacities of SHYDO, to implement this portfolio, and limited time available for reconstruction activities. There is no requirement for incremental and technical assistance for this component as the size of the component is small and SHYDO has internal capacity to undertake these works. SHYDO will follow the procurement guidelines as agreed with the donor financing this component (ADB). SHYDO would be responsible for providing regular (monthly and quarterly) progress report for the activities under this sub-component. ERRA would be responsible for fund management, reviewing and improving internal controls and external audits, and overall monitoring of the implementation activity under this sub-component

### **4.4.3 IESCO**

Most of the works and procurements, which were to be undertaken by IESCO, were of emergency nature and required immediate response to restore electricity to the affected areas. Some small contracts for goods and civil works (less than \$0.1 million) have been awarded by IESCO by using its existing procedures. IESCO will provide, to ERRA and ADB, the copies of advertisement, bid evaluation reports and contracts, to reclaim the expenditure already incurred or to be incurred against contract already awarded.

#### **4.4.3.1. Scope of work**

The proposed scope of the IESCO power sector sub-component costing \$2.8 million is given in **Annex-16**. IESCO has already reviewed the portfolio in the light of the selection criteria and will submit the same for the approval ERRA.

#### **4.4.3.2. Contract packages**

The contracts have been packaged keeping in view the peculiar circumstances of the Project area, nature and location of the works, and in all cases these are not attractive for International Bidding. A total number of 10 packages are either procured or are expected to be procured both for civil works and goods. The tentative list of the contract packages is placed at **Annex-4**.

#### **4.4.3.3. Implementation Arrangements and Incremental Administration**

As provided under the Loan Agreement, IESCO will be the implementation Agency for the component. Funds would flow directly from ERRA to IESCO according to the budget approved by ERRA. It has been proposed keeping in view the comparative advantage, capacities of IESCO to implement the portfolio, and limited time available for reconstruction activities. There is no requirement for incremental and technical assistance for this component as the size of the component is small and IESCO has internal

capacity to undertake these works. IESCO will follow the procurement guidelines as agreed with the donor financing the component (ADB). . ERRA would be responsible for fund management, reviewing and improving internal controls and external audits, and overall monitoring of the implementation activity.

#### **4.4.4 PESCO**

The proposed scope of the PESCO power sector sub-component costing \$ 20.06 million is given in Annex-17. PESCO has already reviewed the portfolio in the light of the selection criteria and will submit the same for the approval ERRA.

##### **4.4.4.1 Contract packages**

The work contracts have been packaged, keeping in view the peculiar circumstances of the Project area, nature and location of the works. A total number of about 3 to 5 packages are expected to be procured for civil works. For goods the packaging has been done keeping in view the compatibility of equipment, and the destination of supply. In addition an effort was made to lump similar equipment, which can be supplied by a reasonable number of single suppliers, to have reasonable size of packages (economies of scale) and to ensure quality of after sale service. The tentative list of the 16 contract packages (including packages to be procured through international competitive bidding) is placed at **Annex-5**.

**4.4.4.2. Implementation Arrangement and Incremental Administration**

As provided under the Financing Agreement, PESCO will be the implementation Agency for this component. Funds would flow directly from ERRA to PESCO according to the budget. This has been done keeping in view the comparative advantage, capacities of PESCO to implement this portfolio, and limited time available for reconstruction activities. There is no requirement for incremental and technical assistance for this component as PESCO has internal capacity to undertake these works. PESCO will follow the procurement guidelines of the donor financing this component (ADB). ERRA would be responsible for fund management, reviewing and improving internal controls and external audits, and overall monitoring of the implementation activity. PESCO would be responsible for providing regular (monthly and quarterly) progress report for the activities under this sub-component.

## 5. MONITORING AND EVALUATION:

ERRA would be responsible for fund management, reviewing and improving internal controls and external audits, and overall monitoring of the implementation activity. The implementing agency will be responsible for implementation, internal controls, monitoring and audit. All implementation agencies will send regular monthly and quarterly reports to ERRA regarding the progress in each area. Donors will also undertake periodic monitoring and review of the components that they are financing in consultation with ERRA.

## 6. WORK PLAN:

The work plan and time line of each implementing agency is given in the annexure as under:

<b>SR NO</b>	<b>NAME OF AGENCY</b>	<b>ANNEX</b>
1	AJK Electricity Department	6
2	AJK - Hydro Electric Board	7
3	SHYDO	8
4	PESCO	9
5	IESCO	10

**TENTATIVE CONTRACT PACKAGE LIST (AJKELD)**

<b>Contract No.</b>	<b>Item Description</b>	<b>Contract Type</b>	<b>Mode of Procurement</b>	<b>Estimated Contract Value (Rs. Million)</b>
<b>A. Transmission &amp; Distribution</b>				
1	Steel Structures	Supply	ICB	67.9
2	Hardware Items	Supply	IS	25.3
3	Insulation material	Supply	IS	13.6
4	Conductors and Cables etc.	Supply	ICB	130.2
5	Transformers	Supply	ICB	101.8
6	Energy Meters and related accessories	Supply	ICB	128.1
7	Wooden X-arms	Supply	LCB	4.4
8	Purchase of Vehicles	Supply	IS	13.4
9	Purchase of Motorcycles	Supply	LCB	1.6
10	Purchase of Truck	Supply	LCB	4.0
11	Purchase of Crane	Supply	IS	14.2
12	Purchase of Transformer Trolley	Supply	LCB	0.3
13	Purchase of T&P	Supply	LCB	5.8
14	Installation, erecting and commissioning of works ( <b>5 contracts</b> )	Works	LCB	105.7
15	Civil works (building stations and quarters Muzaffarabad)	Works	LCB	65.8
16	Civil works (building stations and quarters Rawalakot)	Works	LCB	35.2
17	Civil works (building stations and quarters Bagh)	Works	LCB	15.7
	<b>Total</b>			<b>733.0</b>

## Note

- (i) Tentative contract package list above is based on the information provided by the IAs.
- (ii) Contract packages need to be finalized in accordance with the selection of subprojects.
- (iii) Contract type for T&D subprojects (Supply or Turnkey) should be determined considering the IA's capacity for implementation
- (iv) Mode of procurement should be determined in accordance with the financing agreement and the RRP document.
- (v) Number of contract packages of each item should be determined considering the implementation schedule, geographic conditions, economic and efficiency of procurement, etc.



## TENTATIVE CONTRACT PACKAGE LIST (AJKHEB)

Contract No.	Item Description	Contract Type	Mode of Procurement	Estimated Contract Value (\$ million)
<b>A. 1.6 MW Kathai Power Station</b>				
<b>1.</b>	<b>Civil Works</b>			
a.	Power Channel (RD 0-25)	Civil Work	LCB	0.110
b.	Power Channel (RD 25-55)	Civil Work	LCB	0.110
c.	Power Channel (RD 55-85)	Civil Work	LCB	0.110
d.	Power House	Civil Work	LCB	0.050
e.	Residential Quarters and Other Civil Works	Civil Work	LCB	0.210
<b>2.</b>	<b>Electro-Mechanical Works</b>			
a.	Procurement and installation of damaged equipment	Supply	LCB	0.030
<b>B. 1.6 MW Leepa Power Station</b>				
<b>1.</b>	<b>Civil Works</b>			
a.	Power Channel (RD 0-108) and miscellaneous civil works	Civil Works	LCB	0.180

**C. 2.0 MW Kundal Shahi Power Station**

**1. Civil Works**

a.	Miscellaneous Works and Residential Quarters	Civil Works	LCB	0.200
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**D. 132 KV Jagran-Muzaffarabad Transmission Line and Jagran Power Station**

**1. Electro-mechanical works only**

a.	Procurement of damaged T/L and substation equipment including power station equipment and T/P	Supply	LCB	0.650
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**E. Procurement of 2 Vehicles for supervisory staff**

a.	Purchase of Vehicles	Supply	LCB	0.080
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**Total 11 1.730**

**Note**

- (i) Tentative contract package list above is based on the information provided by the IAs.
- (ii) Contract packages need to be finalized in accordance with the selection of subprojects.
- (iii) Contract type for T&D subprojects (Supply or Turnkey) should be determined considering the IA's capacity for implementation
- (iv) Mode of procurement should be determined in accordance with the financing agreement and the RRP document.
- (v) Number of contract packages of each item should be determined considering the implementation schedule, geographic conditions, economic and efficiency of procurement, etc.
- (vi) Packages are numbers are a, b, c ...

## TENTATIVE CONTRACT PACKAGE LIST (SHYDO)

Contract No.	Item Description	Contract Type	Mode of Procurement	Estimated Contract Value (\$ million)
<b>B. Transmission &amp; Distribution</b>				
<b>1.</b>	<b>Rehabilitation of Power Channels</b>			
a.	Jalkot HPP	Civil Work	LCB	0.036
b.	Dubair HPP	Civil Work	LCB	0.005
c.	Karora HPP	Civil Work	LCB	0.006
d.	Kaghan HPP and Operational/Staff Quarters	Civil Work	LCB	0.040
<b>2.</b>	<b>Access Road</b>			
a.	Jalkot HPP	Civil Works	LCB	0.003
b.	Keyal HPP	Civil Works	LCB	0.007
<b>3.</b>	<b>E &amp; M / T &amp; D System</b>			
a.	Jalkot HPP & Keyal HPP	Electrical Works	LCB	0.030
b.	Dubair HPP, Karora HPP, Kaghan HPP	Electrical Works	LCB	0.060
<b>4.</b>	<b>Equipment</b>			
a.	Diesel Generating Sets 125 kVA	Supply	LCB	0.073
b.	Vehicles (Cross Country)	Supply	LCB	0.098
c.	Vehicles (Trucks)	Supply	LCB	0.050
	Price Escalation & Contingencies			0.041
	<b>Total</b>			<b>0.446</b>

## Note

- (i) Tentative contract package list above is based on the information provided by the IAs.
- (ii) Contract packages need to be finalized in accordance with the selection of subprojects.
- (iii) Contract type for T&D subprojects (Supply or Turnkey) should be determined considering the IA's capacity for implementation
- (iv) Mode of procurement should be determined in accordance with the financing agreement and the RRP document.
- (v) Number of contract packages of each item should be determined considering the implementation schedule, geographic conditions, economic and efficiency of procurement, etc.

## TENTATIVE CONTRACT PACKAGE AND SCOPE (IESCO)

Contract No.	Item Description	Contract Type	Mode of Procurement	Estimated Contract Value (Rs million)
<b>A. Rehabilitation Of Grid Station</b>				
1	Rehabilitation of 132kV Substation Rawalakot Grid Station AJK	Works	LCB	16.12
2	Rehabilitation of 33 kV Substation	Works	LCB	15.16
3	Rehabilitation of 33 kV Substation	Works	LCB	15.16
4	Shelter Houses Grid Station	Works	LCB	0.77
<b>B. Provision of Electricity to Grid Stations and Camps</b>				
<b>Creation of Tent Villages</b>				
1	Installation of 7 Distribution Transformers	Supply	IS	9.25
2	HT Lines	Supply	LCB	2.25
3	LT lines	Supply	IS	13.20
4	Meters	Supply	LCB	1.20
5	Services, installation and testing	Works	LCB	4.60
<b>C. Damaged Equipment in Bagh and Rawalakot and new emergency equipment</b>				
1	(Auto Recloser , CTs, Panels, Batteries Relay Panels, LA, etc.)	Supply	LCB	3.31
2	Mobile generators	Supply	IS	19.80
3	Installation	Works	LCB	0.78
<b>Total (Packages)</b>				<b>101.60</b>
<b>D. Additional Scope</b>				
Supply of Electricity to Tent Villages				63.70
Contingencies				1.00
<b>Total Scope</b>				<b>166.27</b>

**Note**

- (i) Tentative contract package list above is based on the information provided by the IAs.
- (ii) Contract packages need to be finalized in accordance with the selection of subprojects.
- (iii) Contract type for T&D subprojects (Supply or Turnkey) should be determined considering the IA's capacity for implementation
- (iv) Mode of procurement should be determined in accordance with the financing agreement and the RRP document.
- (v) Number of contract packages of each item should be determined considering the implementation schedule, geographic conditions, economic and efficiency of procurement, etc.

## TENTATIVE CONTRACT PACKAGE LIST (PESCO)

Contract No.	Item Description	Contract Type	Mode of Procurement	Estimated Contract Value (\$ million)
<b>E. Transmission &amp; Distribution</b>				
1	132 KV & 33 KV Transmission Line	Supply	LCB	0.383
2	Testing Equipments	Works	LCB	0.277
3	132 KV & 33 KV Grid Station Equipment (NWFP)	Supply	LCB	0.473
4	132 KV & 33 KV Grid Station Equipment (AJK)	Supply	LCB	0.842
5	Sub Stations / Offices / Residential / Stores Buildings	Civil Work	LCB	2.510
6	HT Structures	Supply	LCB	0.871
7	LT Structures	Supply	LCB	0.872
8	Accessories for HT Poles	Supply	LCB	0.309
9	Accessories for LT Poles	Supply	LCB	0.342
10	HT Conductor	Supply	LCB	0.772
11	LT Conductor	Supply	LCB	0.600
12	Accessories for HT Conductor	Supply	LCB	0.277
13	Accessories for HT Conductor	Supply	LCB	0.208
14	Insulators and Accessories	Supply	LCB	0.166
15	11/0.4 KV Distribution Transformers (200 KVA, 100 KVA, 50 KVA & 25 KVA)	Supply	LCB	0.781
16	Meters for domestic connections	Supply	LCB	0.998
17	Metering Arrangements for Bulk Supply	Supply	LCB	0.167
18	Installation Contracts	Works	LCB	2.505
19	Vehicles & Office T&P	Supply	LCB	0.200
	<b>Total</b>			<b>13.553</b>

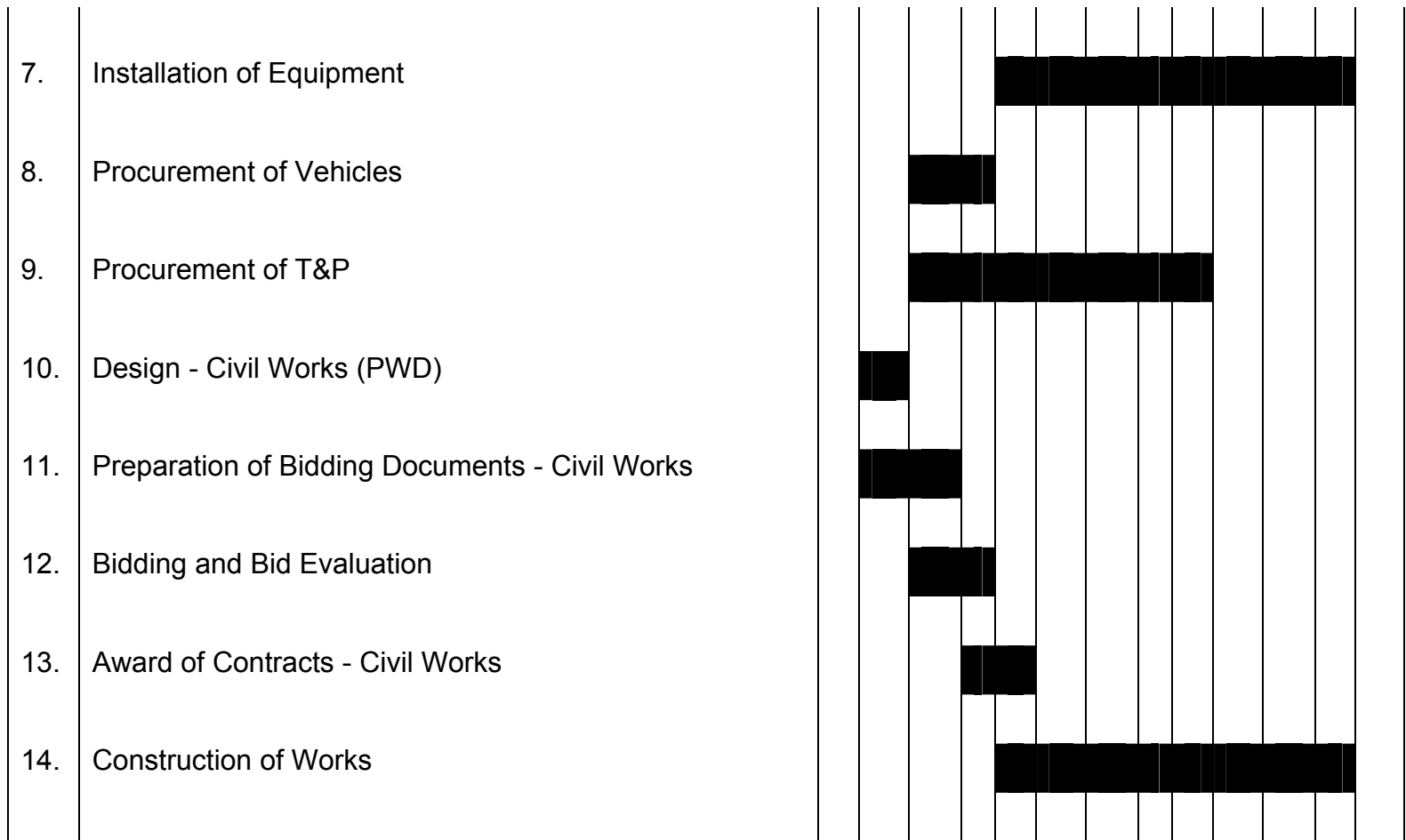
## Note

- (vi) Tentative contract package list above is based on the information provided by the IAs.

- (vii) Contract packages need to be finalized in accordance with the selection of subprojects.
- (viii) Contract type for T&D subprojects (Supply or Turnkey) should be determined considering the IA's capacity for implementation
- (ix) Mode of procurement should be determined in accordance with the financing agreement and the RRP document.
- (x) Number of contract packages of each item should be determined considering the implementation schedule, geographic conditions, economic and efficiency of procurement, etc.











## IMPLEMENTATION SCHEDULE PESCO COMPONENT

## IMPLEMENTATION SCHEDULE

## PESCO COMPONENT

No.	Activity	2006			2007				2008				2009	
		II	III	IV	I	II	III	IV	I	II	III	IV	I	II
1.	Approval of PC-1	■												
3.	Opening of Account	■												
3.	Preparation of Bidding Documents - Works	■	■	■	■			■						
10.	Award of Contracts - Works	■	■	■	■			■						
11.	Construction		■	■	■	■	■	■	■	■	■			
12.	Preparation of Bidding Documents - Goods	■	■	■	■									
13.	Award of Contracts - Goods (Equipment)		■	■	■									
14.	Supply and Installation of Equipment			■	■	■	■	■						

## IMPLEMENTATION SCHEDULE IESCO COMPONENT

## IMPLEMENTATION SCHEDULE

## IESCO COMPONENT

No.	Activity	2006			2007				2008				2009	
		II	III	IV	I	II	III	IV	I	II	III	IV	I	II
1.	Approval of PC-1	■												
3.	Opening of Account	■												
3.	Preparation of Bidding Documents - Civil Works	■												
10.	Award of Contracts - Civil Works	■	■											
11.	Construction		■	■	■	■	■							
12.	Preparation of Bidding Documents – Goods	■	■	■										
13.	Award of Contracts - Goods (Equipment)		■	■	■									
14.	Supply and Installation of Equipment			■	■	■	■							

## TERMS OF REFERENCE FOR CONSULTING SERVICES

### For Design and Construction Supervision for Project Power Sector Components

#### AJK Electricity Department

##### I. Introduction

1. About 42 person-months of domestic consulting services will be required to assist AJKED in implementation of the power sector component.

The consulting services will:

- (i) assist the AJKED with detailed assessment of earthquake related damage
- (ii) assist the AJKED to prepare the subproject proposals to ensure that the subprojects will meet the criteria and design requirements of the system;
- (iii) assist with preparation of designs, specifications, and bid packages for power supply systems or parts thereof taking into consideration all disaster mitigating factors, including documentation and contracts in accordance with ADB requirements;
- (iv) assist the AJKED in evaluating bids;
- (v) assist in the supervision of construction, installation, commissioning of power system subprojects; and
- (vi) Assist with testing and quality control during the reconstruction.

2. The consultants will be accommodated in AJKED main office in Muzaffarabad, headed by a full time Resident Engineer. The AJKED PIU will be responsible for (i) coordinating detailed engineering to be carried out by the

consultant's, (ii) design reviews/updates, and (iii) overall coordination during supervision of works. Consultant's site offices will be established in AJKED local offices as appropriate and shall be responsible for day-to-day implementation and testing of contracts.

II. Summery Terms of Reference (TOR) of Key Consultants

a. Resident Engineer/Team Leader (30 person-months)

3. Will be responsible for overall implementation of the AJKED power Component, maintain close liaison and guidance AJKED, coordinate with other sectors (particularly PWD), the on-going power component of Loan No. 2153 PAK (SF) and Project management at the PMU level, and lead the power sector planning and implementation exercise for supply and installation of material and equipment worth about \$20 million. The main task of the team leader would be to guide the supervisory staff for construction management and monitoring, including preparation of monthly and quarterly progress reports. The detailed terms of reference include:

4. The power sector component will be executed by AJKED under the FIDIC Conditions of Contract, as outlined in the bid documents, as Employers. Accordingly, the Project Director will function as the Engineer, and the consultants will be the employer's representative. The consultants' responsibilities will include:

- (i) approving installation work program, method statements, material and equipment sources, etc;
- (ii) preparing and issuing reports as defined subsequently;
- (iii) reviewing the setting out of the supplies and works, and instructing the contractor/supplier;
- (iv) pre-shipment and post installation testing of the equipment;
- (v) maintaining records, correspondence, and diaries;
- (vi) certifying work and supply volume and recommending interim certificates for progress payments;



- (vii) maintaining consolidated project accounts, and preparing of financial statements and withdrawal applications for submission to the ADB;
- (viii) certifying completion of part or all of the works/supplies;
- (ix) inspecting the works/equipment at appropriate intervals during installation and operation in the defects liability period and issuing the defects liability certificate;
- (x) processing the suppliers and contractor's possible claims;
- (xi) providing the employer with complete records and reports, and reviewing the as -built drawings for the works
- (xii) Compile a Project completion report providing details of Project implementation, problems encountered, and solutions adopted, and detailing and explaining any variation in Project costs and implementation schedules from the original estimates.

**b. Planning and Design Engineers (12 person-months: 2 persons)**

5. The consultants will review the existing engineering design of the system and specifications and recommend parameters and specification of equipment and parts to be replaced for rehabilitation and improvement of the system performance where relevant. Review and provide specification of the equipment to be procurement, and ensure that these are appropriately reflected in the tender documents without prejudice and undue advantage to any supplier.

**c. Procurement Specialists (6 person-months)**

6. Develop procurement plans. Assist in pre/post qualification of contractors. Prepare bidding documents based on ADB guidelines and practices in other ADB assisted projects with appropriate contract packages taking into account the location of the facilities and size of contract, suitable for LCB/ICB among qualified contractors/suppliers with varying implementation

capability and/or capacity. Assist AJKED and PIU in inviting and evaluating bids and awarding of contracts, for both works and goods. Regarding the procurement of Goods, review the existing requirements for the equipments urgently needed for the power system meeting project selection criteria. Ensure that the equipment is compatible with existing equipment, uses appropriate technology, and can be supported with existing operation and maintenance resources. Prepare appropriate contract packages, suitable for ICB/LCB/IS among qualified supplier with varying implementation capability and/or capacity. In case of procurement of Goods ensure adequate warranty period to be offered by the supplier of Goods. Monitor procurement schedules including work and supply contracts. Arrange and coordinate shipment of deliveries, maintain records and files of all procurements.

### Cost Estimates-Scope of AJK Hydro Electric Board

#### AJK HYDRO ELECTRIC BOARD

#### Cost Estimates-Scope

No.	Description	Qty	(million)	
			Estimated Cost (Rs)	(US\$)
<b>A.</b>	<b>Rehabilitation of Power Stations</b>			
1.	1.6 MW Kathai Power Station			
	a. Diversion Weir		0.326	0.005
	b. Intake, Head Regulator and Spill Weir		3.337	0.056
	c. Water Channel	20.145	0.336	
	d. Channel Bridge		0.563	0.009
	e. Fore bay		3.774	0.063
	f. Penstock Pipe		0.039	0.001
	g. Power House		3.099	0.052
	h. Tail Race		0.309	0.005
	I. Access Road		1.180	0.020
	j. Residential Buildings		3.325	0.055
2.	1.6 MW Leepa Power Station			
	a. Diversion Weir		-	-
	b. Intake, Head Regulator and Spill Weir		1.199	0.020
	c. Water Channel		8.569	0.143
	d. Channel Bridge		-	-
	e. Fore bay		0.078	0.001
	f. Penstock Pipe		-	-
	g. Power House		0.032	0.001
	h. Tail Race		-	-

	i. Access Road	0.265	0.004
	j. Residential Buildings	0.712	0.012
3.	2 MW Kundal Shahi Power Station		
	a. Diversion Weir	0.043	0.001
	b. Intake, Head Regulator and Spill Weir	1.155	0.019
	c. Water Channel	9.281	0.155
	d. Channel Bridge	-	-
	e. Fore bay	0.078	0.001
	f. Penstock Pipe	-	-
	g. Power House	0.050	0.001
	h. Tail Race	-	-
	i. Access Road	0.671	0.011
	j. Residential Buildings	0.570	0.010
	<b>Sub-Total Civil Works</b>	<b>58.800</b>	<b>0.980</b>
<b>B.</b>	<b>Power Station Equipment</b>		
1.	Kathai Power Station	2.019	0.034
2.	Jagran Power Station	7.000	0.117
3.	Jagran-Muzaffarabad T/L & Sub station	28.000	0.467
4.	Vehicles (2)	5.000	0.083
5.	Miscellaneous Stores	4.000	0.067
	<b>Sub-Total Equipment</b>	<b>46.019</b>	<b>0.767</b>
<hr/>			
	<b>Total</b>	<b>104.819</b>	<b>1.747</b>
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**Cost estimates of AJK Electricity Department**

**AJK ELECTRICITY DEPARTMENT  
Cost Estimates**

No.	Description	Unit	Quantity	(Million)	
				Estimated Cost (Rs)	Estimated Cost (US\$)
<b>A. Power Infrastructure</b>					
1.	Preliminary Works			0.050	0.001
2.	Civil Works	sq.ft.	103,334	102.395	1.707
3.	Service Connections	Nos	77,284	171.504	2.858
4.	11 KV Lines	km	170	72.317	1.205
5.	0.4 KV Lines	km	247	79.184	1.320
6.	T/F substations	Nos	928	131.392	2.190
	<b>Sub-Total A</b>			<b>556.842</b>	<b>9.281</b>
<b>B. Electrification of Tent Villages</b>					
		<b>Nos</b>	<b>23</b>		
1.	Service Connections	Nos	6,900	14.997	0.250
2.	11 KV Lines	km	23	8.990	
3.	0.4 KV Lines	km	46	16.209	0.270
4.	T/F substations	Nos	48	9.616	0.160
	<b>Sub-Total B</b>			<b>49.812</b>	<b>0.830</b>
<b>C. Electrification of Field Hospitals</b>					
		<b>Nos</b>	<b>12</b>		
1.	Service Connections	Nos	0	-	-
2.	11 KV Lines	km	6	2.345	0.039
3.	0.4 KV Lines	km	9	3.171	0.053

4.	T/F substations	Nos	27	5.377	0.090
	<b>Sub-Total C</b>			<b>10.893</b>	<b>0.182</b>
<b>D.</b>	<b>Equipment, Supplies, and Vehicles</b>				
1.	Vehicles	Nos	9	28.200	0.470
2.	Motorcycles	Nos	20	1.440	0.024
3.	T&P (Installation Equipment)	Lumpsum		5.062	0.084
	<b>Sub-Total D</b>			<b>34.702</b>	<b>0.578</b>
<b>E.</b>	<b>Escalation/Contingencies</b>			<b>80.887</b>	<b>1.348</b>
<b>F.</b>	<b>Incremental Staff Costs</b>			<b>36.714</b>	<b>0.612</b>
<b>G.</b>	<b>Consulting Services</b>			<b>15.000</b>	<b>0.250</b>
<b>H.</b>	<b>Operational Costs</b>			<b>7.200</b>	<b>0.120</b>
<b>I.</b>	<b>Relief to Tent Villages</b>			<b>120.000</b>	<b>2.000</b>
<b>Total</b>				<b>912.050</b>	<b>15.201</b>

**Consultancy requirement of AJK Electricity Department**  
**CONSULTING SERVICES**  
**AJK Electricity Sector**

No.	Description	Person- months	Cost	
			Rate (Rs. Mill.)	Total Rs US\$
<b>A. Remuneration</b>				
<b>AJK ED</b>				
1.	Construction Supervisor /Resident Engineer	30	0.120	3.600 0.060
2.	Design Engineer / electrical / mechanical (2)	12	0.120	1.440 0.024
3.	Procurement Specialist	6	0.110	0.660 0.011
	<b>sub-total Remunerations</b>			<b>5.700 0.095</b>
<b>B. Out of Pocket Expenses</b>				
<b>Technical Support Staff</b>				
1.	Inspector (6)	180	0.025	4.500 0.075
<b>Administrative Support Staff</b>				
1.	Accounts/Admin etc	32	0.025	0.800 0.013
2.	Drivers and others	72	0.009	0.648 0.011
3.	Communications cost	36	0.005	0.180 0.003
4.	Mobilization & Demobilization	Lumpsum		0.050 0.001
<b>Vehicles/Equipment</b>				
1.	Computers with Printers	2	0.050	0.100 0.002
2.	Other equipment	1	0.100	0.100 0.002
<b>Others</b>				
1.	POL	<b>210</b>	<b>0.004</b>	0.840 0.014
2.	Perdiem/travel	1	0.500	0.500 0.008
4.	<b>Operational Cost</b>	<b>36</b>	<b>0.035</b>	1.260 0.021
	<b>Sub-total OPE</b>			<b>8.978 0.150</b>
	<b>GRAND TOTAL</b>			<b>14.678 0.245</b>

**Cost estimates and scope of SHYDO**

**SARHAD HYDRO DEVELOPMENT ORGANIZATION (SHYDO)**

**Cost Estimates – Scope**

No.	Description	Contract Type	Est Value (Rs) (\$ million)
<b>Rehabilitation of Power</b>			
<b>A. Channel</b>			
1.	Jalkot Hydel Power Plant	Civil Works	0.036
2.	Dubair Hydel Power Plant	Civil Works	0.005
3.	Karora Hydel Power Plant	Civil Works	0.006
4.	Kaghan Hydel Power Plant	Civil Works	0.033
<b>B. Access Road</b>			
1.	Jalkot Hydel Power Plant	Civil Works	0.003
2.	Keyal Hydel Power Plant	Civil Works	0.007
<b>Buildings (Operation and Staff Quarters)</b>			
<b>C. Quarters)</b>			
1.	Kaghan Hydel Power Plant	Civil Works	0.007
<b>Electrical &amp; Mechanical Works/Transmission &amp; Distribution System</b>			
<b>D. Distribution System</b>			
1.	Jalkot Hydel Power Plant	Elect. Works	0.012
2.	Keyal Hydel Power Plant	Elect. Works	0.016
3.	Dubair Hydel Power Plant	Elect. Works	0.020
4.	Karora Hydel Power Plant	Elect. Works	0.011
5.	Kaghan Hydel Power Plant	Elect. Works	0.027
<b>E. Equipment &amp; Vehicles</b>			
1.	Diesel Generating Sets 125 KVA	Goods	0.073
2.	Vehicles	Goods	0.148
			0.221
<b>F. Price Escalation</b>			<b>0.041</b>
<b>Total</b>			<b>0.445</b>



**Cost estimates and scope of IESCO**  
**Islamabad Electric Supply Corporation (IESCO)**

**Cost Estimates – Scope**

No.	Description	Quantity	Estimated Cost (million)	
			(Rs)	(US\$)
<b>A. Rehabilitation of Grid Stations</b>				
1.	132 KV Grid Station, Rawalakot			
	a. Staff Quarters	10	10.960	0.183
	b. Control Room	1	5.160	0.086
2.	33 KV Grid Station, Bagh			
	a. Staff Quarters	9	10.000	0.167
	b. Control Room	1	5.160	0.086
3.	33 KV Grid Station, Hajira			
	a. Staff Quarters	9	10.000	0.167
	b. Control Room	1	5.160	0.086
	Temporary Shelter Houses -		0.770	0.013
4.	Grid Staff			
<b>B. Relief to Tent Villages</b>				
1.	Creation of Tent Villages	5	30.450	0.508
2.	Electricity Relief to Tent Villages	12	63.720	1.062
<b>C. Equipment</b>				
1.	Procurement of Equipment		4.090	0.068
2.	Procurement of Generating Sets	6	20.800	0.347
<b>Total</b>			<b>166.270</b>	<b>2.771</b>

### Cost estimates and scope of PESCO

#### Peshawar Electric Supply Corporation (PESCO)

##### Costs estimates and Scope

No.	Description	Estimated Cost (In million)	
		(Rs)	(US\$)
1.	132 KV & 33 KV Transmission Line	23.000	0.383
2.	Testing Equipment	16.600	0.277
3.	132 KV & 33 KV Grid Equipment - NWFP	28.400	0.473
4.	132 KV & 33 KV Grid Equipment - AJ&K	50.500	0.842
5.	Sub-stations/Office/Res. Buildings (Multiple)	150.740	2.512
6.	H.T. Structures	52.250	0.871
7.	L.T. Structures	52.325	0.872
8.	Accessories for H.T. Poles	18.530	0.309
9.	Accessories for L.T. Poles	20.535	0.342
10.	H.T. Conductors	46.335	0.772
11.	L.T. Conductors	36.000	0.600
12.	Accessories for H.T. Conductor	16.625	0.277
13.	Accessories for L.T. Conductor	12.460	0.208
14.	Insulators & Accessories	9.975	0.166
15.	11/0.4 KV Distribution Transformers	46.835	0.781
16.	Metering for Domestic Connections	59.910	0.999
17.	Metering for Bulk Supply	10.046	0.167
18.	Supply & Installation of Equipment	150.311	2.505
19.	Vehicles, and Office Equipment	12.000	0.200
20.	Creation of & Relief to Tent Villages	390.000	6.500
<b>Total</b>		<b>1,203.377</b>	<b>20.056</b>