



Pakistan Earthquake Reconstruction & Rehabilitation Authority

www.erra.gov.pk

Epicenter
8 October 2005
Magnitude: 7.6





NWFP

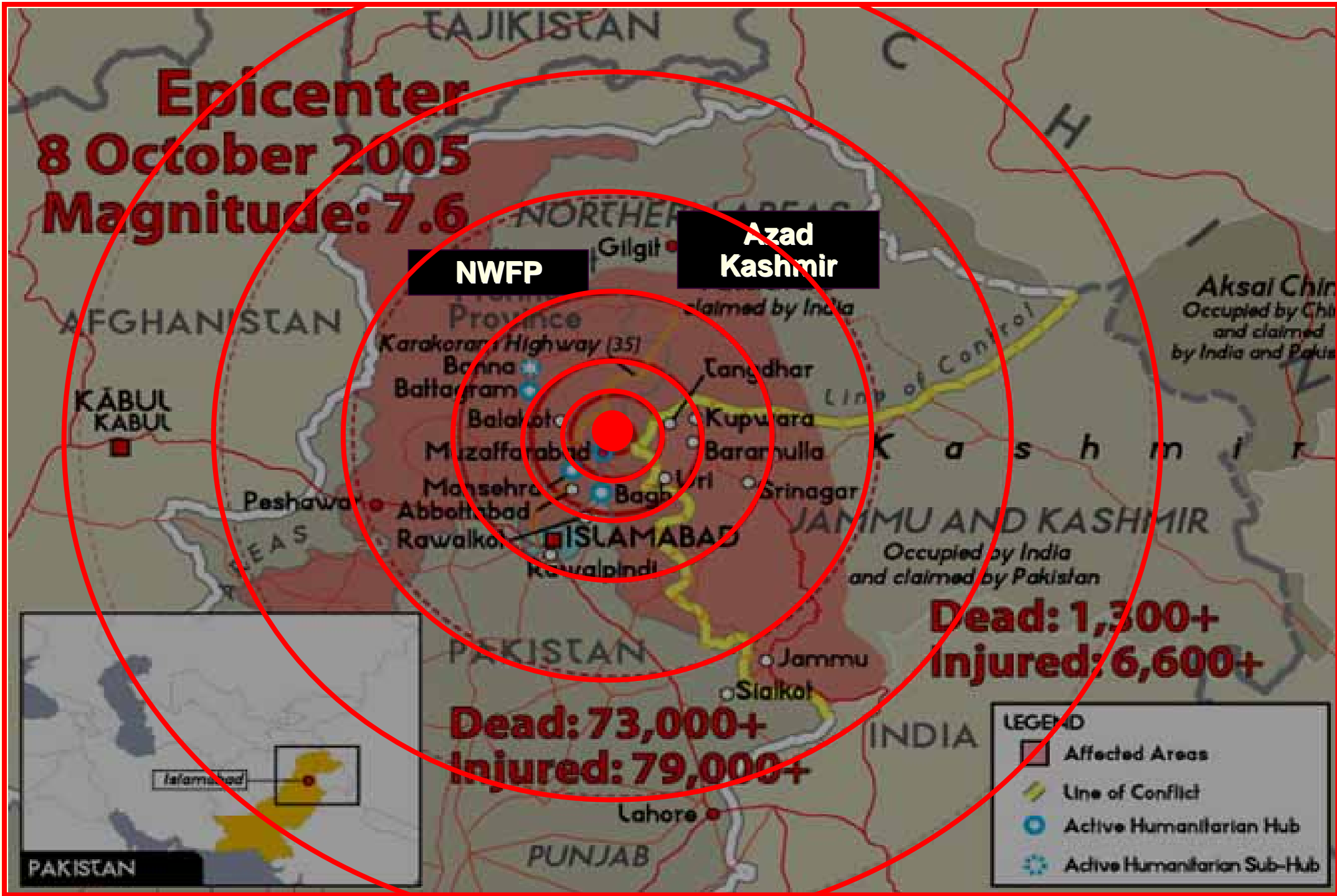
Azad Kashmir

Dead: 1,300+
Injured: 6,600+

Dead: 73,000+
Injured: 79,000+

LEGEND

-  Affected Areas
-  Line of Conflict
-  Active Humanitarian Hub
-  Active Humanitarian Sub-Hub





Losses / Damages of Earthquake – 8 October 2005

Build Back Better

- **Deaths** : **73,338**
- **Injured** : **128,304**
- **Population affected** : **3.5 Million**
- **Area Affected** : **30,000 Sq KM**
- **Edn institutions destroyed** : **6298**
- **Health units destroyed** : **796**
- **Houses destroyed** : **600,000**
- **Roads damaged** : **6440 km**
- **Services, Telecom, Power,** : **50-70%**

WATSAN



RESPONSE - AREAS OF FOCUS

IMMEDIATE

- Rescue and relief operations
- Maintenance / restoration of infrastructure

SHORT TERM

- Sustaining population and displaced persons
- Revival - civil administration & essential services

MID TERM

- Early Recovery

LONG TERM

- Reconstruction and Rehabilitation



Relief Provided

- Temp shelters : 385,000
- Tents provided : 950,424
- Blankets / quilts : 62,95,603
- Ration (tons) : 255,973
- Medicines (tons) : 3053.8
- Field hospitals estb : 65
- Field /mob med teams: 86
- Hel Sorties Flown : 31,126



Where do we stand today

- Over 99% people have a housing solution
- US \$ 2.04 Billion have been disbursed so far
- All schools, hospitals, banks and offices are functional
- Roads & services are operational and markets are back in business
- Dynamic social protection program under implementation

スライド 6

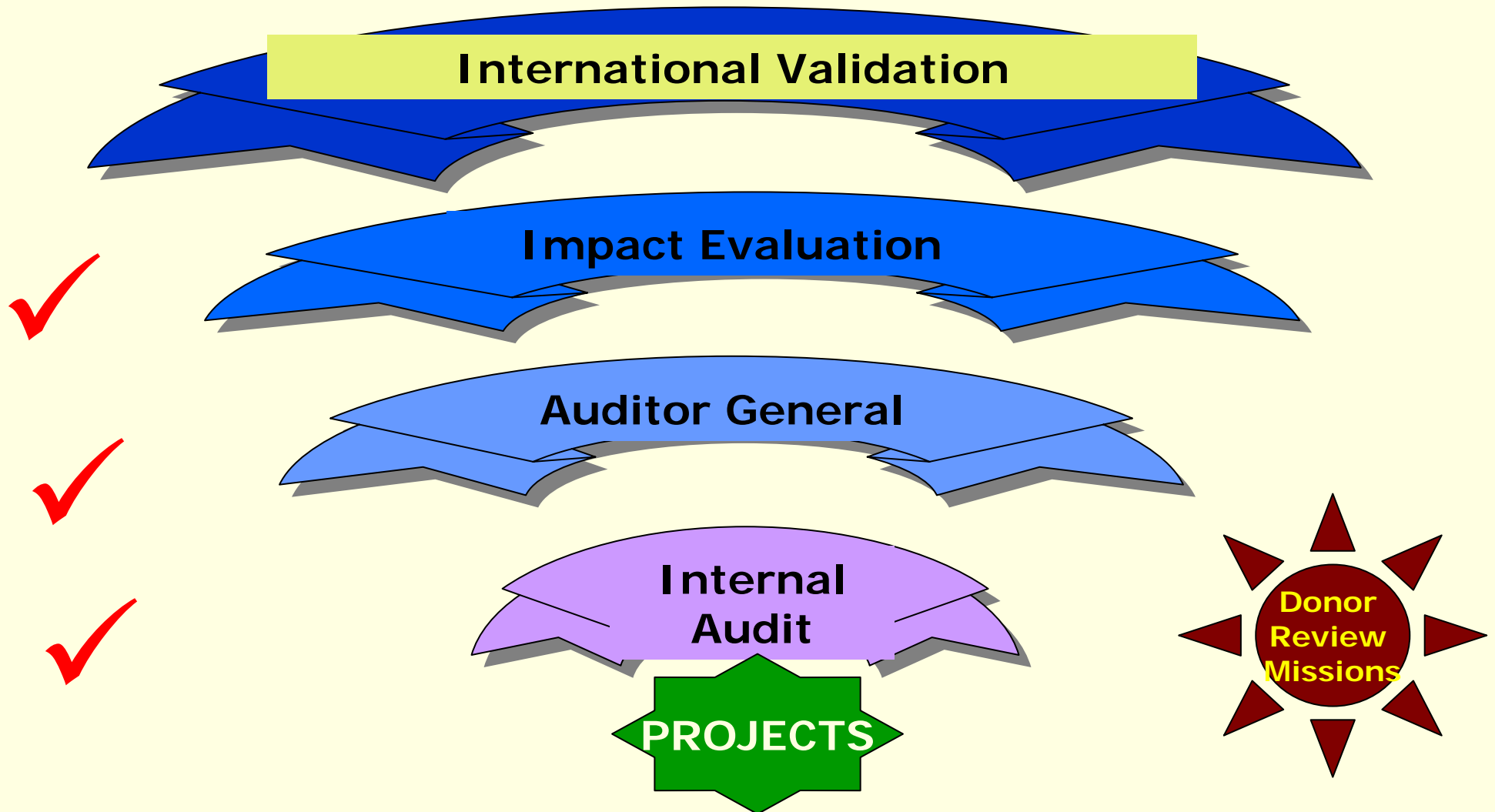
a2	Rural Housing	55.55	
	Urban Housing	2	
	Livelihood		5
	Relief	23	
		85.55	

ashiq, 2008/04/25



Transparency

Build Back Better



Sectoral Approach

- **Hardware**

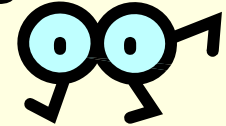
- Housing
- Education
- Health
- Water And Sanitation
- Government sector buildings
- Power
- Telecommunication
- Transportation

- **Software**

- Livelihood
- Social Protection
- Environment
- Tourism

- **Crosscutting Themes**

- Risk reduction



- Gender equality



- Environmental safeguards



ERRA's Strategy for Environmental Protection



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



Environment

- Total projects 46
- Planning Stage 14
- Under Implementation 31
- Completed 01



Intervention Under Environment Sector

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- ✓ Natural Resources Management
- ✓ Environmental Safeguards
- ✓ Reconstruction of Infrastructure
- ✓ NGOs Partnership



Integrated Approach for Recovery

- **Slope stabilization measures**
- **Soil conservation and erosion control measures**
- **Range / pasture management**
- **Forest management**
- **Plantations**
- **Agriculture / crops improvement**
- **Water harvesting techniques**
- **Fuel substitution**
- **Capacity building**

- Most of the earthquake affected areas fall in the Jehlum and Kunhar watersheds constituting the major fresh water source of Mangla Reservoir;
- These watersheds are the base of livelihood for millions

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The natural forests of these watersheds are being converted to other land uses with an annual rate of 2% (FAO, 2005);



Due to improper terraces, leveling and unsustainable cultivation practices, 90% of the Agricultural land these areas produce sediments that are deposited in the Mangla reservoir;



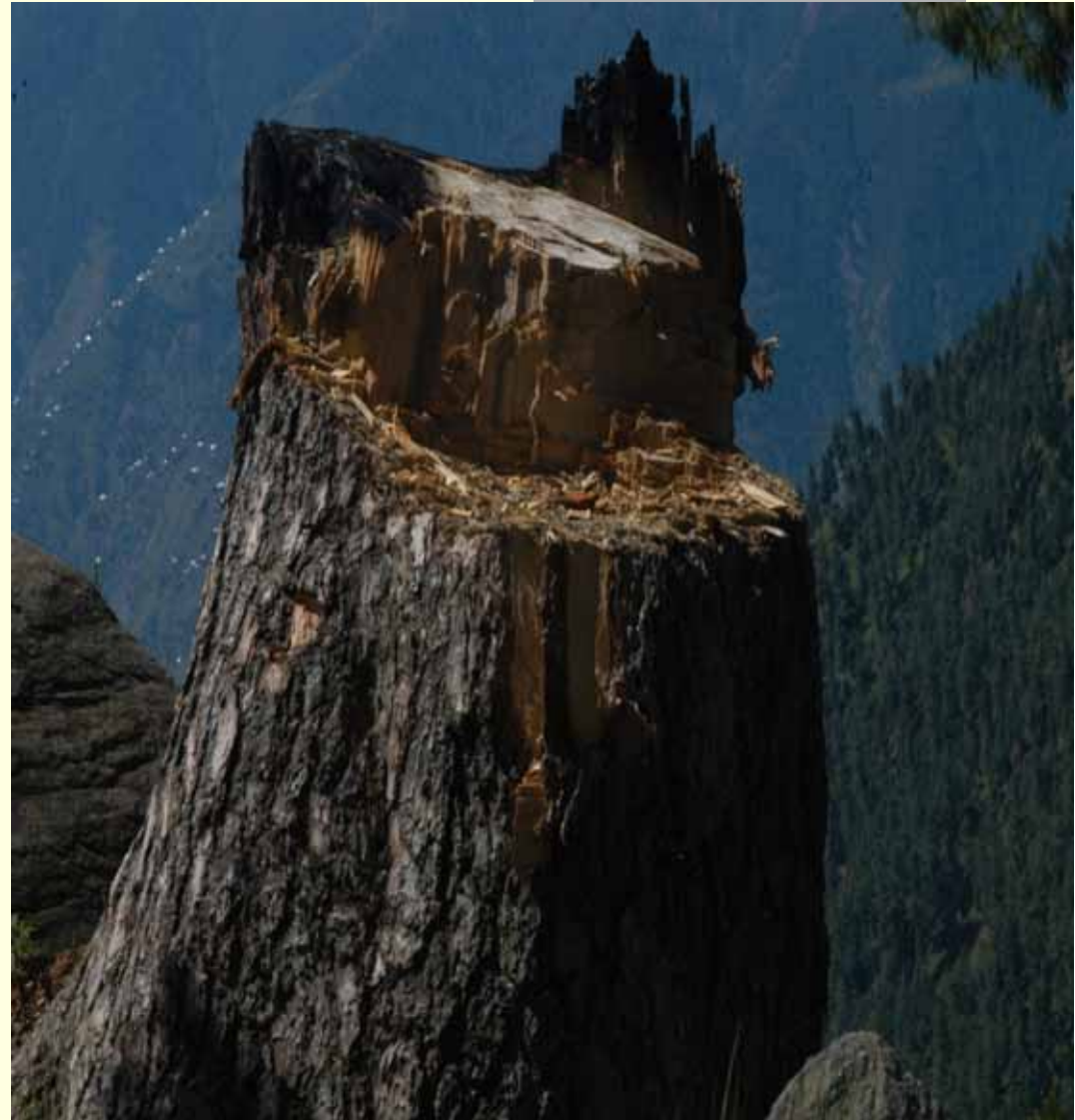
Build Back Better

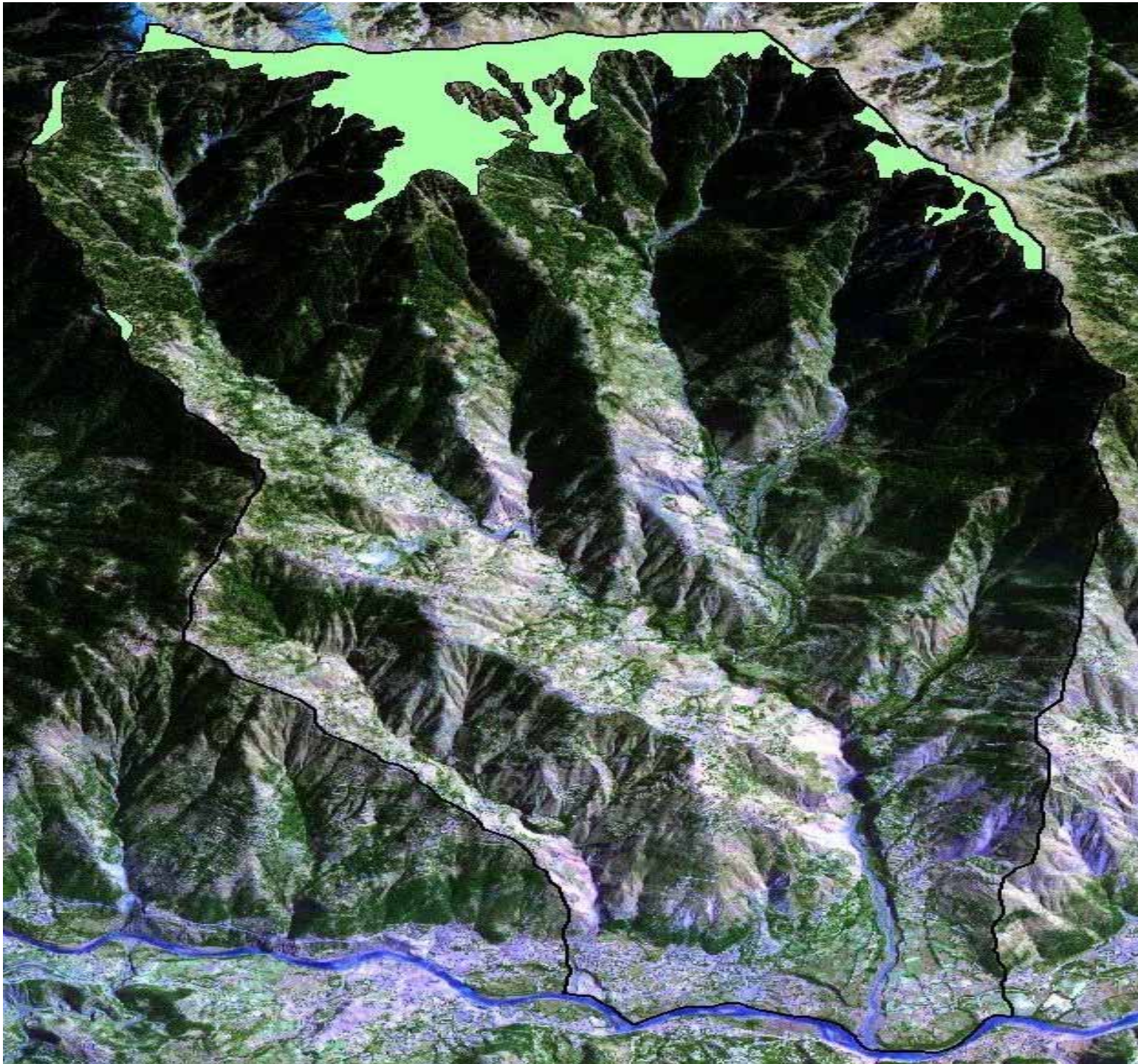


- The earthquake triggered 1200 Landslides
- It affected 0.17 million ha of forest land due to landslides, uprooting of trees and shaking of root system



- **It** created heavy pressure on timber cutting for reconstruction of houses





Issues

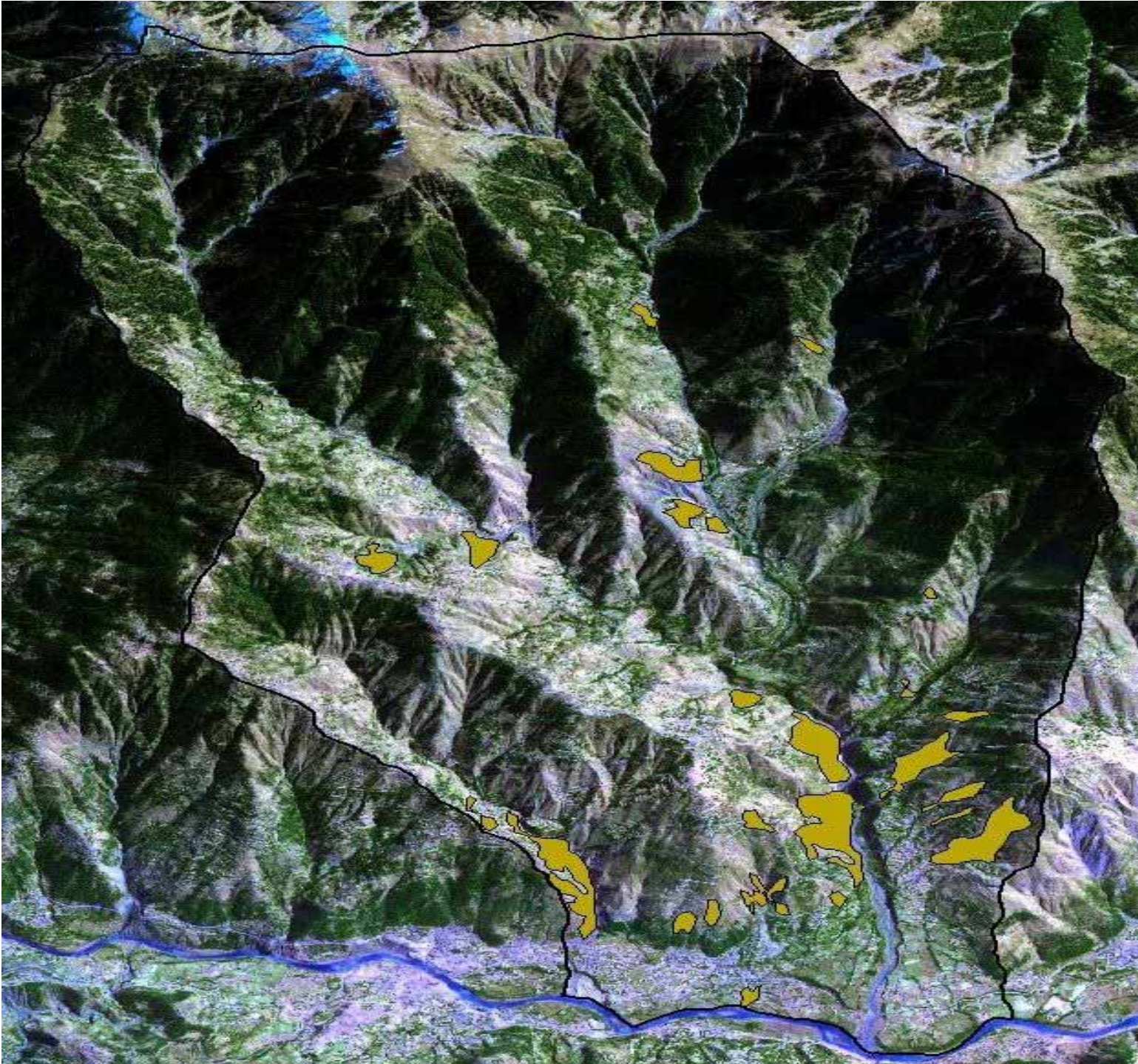


- **Unsustainable exploitation / over harvesting of medicinal plants**
- **Soil erosion along the nullahs**
- **Timber and fuel wood cutting**
- **Uncontrolled grazing**
- **Encroachment for agriculture and settlements**
- **Land slides on deforested sites**



Landslides:

- Mainly in the area with no or less tree cover i.e. range/ waste land, settlement area, agricultural land and new plantations



Other Challenges



- Refused road construction material was observed on the shoulders of the roads at different places. This material consisted of concrete, sand and tar coal. **(Siltation, Soil Contamination)**
- At few places refused construction material was put into the nearby agricultural fields. **(Water & soil Contamination)**
- Machinery installation sites near the road. **(Air pollution SPM)**
- Non compliance at places contrary to Environmental Impact Assessment / Initial Environmental Examination **(degradation)**

Slope Stabilization Measures

- Three types of measures are being used;
 - Engineering
 - Bio-engineering
 - Biological

- Main features of slope stabilization measures;
 - More effective
 - Cost effective
 - Easily adoptable
 - Availability of raw material and skills
 - Environment friendly

Brush wood retaining wall

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Live brush wood check dam

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Vegetated Timber crib wall



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Palisade



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On the job training-learning by doing



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Slope Stabilization - Kohala Landslide - Before Treatment



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Kohala Landslide - Newly treated

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Kohala Landslide - After treatment



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Forest Rehabilitation



Aforestation Projects in 5 Forest Divisions

➤ Purchase of Plants

389585 samplings purchased

➤ Plantation

1500 Acres Have been replanted.

➤ Nursery Raising

27 Acres with bare Root & Containerised

➤ Community Livelihood

180 persons were involved from Volunteer Organizations

Nursery Raising for August 08 Plantation Popular Economic Crop





Green Sector (Forest)



North West Frontier Province

Area damaged	290,819 Acres
No. of Projects	6
Cost	Rs. 306.19 million

Azad Jammu & Kashmir

Area damaged	374,751 Acres
No. of Projects	6
Cost	Rs. 324.5 million

Reconstruction of Infrastructure (Forest, Wildlife & Fisheries)



Azad Jammu & Kashmir

Facilities to be construct	118
Cost	Rs. 1109.10 million

North West Frontier Province

Facilities to be construct	345
Cost	Rs. 649.30 million



REPATRIATION OF IDPs

STATE OF CAMPS AND IDPs

	Total	Repatriated	Balance
CAMPS	48	46	2
IDPs	29048	28846	202

Rubble Removal



Muzaffarabad Project (Rs. 409.26 m)

- 4.6 mcf rubble removed out of 6.38 mcf
- Expenditure Rs. 220.79 million



Bagh Project (Rs. 92.425 m)

- Approximately 3.77 mcf rubble removed
- Expenditure Rs. 32.00 million



Rubble Recycling



- Manufacturing of concrete Blocks from recycled material with 1300-1600 psi strength.
- Blocks being used for reconstruction.





NGOs and Community Partnership

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S	Name	Location	Donor	Cost Rs. (M)
1	Agro forestry by community participation (food for work) project in NWFP and AJ&K to repair bridal paths and terraces, nursery raising and provision of fruit saplings.	AJK & NWFP	WFP	625.00
2	Community environment and sanitation promotion project under implementation in 25 villages of District Mansehra	Mansehr	CWS	63.00
3	Watershed management through community participation in Kohistan, Shangla and Neelum Valley	Kohistan Shangla & Neelum	CIDA	160.00
4	Reforestation and strengthening of JFMCs in Allai	Allai	Save The Children	100.00
5	Environmental Awareness Programme		CARE	60.00
			Total	1,008.00

Environmental Safeguards



Environmental Assessment

	No. of Projects	NOC issued	Remarks
AJK	10	7	Environmental Impact Assessment / Initial Environmental Examination studies has been completed for 10 projects of different sectors and submitted to Environmental Protection Agency (EPA) NWFP. NOC for 7 project has been issued and remaining are under review with EPA
NWFP	17	6	EIA/IEE study has been completed for 17 project of different sectors and submitted to EPA NWFP. NOC for 3 project has been issued and remaining are under review with EPA

Environment - Cross Cutting in Major Sectors



- Roads Reconstruction or Rehabilitation (All major roads permitted after fulfilling environmental regulations)
- Hospital Waste management (proper incineration facility built-in)
- Urban Housing Development (Environmental Impact Assessment of 4 cities)
- Rural Housing & Environmental Compliance (Limited Environmental Assessment)

Population Benefitted



- 187 Community Livelihood Rehabilitation Plans (CLRPs) have been formulated in which about 1.2 million population is being benefitted at a cost of US\$ 850,000.00
- 32,300 population is being benefitted under 2 watersheds through infrastructure, habitat and livelihood.
- 20 departments of AJK & NWFP and 240 individuals were sensitized through environmental trainings and workshops.

Special Considerations



- Use of local materials
- Indigenous designing in harmony with local environment
- During reconstruction for every tree cut, 10 trees are planted
- For slope stabilization fast growing local species / plants are used

(continue)

Special Considerations

(continued)



- People sensitized for environment friendly practices
- Participatory approach involving the community, NGOs and line departments
- Promotion of alternate fuel and construction materials to save the forests.



Challenges

- Managing Expectations
- Ensuring time lines with restrictive procedures
- Retaining donor confidence
- Capacity Issues
- Sustainability and Maintenance
- Weather and Terrain Restrictions



Thanks