

10. COMMUNITY RESTORATION PLAN

10.1. Background

The devastating earthquake in Muzaffarabad has caused horrendous loss of life, great human suffering and misery, and widespread loss of property and infrastructure. The earthquake rendered a majority of the population jobless. Extensive damage to economic assets and social service delivery has caused forced dislocation in great numbers and has had a serious impact on the closely knit social structure of the earthquake-hit areas.

Prior to the earthquake, majority of residents owned small businesses that included trading, mainly in the informal sector of unregistered enterprises. Businesses were largely dominated by small and medium scale as well as unregistered enterprises, mainly owned by various households. Some residents working in the government sector also ran small businesses as side jobs. Some people were affiliated to jobs in construction and transportation, both of which are informally manipulated. The manufacturing and financial sectors also offered a number of employment opportunities.

Following the earthquake, people have been having a hard time to restore their businesses, primarily because the shop structures were torn down or are unsafe, and secondarily because the distribution of goods and merchandise is not yet back to the original state. Furthermore, the share of manufacturing and financial sectors in this area is so small that recovery of people's livelihood, especially of income generation, cannot rely on such formal sectors. In rural areas, farmlands were affected by the earthquake, thus leading to the reduction in the production of crops. Farmers are also facing hardships in putting their lives back together because they are unable to generate income from the affected farmlands.

Social services and public utilities, i.e., electricity, water supply, and telephone lines have currently been restored and are functioning. However, residential buildings are still left under unsafe conditions due to the presence of numerous mounds of debris. On the positive side, some residents have begun to remove debris on their own effort, and many are willing to participate in such activities; some even wish to rebuild their residences on their own. However, the government has not yet published policies for supporting such individuals and neighborhoods. The speed of reconstruction will largely depend on government's ability to provide support for relocation, subsidy and funding.

10.2. Needs on Livelihood Restoration

A social survey carried out early this year by the Study Team, targeting both gender groups through interviews, indicated that, both men and women have high demand for activities related to the following (in order of priority):

- 1) Restoration of residential areas;
- 2) Rehabilitation of neighborhood facilities;
- 3) Opportunities to earn income to sustain their livelihood; and,
- 4) Recovering their livelihood to normal condition.

These are discussed below.

To restore residential areas, residents mainly hope to see debris removed, and residential buildings reconstructed to make them resistant to earthquakes. Next, residents hope to see public infrastructure reconstructed such as sewage and water supply, and public service buildings that are located around their neighborhood, which will uplift their living conditions. Another objective is to earn income to sustain their livelihood; also, people hope to have access to soft loans to restart businesses and other entrepreneurial activities. Lastly, to bring their lives back to normal conditions, residents wish to see basic facilities reconstructed and services restored such as education and health care systems. One of the important aspects to underscore is that due to cultural and traditional realities, communities prefer to have separate institutions for women, including vocational centers, education and healthcare facilities. To address these issues the following strategies are proposed for community restoration and rehabilitation in earthquake-hit areas:

10.3. Issues for Livelihood Restoration

Understanding the needs of the community has provided information for key issues that need to be included in community livelihood restoration. The issues for community livelihood restoration mainly include:

- 1) social organization, i.e., enhance, develop, and involve CBOs;
- 2) skills development and allowing community members to participate in the reconstruction process; and,
- 3) diversifying livelihood options through skills enhancement in combination with providing access to necessary financial resources.

These are discussed below.

(1) Community Restoration and Skills Development for CBOs

Community members who have lost both house and income sources are most at risk of impoverishment. Lack of resources, joblessness, homelessness, marginalization, food insecurity, loss of access to common property assets and social disorganization have left them vulnerable and hard-pressed to cope with the massive devastation wrought by the earthquake. Thus, it is essential that community restoration needs be put as top priority in

securing people's livelihoods. To provide secure livelihood, people need to be located in their original neighborhoods, provided with opportunities to generate income, and have access to social activities, including education. However, at the moment, Community Based Organizations (CBOs) do not function enough, and the skills are not that high. Therefore, community restoration and skills development for CBOs are basic necessities for livelihood restoration.

(2) Successful Income Restoration

Successful income restoration is maximized when affected community members receive immediate benefits. This particularly involves the provision of jobs in reconstruction activities for those families who need to be relocated within their plot or to nearby areas. There is a need for job opportunities for more than one adult from significantly affected families in order to enable families to earn sufficiently to restore their income. Accommodating residents in or near their original neighborhoods should be given priority, because it will drastically increase opportunities to enhance existing social capital and bonds. By providing income-generating opportunities, residents will be able to support recovery with the rebuilding of their own business or in other cases, having access to regular jobs.

After reconstruction, earthquake-affected families from the same ward should be given priority for placement as maintenance workers. Safeguards will be put in place to ensure that there is no employment of children. The district government of AJK should monitor incidence of child labor.

Both skilled and unskilled laborers are needed for infrastructure construction—requiring knowledge of masonry, carpentry, plumbing, electrical work, rock crushing, portorage of materials etc; these skills will be needed in Muzaffarabad during reconstruction work. Basic building skills could be taught as part of CBO capacity building. Additional training in masonry skills for drainage and retaining wall structures, gabion building, culverts etc. may then be learned informally on site as needed. The acquisition of these skills is useful for income generation activities post project.

(3) Provision of Soft Loans to Restart Businesses

A social survey by the Study Team revealed that some residents expressed a need for soft loans to restart businesses and other entrepreneurial activities. Conditions of the neighborhood after the earthquake also suggest that residents are suffering extreme hardships from surviving from day to day, due to the loss of household members and lack of facilities to run their businesses. The residents are keen to restore their houses and places of business through their own efforts. Consequently, under the notion of “self-help”, it is

useful to provide small funds to trigger economic independence that will lead to recovery of the normal life of communities.

Experience has shown that the community members are able to find ways to generate income, if they receive some funds to jumpstart their activities. As an option, savings programs could be introduced by the CBO, with the collaboration of micro-finance institutions to restore their income. For the savings program, each CBO member to be involved in cash for work program will be required to save 10% of his/her earnings compulsorily. Achieving regular savings will help the poorest learn how to save and manage these savings to create a small lump sum that could be used to improve their living conditions. Having some savings will enable these households to respond to and participate in other development activities that will increase the poverty alleviation impact of the project.

10.4. Strategies for Livelihood Restoration

10.4.1. Community Participation

(1) Possibility of Community Participation

Community participation is one of the important approaches that will help empower and harmonize local communities. There is also a need to build public private partnership for the restoration and rehabilitation programs in Muzaffarabad city. In order to create a sense of ownership among the local communities, the existence of CBO as a platform may be used to mobilize community for restoration and rehabilitation work.

According to the findings of the social experimental survey, communities are willing to participate in reconstruction or rehabilitation activities in the area. After the earthquake, communities actively participated in the rescue and relief work with government and international NGOs. Registered CBOs worked in six among 10 wards where the social experimental survey was conducted, whereas in the remaining four wards active youth groups were mobilized even before and after the earthquake.

This was witnessed in Ward 13 where the JICA Study Team identified and mobilized the CBO for the debris removal pilot project. The project was a great success because the CBO not only gained confidence to manage the project at the community level, but they also generated income and built a network with public and private organizations.

The success of the project is a good example for other CBOs in earthquake-affected areas to participate in rehabilitation and reconstruction activities. This success provides the important message that by involving communities in the reconstruction and rehabilitation process, this does not only build the capacity of the local communities but it also creates a sense of

ownership among the community members for the project that ensures the sustainability of any community restoration activity.

Tapping and encouraging residents to be the central actors in the reconstruction process is also essential for effective and rapid reconstruction. As the JICA pilot project demonstrates, a sense of ownership is also essential in the reconstruction process. Furthermore, by having residents participate in group programs, community bonding and networks have opportunities to strengthen and grow.

(2) Community Participation Process

In implementing restoration activities, it is important to be armed with a carefully designed community participation approach. Community participation in selection, design and implementation of future projects is proposed to ensure that projects meet beneficiary requirements, encourage a sense of ownership, promote beneficiary O&M of projects if required, and ensure that the poor and women are included as project beneficiaries.

Community participation and empowerment would be further ensured by collective decision-making through the CBO in instances where the participation of local government representatives is required. This will create broader ownership of the action, for long-term sustainability of the interventions beyond the project tenure. Moreover, this will help to channel district government funds to the community development schemes at the village level.

The sequence of activities to ensure effective community participation in restoration activities is as follows:

a. Participatory needs assessment

Participatory needs assessment is essential to build up an initial profile of the wards and assess development needs and constraints.

b. Community awareness campaigns

Community awareness campaigns within selected wards will be carried out by the project. The trained social organizers will undertake community mobilization with sufficient skills.

c. Formation of CBOs

Since there is no official organization that is uniformly distributed throughout Muzaffarabad, and only certain wards have CBOs within their administrations, many of which were disrupted by the chaos caused by the earthquake's impact, CBOs need to be either enhanced in their existing form or organized within individual wards based on the notion of utilizing the existing resources.

CBOs will be the main organization to contribute to restoring communities, and their roles will include: coordination among residents, collaboration with government agencies, and supporting decisions of the members in the communities.

Members of the CBOs can be any resident who has the motivation to participate and make his/her own neighborhood a better place to live in. However, it is also important to select some representatives of the CBOs, who will have the responsibility of organizing the community and negotiating with the government. It is suggested that elections be undertaken when selecting the representatives, because such a procedure will help identify leaders that the people will trust and will also make the selected people have a sense of responsibility for organizing the group.

Size and population of wards vary, and thus, it is recommended to have several CBOs with their respective mohallahs. In case the population within the mohallah is still too large, more CBOs can be developed, based on the areas of blocks or streets.

Depending on the type of project, and size and characteristics of the ward communities, the project will form community and/or interest group CBOs in each ward for restoration of physical and social infrastructure. Each CBO will have a minimum of 25 members, open a bank account and become registered under one of the prevailing laws for registration.

The long-term involvement of local communities and their effective participation in local development and implementation of regeneration initiatives is a critical factor in achieving sustainable change. Restoration and reconstruction procedures are proposed to be undertaken in three levels: self-help, mutual-help, and public assistance. These levels target individuals and families, community members, and governments, respectively. Responsible actors in these three levels need to interact to produce the most effective and rapid reconstruction. However, the most important actor among these three levels is the community that consists of individuals and families.

Active participation towards reconstruction of neighborhoods through the CBOs is recommended as one of the important actions in restoring community bonding. Two main activities proposed are: i) debris removal in a community, and ii) temporary housing in a community. With such activities, it is expected that community members will deepen their interaction and understanding of each other, leading to the strengthening of the bonds that tie the community together. Furthermore, CBOs, as the representative of the community organization, could represent the sentiments of the community as they deal and interact with the government. This will allow the government representatives to be aware of and understand residents' preferences.

d. CBO capacity building

Community capacity building must include CBO training in organizational development, leadership training, project management, opening of bank accounts, dispute resolution, bookkeeping and monitoring of the implementation process.

e. Preparation of the development plan

The community will be informed about the details of the project(s) to be implemented, the total cost, CBOs' share and the implementation procedure. With technical support of the project staff, the CBOs, which include the poor constituents and women will be able to contribute to the preparation of the implementation plan and cost estimation for projects.

10.4.2. Skills Enhancement through Vocational Training

In order to diversify livelihood options, it is extremely important that new skills are imparted to semi-skilled, unskilled individuals as well as to poor families especially women.

This strategy is the pillar for livelihood restoration for women and men through viable vocational training in marketable trades that will enable them to contribute to the reconstruction process and earn income. The skills training program proposed will be geared to meet the basic needs of the target groups by providing opportunities to Muzaffarabad residents including women and men alike, to acquire technical knowledge, skills and social behavioral pattern, which are decisive for people to successfully undertake economic activities either as an employee, entrepreneur in a subsistence economy. By focusing more on Vocational Training, the activity essentially aims to empower and enable communities to successfully support themselves in the rehabilitation and recovery process. It is expected that the skills acquired by the local communities will ideally contribute to the rehabilitation and reconstruction of the area.

Skills training centers are also recommended for various trades like carpentry, masonry, plumbing, electrical work, tailoring, food preservation, bag making etc; while participants aspiring to develop skills in computer repair and networking, auto mechanic, welding, electric appliances and mobile repair etc, will be engaged as apprentices in groups of 2-3 with operational outlets. Technical training and concepts will be provided by the trainers at these outlets and will be regularly monitored and supervised by the Project Partners.

The proposed program is recommended to be implemented in vocational training centers, or in apprenticeship workshops. The skills training program will perfectly address the needs of the target group in the present situation and it will also take into consideration rehabilitation and reconstruction work. At the outset of skills training, appropriate tool kits will be issued to the trainees, who will use these kits for the training program and at the same time will be made responsible for their proper handling and maintenance.

Learning units and the concerned skills should be selected based on the actual community needs and real life situations of the target group, which will be discussed during the related sessions. Besides featuring practical aspects of the basic skills training, theoretical instructions in the form of workshop talks, discussions and exercises will also be conducted. Training programs will emphasize building local acceptable technologies. The trades recommended in the basic skill training for men are: masonry, commercial carpentry, plumbing, welding, electrical work, computer and cellphone repair, electric appliances repair, auto mechanic, and hand pump installation and repair. In view of the socio-cultural norms, recommended trades for the ladies are: food preservation, hand embroidery, school bag making, dress-making/tailoring and computer repair and networking skills for urban females. The duration of basic skills training will be between 3 - 6 months (only welding and auto mechanic trades will require 9 months), 2 - 5 hours daily.

For apprenticeship trainings in the trades of computer, cell phone, electrical appliances and automobile repair, and for skills such as welding and metal works, it is recommended that well reputed and specialized workshops/technical training centers be tapped to impart training through apprenticeship, which will clearly define their roles and responsibilities.

In addition, there is a dire need to improve the understanding among local communities about the various elements of a well constructed structure and to enhance their capacity to supervise the craftsmen involved in the construction of their houses. There is also a need to upgrade the skills and knowledge of existing skilled and semi-skilled laborers to address the shortfall of skills in the construction sector.

10.4.3. Provision of Financial Support

To support neighborhood residents in getting their life back to normal, a small portion of financial support is recommended to be given to CBOs as seed money to initiate their efforts, in addition to the jobs that may be created by the CBOs. Often, the affected people include a large proportion of the poor as seen in Muzaffarabad; such residents have been struggling for survival everyday since the disastrous incident. Since there are no longer opportunities for the residents to generate income from their pre-disaster businesses – especially because most of the businesses found in Muzaffarabad were small-households and informal ones – it is too difficult for them to regain a system which generates income by themselves. However, if some support is given for those who are willing to get their life back to normal, especially if the support is for an activity that is linked to income, it is believed that residents will make the effort to improve their lives.

One of the recommended financial support systems in this vein, are “soft loans” with low or no interest, targeting people who are hoping to restore their residences or businesses. The

As priority project, the Establishment of Skills Training Centers is proposed, from viewpoints of urgency, maturity and contribution to the rehabilitation and reconstruction process.

10.5.2. Priority Project (Establishment of Skills Training Centers)

The project summary is shown in the table below. The Skills Training Centers include three centers, namely, i) Computer Training Center, ii) Vocational Training Center for Women, and iii) Technical Training Center for Boys.

Table 10.5.2 Summary of Priority Projects

| | |
|---------------------------|---|
| Project Title | Establishment of Skills Training Centers |
| Background and Objectives | It is proposed that the project should be implemented at the district level with the assistance of the district government. Livelihood restoration for women and men through viable skills training in marketable trades will enable them to contribute to the reconstruction process and earn income. Capacity building of men, women and youth will enhance the chances of project success in achieving pro-poor and gender-focused outcomes, and create sustainable capacity beyond the project cycle. |
| Project Component | 1) Construction of buildings for the following centers - Computer Training Center - Vocational Training Center for Women - Technical Training Center for Boys 2) Preparation of Training Program such as the following: carpentry, masonry, plumbing, electrical work, computer repair and networking, auto mechanic, welding, electrical appliances and mobile repair, dress-making/tailoring, embroidery, knitting, food preservation, bag making etc. Additional training in masonry skills for drainage and retaining wall structures, gabion building, and culverts 3) Identification and hiring of training instructors 4) Preparation of training materials 5) Purchase of tools and equipment |
| Establishment Period | 24 months |
| Implementation Agency | PWD and AJK Government |
| Projects Effect | Beneficiary: The people in Muzaffarabad city. Market survey: Needs future study Socio economic impact: Socio-economic study should be carried out at the planning and completion stage |

Source: JICA Study Team

The details of these centers are shown as follows:

Table 10.5.3 Computer Training Center

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| Description of Intervention |
| <p>The objectives of setting up a computer training center are:</p> <ul style="list-style-type: none"> • To built the capacity of local youth in computer technology • To improve computer skills for better job opportunities <p>After the completion of the training the boys/girls will be able to provide these skills to the other members in the community and can find better job opportunities.</p> |
| Justification and Feasibility |
| <p>Constraints faced by the unemployed youth particularly female are:</p> <ul style="list-style-type: none"> • Lack of access to computer centers • Lack of resources • Lack of skills <p>CBOs as well as other stakeholders, particularly women, do not always have the requisite capacity or skills to augment family income.</p> <p>Capacity building at this level will improve the chances of project success in achieving pro-poor and gender-focused outcomes, and create sustainable capacity beyond the project cycle.</p> |
| Stakeholders |
| <ul style="list-style-type: none"> • CBOs • Youth male/female |
| Criteria & Conditions |
| <p>The main criterion is the Local residents of the District with at least secondary education and willingness to disseminate the skills learned with other community members. At least 25 potential community members.</p> |
| Implementation Process |
| <p>The project will be implemented at the district level with the assistance of the district government. In the center, basic computer courses including MS office will be offered. The duration of each course will be one hour daily. The total duration of the course will be one month. Each trainee will be charged a fee of Pak Rs. 300 per month. The training hall, computers (20) and furniture will be provided by the project. The salary of 2 training instructors and operation and maintenance cost of the center will be covered by the fee of the trainees.</p> |
| Monitoring |
| <p>CBO will be directly involved in the process of trainee's selection. Trainees will be evaluated through the capacity-building process. The performance of instructors will be evaluated through feedback from trainees. Selected communities will be visited by the project to evaluate the performance of the center. Site visits will be used to verify the impact of computer training on the pro-poor, gender-focused, and local labor oriented implementation of the computer center.</p> |
| Performance |
| <p>Computer center performance will be assessed and may be used to determine allocation of funds in subsequent years to the district for this type of project.</p> |

Table 10.5.4 Vocational Training Center (VTC) For Women (1/2)

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| <p>Description of Intervention</p> <p>The VTC will be implemented with the assistance of the project by the CBO.</p> <p>The objectives of setting up a vocational training center are:</p> <ul style="list-style-type: none"> • To empower women by raising their income earning capacities • To increase opportunities for self-employment • To augment family income <p>After completion of training, women will be able to provide these skills to other people in the community and can start their own businesses.</p> <p>Vocational training centers will be established in Ward 13 of District Muzaffarabad. Courses will cover embroidery, knitting, stitching and dress designing and computer. Associated courses may include marketing, handicrafts management, hygiene education, food preservation, disaster preparedness and prevention etc. The fee for one course will be about Pak Rs. 50. The total duration of each course will be one month, (six days a week). Materials will be provided during the course; materials for additional use will be paid for by the trainee. After the completion of the course each participant will be awarded a certificate. The courses will be advertised in schools, colleges, and public places. Every year exhibition of the products prepared in the VTC will be held.</p> |
| <p>Justification & Feasibility</p> <p>Constraints faced by the women in the Community</p> <ul style="list-style-type: none"> • Lack of access and control over resources • Lack of education and skills • Lack of access to the market • Lack of support from the government and private sector <p>Cultural constraints</p> <p>Loss of male head of family constitutes a serious economic blow since there are limited economic options for women outside the household.</p> <p>Despite the recognition that women lack access and control over resources, little attention has been paid to gender in vocational training in Muzaffarabad. Education and skills are often provided to men on the wrong assumption that messages will trickle down to women; vocational skills are however, transferred inefficiently or not at all, to women and girls.</p> <p>Due to limited economic activities and social mobility “female” occupations are concentrated in the lower strata of the labor market in terms of remuneration, qualification, work conditions, social recognition and development prospects. Consequently, they have greater difficulties accessing the market and staying there.</p> <p>Establishment of the VTCs will help facilitate women’s access to training with real occupational possibilities, also bolstering their self-esteem and helping to identify and overcome obstacles and stereotypes that surround them.</p> <p>The VTC centers for women will contribute to the development of a new culture of relations between men and women, based on a reevaluation and redistribution of tasks, and will improve women’s access to sustainable productive activities.</p> <p>Total Number of VTCs: 1</p> <p>Total number of trainees from one VTC per year: Approximately 600</p> |
| <p>Stakeholders</p> <ul style="list-style-type: none"> • Primary stakeholders are poor females, widows and orphans and other community members of Ward 13 • The beneficiaries will be women and girls aged 15-45. • A CBO (will manage the VTC) and will be responsible for operation of the VTC • Social welfare department (provide training and expertise) • Women and development department (introduce new skills and knowledge) • Local NGOs (provide training, awareness seminars, campaigns, training modules and material, etc) |

Table 10.5.5 Vocational Training Center (VTC) For Women (2/2)

| Criteria& Conditions |
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| <p>Criteria Include:</p> <ul style="list-style-type: none"> • Formation of women CBO with at least 25 members & registration (with EDO community development) • Selection of three officers • Opening of Bank Account • Age limit for trainees: 15-45 years • Market available for sale of products, and purchase of material • All women and girls should have some background in proposed skills • Enrolment fee for one course: Pak Rs.100 • Maximum number of trainees in one course: 10 <p>Conditions Include:</p> <ul style="list-style-type: none"> • CBO to be responsible for the supervision and monitoring of the VTC. • CBO to be responsible for taking care of equipment and machinery provided to the VTC. • CBO will ensure security of its lady instructors. • Any operation not delivering quality services may be closed down and the equipment returned to the project. |
| Implementation Process |
| <p>Meeting at district level with the District concerned authorities</p> <ul style="list-style-type: none"> • Meeting with the male and female community members • Formation of women CBO • Selection of officers. The officer will include a president, a vice president and a secretary • Signing of Agreement with the JICA Study Team, endorsed by the EDO community development and Administrator of Municipal Corporation • Opening of Bank account. The bank account will be opened in the nearest bank with joint signatures of officers. • Identification, selection and hiring of lady instructors from the government or private sector • Selection of site for the vocational center (The site should be identified by the CBO.) • Construction of Vocational Training Center • Hiring of two persons cum Watchmen by the CBO • Purchase and supply of machinery and equipment for the vocational center • Purchase and supply of material • Preparation of training modules • Training and support in knitting, cutting, stitching, dress designing, embroidery and functional literacy and other required skills • Training of instructors in dress designing, color schemes, marketing, handicraft management etc. to improve their skills and techniques, with the support of public and private sector • Socio-economic analysis to assess the Gender/Poverty impact |

Table 10.5.6 Technical Training Center (TTC) for Boys (1/2)

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| <p>Description of Intervention</p> <p>The TTC will be implemented with the assistance of the project by the CBO.</p> <p>The objectives of setting up a technical vocational training center are:</p> <ul style="list-style-type: none"> • To sustain economic security for boys • To create self-reliance and independence • To raise self-employment • To improve skills <p>After completion of training, boys will be able to participate in the reconstruction process, and find better job opportunities in Muzaffarabad. They will also be able to impart these skills to other people in the community and can start their own business.</p> <p>Technical training centers will be established in District Muzaffarabad. Courses will cover carpentry, masonry, plumbing, electrical work, tailoring, food preservation, bag making etc; while participants aspiring to develop skills in computer repair and networking, auto mechanic, welding, electric appliances and mobile repair etc, will be engaged as apprentices in groups of 2-3 with operational outlets. Additional training modules will be provided in masonry skills for drainage and retaining wall structures, gabion building, and culverts. The fee for one course will be about Pak Rs. 300. Materials will be provided during the course; materials for additional use will be paid by the trainee. After the completion of the course each participant will be awarded a certificate. The courses will be advertised in schools, colleges, and public places. Every year exhibition of the products prepared in the TTC will be held.</p> |
| <p>Justification & Feasibility</p> <p>Constraints faced by the Unemployed youth in the Community</p> <p>Unemployment</p> <ul style="list-style-type: none"> • Lack of technical centers in Muzaffarabad • Lack of education and skills • Lack of knowledge • Lack of support from the government and private sector • Lack of financial resources <p>Loss of male head of family constitutes a serious economic blow since there are limited economic options for youth.</p> <p>After the earthquake, large numbers of community members were unemployed due to loss of their business and infrastructure. During the reconstruction phase there will be a huge demand for skilled workers including carpenters, masons, electricians and plumbers. Thus, it is necessary to provide training in order to give employment opportunities to the local community members and to restore their livelihood.</p> <p>Establishment of the TTCs will help facilitate youth access to training with real occupational possibilities, also bolstering their self-esteem and helping to identify future employment opportunities.</p> <p>The TTC center for Boys will contribute to the development of Muzaffarabad.</p> <p>Total Number of TTCs: 1</p> <p>Total number of trainees from one TTC per year: Approximately 600</p> |
| <p>Stakeholders</p> <p>Primary stakeholders are poor unemployed young boys and orphans and other community members. The beneficiaries will be young boys aged 15-30.</p> <ul style="list-style-type: none"> • A CBO (will manage the TTC) and will be responsible for operation of the TTC • Social welfare department (provide training and expertise) • Labor and manpower department (introduce new skills and knowledge) • Local NGOs (provide training, awareness seminars, campaigns, training modules and material, etc) |

Table 10.5.7 Technical Training Center (TTC) for Boys (2/2)

| Criteria& Conditions |
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| <p>Criteria Include:</p> <ul style="list-style-type: none"> • Formation of CBO with at least 25 members & registration (with EDO community development) • Selection of three officers • Opening of Bank Account • Age limit for trainees: 15-30 years • Market available for sale of products, and purchase of material. • All trainees should have some background in proposed skills. • Enrolment fee for one course: Pak Rs. 300 • Maximum number of trainees in one course: 25 <p>Conditions Include:</p> <ul style="list-style-type: none"> • CBO to be responsible for the supervision and monitoring of the TTC. • CBO to be responsible for taking care of equipment and machinery provided to the TTC. • CBO will assure security of its instructors. • Any operation not delivering quality services may be closed down and the equipment returned to the project. |
| Implementation Process |
| <p>Meeting at district level with the District concerned authorities</p> <ul style="list-style-type: none"> • Meeting with the male and female community members. • Formation of CBO • Selection of officers. The officer will include a president, a vice president and a secretary • Signing of Agreement with project, endorsed by the EDO community development and Administrator of Municipal Corporation • Opening of Bank account. The bank account will be opened in the nearest bank with joint signatures of officers • Identification, selection and hiring of instructors from government or private sector • Selection of site for the technical center (The site should be identified by the CBO) • Construction of Technical Training Center • Hiring of two persons cum Watchmen by the CBO • Purchase and supply of machinery and equipment for the vocational center • Purchase and supply of material • Preparation of training modules • Training and support in masonry, plumbing, electrical work and carpentry. The duration of basic skills training will be between 3 - 6 months (only welding and auto mechanic trades will require 9 months), 2 - 5 hours daily. |

11. ENVIRONMENTAL CONSIDERATIONS

11.1.1. Environmental Administration

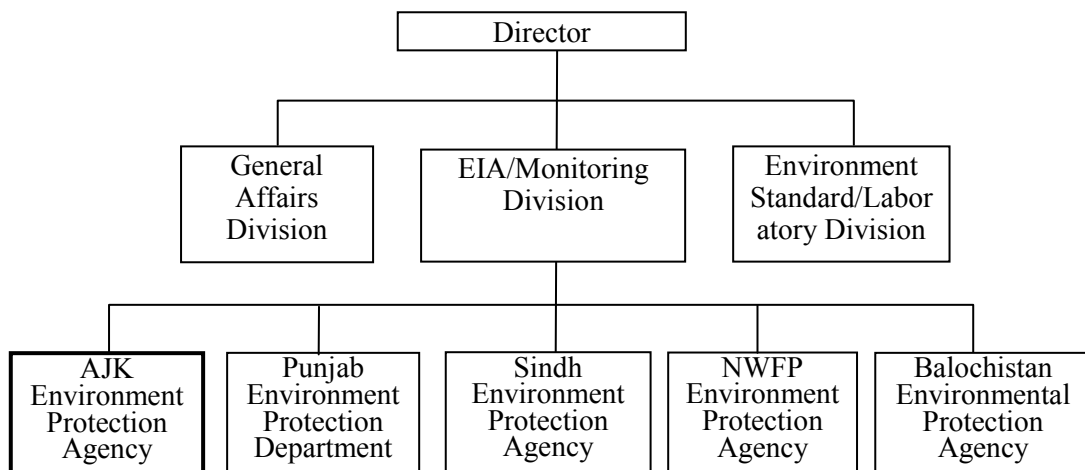
(1) National Environmental Administration

a. Organization

The Ministry of Environment, Local Government and Rural Development has jurisdiction over environmental conservation and control in Pakistan. Under this Ministry, the Pakistan Environment Protection Agency (PEPA), takes the primary role on procedures of environmental assessments such as IEE and EIA for development projects. The Pakistan Environment Protection Council (PEPC) is also established to develop environmental policies in the ministry.

The following regional agencies and a regional department are organized under the EIA/Monitoring Division in the PEPA.

- AJK Environment Protection Agency
- Punjab Environment Protection Department
- Sindh Environmental Protection Agency
- NWFP Environmental Protection Agency
- Balochistan Environmental Protection Agency



Source: Pakistan Environment Protection Agency

Figure 11.2.1 Organization Chart of Pakistan Environment Protection Agency

b. Guidelines on Environmental Impact Assessment

The laws and guidelines on environmental impact assessment are mainly based on the following.

Law

- The Pakistan Environmental Protection Act 1997

Guidelines of environmental assessment

- Policy and Procedures for filing, review and approval of environmental assessments
- Guidelines for the preparation and review of Environmental Reports
- Guidelines for public consultation
- Guidelines for sensitive and critical areas
- Pakistan environmental legislation and the National Environmental Quality Standards
- Detailed sectoral guidelines

(2) AJK Environmental Administration

a. Organization

AJK-EPC (AJK Environmental Protection Council) and AJK-EPA (AJK Environmental Protection Agency) take a major role for environmental administration in AJK state as well as the national organization. AJK-EPC chaired by the Prime Minister of AJK state basically takes the role to develop environmental policies. AJK-EPA is the implementing agency for the environmental policies. Figure 11.2.2 shows the organization chart of AJK-EPA.



Source: AJK Government

Figure 11.2.2 Organization Chart of AJK-EPA

b. Activities

There are three major activities of AJK-EPA:

- 1) To develop environmental policies
- 2) To coordinate and act with the national government
- 3) To monitor and regulate development activities

In particular for the environmental consideration of JICA study, the activities of item 3) “To monitor and regulate development activities” includes implementation of screening and environmental impact assessment for the projects. According to AJK-EPA, they follow the procedures of PEPA (national level). AJK-EPA, however, has no more detail items and descriptions of the activities on screening and EIA. They have no concrete guidelines on the EIA activities.

(3) Procedures of Screening and EIA

In Pakistan, the government formulated the new environmental laws as well as reviewed the organizations and policies on environmental activities in 1997. The government introduced the EIA system and formulated the guidelines to implement EIA. The government also strengthened the structures, powers and functions of PEPA’s organizations. After that, the procedures of EIA were reviewed in 2000.

Thus, the implementation system of EIA has been progressing for years. Development activities that require IEE or EIA are outlined in the guidelines of EIA; however, there are no concrete unified formats of the screening and scoping that international organizations and JICA can use in the guidelines.

a. Requirements of IEE and EIA

The reviews of guidelines of EIA 2000 stipulate the requirements of IEE and EIA for projects as follows. “Schedule I and II” regulate kinds and scales of projects by development sector. The scale of “Schedule I” is obviously smaller than that of “Schedule II”.

- 1) Projects requiring IEE: a proponent of a project falling in any category listed in “Schedule I” shall file IEE.
- 2) Projects requiring EIA: a proponent of a project falling in any category listed in “Schedule II” shall file EIA.
- 3) Projects not requiring IEE or EIA: a proponent of a project not falling in any category listed in “Schedule I and II” shall not be required to file IEE or EIA.

In the case of item 3) above, proponents of projects should prepare IEE or EIA according to the following cases:

- When the project is likely to cause an adverse environmental effect
- When the Federal Agency may direct the proponent of project to file IEE or EIA with the recommendation of the Environmental Assessment Advisory Committee.

b. Processes

The regional environmental protection agencies take main roles for the procedure of EIA in Pakistan. There are some regional governments that require proponents of projects to submit detail checklists of EIA for development projects as well as NWFP; however, other provinces have few forms for the checklists. AJK-EPA has no forms of the checklists for EIA procedures.

Therefore the proponents of projects usually take the following two actions in Pakistan.

- 1) In cases of private projects or public projects budgeted by the governments, the proponents follow the Pakistan Environmental Assessment Procedures issued by PEPA. The procedures stipulate the general criteria according to scale of projects and project sites that are environmentally vulnerable or not by sector to assess requirements of IEE or EIA.
- 2) The other cases are the public projects donated by international organizations such as ADB, WB and JICA; the governments respect the guidelines of the international organizations in this case.

According to AJK-EPA, they have no guidelines; they also understand the two actions mentioned above. Therefore, AJK-EPA confirmed that primary the guidelines of international organizations should be followed for the projects supported by them, and the information will be shared.

In case of the projects supported by JICA, the JICA guidelines should be followed by the project implementation organizations. The AJK governments and relative organizations will take the screening and scoping forms of JICA guidelines for the pilot projects. Surely, the guidelines of EIA in Pakistan should be followed together with the JICA guidelines.

11.1.2. Resettlement

(1) Resettlement Policies

For the projects of master plan, resettlement of the people is indispensable. Many projects require resettlement of people on different scales. Therefore, the implementation organizations should study the resettlement action plans carefully to realize them as part of the master plan with the projects.

The following requirements are from the JICA guidelines including the requirements for involuntary resettlement by the recipient governments. These are common requirements of other international organizations.

- 1) To avoid involuntary resettlement and loss of livelihood by exploring all viable alternatives
- 2) To minimize impacts after the examinations
- 3) To compensate for losses with agreement of the affected people
- 4) To compensate and provide sufficient support for the affected people
- 5) To promote appropriate participation by affected people and their communities in the planning, implementation, and monitoring of involuntary resettlement plans and measures.

The PEPA also has guidelines for resettlement in Pakistan named the National Resettlement Policy¹. It appears that the guidelines have the same contents as JICA guidelines above. The project implementation organizations should comply with PEPA's resettlement policies.

(2) Relocation

Relocation is the most difficult task of resettlement. How to study relocation plans is a key factor to implement the projects smoothly. There are two types of relocation: i) on-site relocation, ii) self relocation and iii) relocation to sites provided by executing agencies. These should be proposed to the project affected people as alternatives.

a. On-site relocation

If land is partially affected by projects, the remaining land can accommodate the affected people, or if land is available on frontage of project sites, they can set back from the previous location. In these cases, the relocation does not normally affect the existing socio-economic and social activities because of the short moving distance. The negative impact of affected people is limited in this relocation.

b. Self relocation

Self relocation involves relocation to a place of choice by resettler with compensation. The reasons would be that resettlement sites are not acceptable due to economic and social factors.

¹ March 2002

c. Relocation to sites provided by executing agencies

Large-scale relocation will require the relocation to sites provided by executing agencies. Site selection and site development are important in this case. The most important policy of site selection is to select closer sites to the previous residence of the resettlers:

- To maintain the existing mutual relations or community (social restoration)
- To restore livelihood (income restoration).

Another issue is to assess impacts on the host communities. Availabilities of land, capacity, common properties, infrastructure, and human composition are typical issues to avoid conflicts with the host communities. For the relocation site development, all infrastructure and public services should be provided before the resettlers move to the site.

(3) Cases of Muzaffarabad

For the relocation to sites provided by executing agencies in Muzaffarabad for the projects, there are two patterns: i) direct relocation and ii) two-step relocation. Direct relocation is the ordinary case that the resettlers move to the sites. The two-step relocation is that the resettlers move to the final resettlement sites after moving to transition urban areas. The later will be the major case in Muzaffarabad.

Four types of candidate sites are expected for the relocation to sites provided by executing agencies. However, 1) and 2) are mostly same in the situation that there would be few available lands to prepare the transition urban areas in the resident wards. The lands of 1) will be used to prepare the transition urban areas before preparing the resettlement sites for the projects.

- 1) Neighboring vacant sites: If land is available and suitable in the resident wards, this is the best location and most suitable land for the relocation sites.
- 2) Sites after leaving the transition urban areas: The most suitable land for the transition urban areas is also closer locations to the previous residence of the resettlers. The sites after leaving the transition urban areas are the best selection of the relocation sites.
- 3) Sites after removing the government buildings: The lands of government buildings are also desirable for the relocation sites. The locations are closer to the urban area and large scale of land could be prepared. In addition, the conflicts are unlikely occur between the resettlers and host communities.
- 4) Satellite city: One of main objectives to develop the satellite city is relocation of government functions from the existing urban area to the satellite city. The

location is about 4 km from the urban area. Living and economic environment are quite new for the resettlers although they could obtain better ones. The largest scale of land could be prepared, and there are no conflicts with host communities.

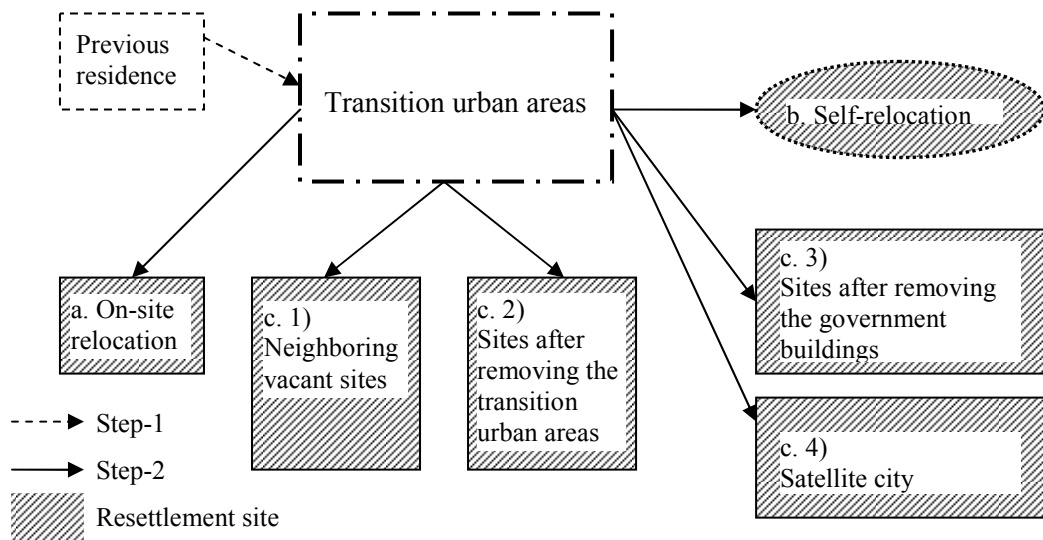


Figure 11.2.3 Relocation Pattern through the Transition Urban Areas (two steps)

In all cases, the relocation plans should be studied carefully and coordinated with the master plan, especially for the transition urban areas, the removal of government buildings and the satellite city. Two issues are specified to relocate the affected people to the resettlement sites prepared are as follows:

- Land title for all affected people at the resettlement sites: formal land titles should be given for the affected people at the resettlement sites regardless with and without ownership of previous lands. The affected people without formal title also have been lived customarily in Muzaffarabad.
- Especially for the 3) and 4), the resettlement sites should be included in these projects of master plan. Particularly, the satellite city is an alternative to relocate the government buildings. In this sense, the satellite city project should be planned and started during the affected people stay at the transition urban areas at the latest. The affected people and the government cannot move without resettlement sites.

(4) Resettlement Action Plan (RP)

A preparation of resettlement action plan is the key works for the resettlement. The PEPA promulgated the National Resettlement Policy in March 2002. The policy stipulates to prepare two types of resettlement action plans as follows:

- 1) Comprehensive Resettlement Action Plan: in case the impact of project is severe; more than 200 people (about 40-50 families) are displaced by the project.
- 2) Abbreviated Resettlement Action Plan in case the impact of project is marginal or minor; less than 200 people (about 40-50 families) are affected and/or displaced by the project.

The contents of resettlement action plan are as follows.

Comprehensive Resettlement Action Plan

- 1) Description of the project
- 2) Potential impacts and actions taken to avoid or minimize adverse impacts
- 3) Main objectives of the resettlement plan
- 4) The basic census, socio-economic data and inventory of affected assets
- 5) Information on vulnerable groups for whom special provisions, in accordance with the “Indigenous People Resettlement Plan”, may be necessary
- 6) Eligibility criteria, compensation entitlement and the procedures proposed to assess compensation
- 7) Description of resettlement measures and the types of development assistance proposed
- 8) Location and area of the replacement agricultural, residential and/or business land to be provided, if that be the case
- 9) Socio-economic information about the host community, if applicable
- 10) Legal and institutional framework
- 11) Community participation and consultation framework and grievance redress mechanism
- 12) Internal external monitoring procedures
- 13) A detailed budget and source of funding for various compensation and rehabilitation measures
- 14) The implementation schedule

Abbreviated Resettlement Action Plan

- 1) Description of the project, sub-project or component
- 2) The basic census and inventory of affected assets

- 3) Eligibility criteria, entitlement to compensation and other resettlement assistance
- 4) Consultation with affected persons about acceptable alternatives
- 5) Institutional responsibility for implementation
- 6) A detailed budget and source of funding for various compensation and rehabilitation measures
- 7) The implementation schedule

11.2. Environmental Considerations for Pilot Projects

11.2.1. Construction of Government Girls High School Sathi Bagh

(1) Project Summary

The Construction of Government Girls High School Sathi Bagh Project is summarized as follows. More details are described in the section “6.3 Pilot Project” of the Main Report.

- 8) Project components:
 - Reconstruction of School
 - Construction of a girl’s high school building (including a survey, detailed design, tender document, tender and construction supervision)
 - Procurement of equipment necessary for operation of a school
 - Development of a schoolyard, drainage and planting
 - Development of an access road to a school (debris removal, paving)
 - Proposed Project for Promotion of Disaster Management Education
 - Development of student material on Disaster Management Education
 - Development of teaching aids on Disaster Management Education
 - Holding teacher training on Disaster Management Education
- 9) School Site Area: 2,180 m²
- 10) Construction period: 9 months
- 11) Implementation agency:
 - Reconstruction of School: Department of Education AJK
 - Proposed Project for Promotion of Disaster Management Education: Department of Education AJK

(2) Screening

Neither screenings of the Pakistan EIA Guidelines nor the JICA Screening Form requires an IEE or an EIA for the project.

a. Pakistan EIA Guidelines

Neither an IEE nor an EIA is required for the project because the project components are not applicable to both “Schedule I” and “Schedule II”. In the “Schedule I” requiring an IEE, the item “I. Urban development and tourism” stipulates that an IEE is required for the following projects. The project is not applicable to the following item.

- Public facilities with significant off-site impacts (e.g. hospital wastes)

b. JICA Screening Form

As Table 11.2.1 shows, the project will not expect to impact on the local environment negatively. Therefore, neither an IEE nor an EIA is required for the project.

Table 11.2.1 Screening for Construction of Government Girls High School Sathi Bagh

| Environmental Item | | Description | Evaluation | Remarks(Reason) | |
|---------------------|----|--|---|--|---|
| Social Environment | 1 | Involuntary Resettlement | Resettlement due to land occupancy(transfer of rights of residence/land ownership) | No | No additional land acquisition is required because the purpose is to reconstruct the school buildings within the same place and area before the earthquake. |
| | 2 | Economic Activities | Loss of bases of economic activities, such as land, and change of economic structure | No | The project site is not expanded from the existing site. |
| | 3 | Traffic/Public Facilities | Impacts in schools, hospitals and present traffic condition, such as the increase of traffic congestion and accidents | No | Low negative impact because of small-scale construction, however, the construction works could disturb traffic conditions temporarily. |
| | 4 | Splits of Communities | Community split due to interruption of area traffic | No | Ditto |
| | 5 | Cultural Property | Damage to or loss of the value of churches, temples, shrines, archaeological remains or other cultural assets | No | No cultural properties in the project site. |
| | 6 | Water Rights /Common | Obstruction of fishing rights, water rights, rights of common | No | No fishing rights, water rights, rights of common in the project site. |
| | 7 | Public Health Condition | Deterioration of public health and sanitary conditions due to generation of garbage and the increase of vermin | No | The small-scale construction does not generate a great amount of garbage. |
| | 8 | Waste | Generation of construction and demolition waste, debris and logs | No | There is debris from the collapsed school buildings, however, the volume is small. |
| | 9 | Hazards(Risk) | Increase in risk of landslides, rock falling and accidents | No | The project is not large-scale construction to increase hazards. |
| Natural Environment | 10 | Topography and geology | Changes of valuable topography and geology due to excavation or filling work | No | The project is not large-scale construction to change topography and geology. |
| | 11 | Soil Erosion | Topsoil erosion by rainfall after reclamation and vegetation removal | No | The project is not large-scale construction to lead to soil erosion. |
| | 12 | Groundwater | Changes of distribution of groundwater by large-scale excavation | No | The project has no large-scale excavation to change distribution of groundwater. |
| | 13 | Hydrological Situation | Changes of river discharge and riverbed condition due to landfill and drainage inflow | No | The project site is not located on rivers. |
| | 14 | Coastal Zone | Coastal erosion and sedimentation due to landfill or change in marine condition | No | The project site is not located on coastal zone. |
| | 15 | Fauna and Flora | Obstruction of breeding and extinction of species due to changes of habitat conditions | No | There is no habitat of precious fauna and flora in the project site. |
| | 16 | Meteorology | Changes of temperature, precipitation, wind, etc. due to large-scale reclamation and building construction | No | The project is not large-scale construction to change local weather. |
| | 17 | Landscape | Changes of topology and vegetation due to reclamation. Deterioration of aesthetic harmony by structures | No | The project is not large-scale construction to change landscape. |
| Pollution | 18 | Air pollution | Pollution caused by exhaust gas or toxic gas from vehicles and factories | No | Low negative impact because of small-scale construction, however, the construction vehicles could create exhaust gas temporarily. |
| | 19 | Water Pollution | Pollution by inflow of silt, sand and effluent into rivers and groundwater | No | Low negative impact because of small-scale construction. |
| | 20 | Soil Contamination | Contamination of soil by dust and chemicals, such as herbicides | No | No construction materials to contaminate soil. |
| | 21 | Noise and Vibration | Noise and vibration generated by vehicles | No | Low negative impact because of small-scale construction, however, the construction noises could be generated temporarily. |
| | 22 | Land Subsidence | Deformation of land and land subsidence due to the lowering of groundwater table | No | The project is not large-scale construction to deform land and pump up a large amount of groundwater. |
| | 23 | Offensive Odor | Generation of exhaust gas and offensive odor by facility construction and operation | No | Low negative impact due to exhaust gas of construction vehicles during the construction period. |
| Overall evaluation: | | Either IEE or EIA is necessary for the project implementation? | No | Low negative impact can be expected because the project is to reconstruct the school buildings within the same place and area before the earthquake. | |

Source: JICA Study Team

11.2.2. Landslide Pilot Project for Muzaffarabad City

(1) Project Summary

The Landslide Pilot Project for Muzaffarabad City Project is summarized below. More details are described in the section “2. Hazard Analysis 2 (Landslide)” of the sector report.

- 1) Project components:
 - Installation of two extensometers and two rain gauges for the warning and evacuation system
 - Evacuation plan
 - Disaster prevention education
 - Evacuation training
- 2) Project period: 2 months
- 3) Implementation agency: Municipal Corporation Muzaffarabad

(2) Screening

Neither screenings in the Pakistan EIA Guidelines nor the JICA Screening Form requires an IEE or an EIA for the project.

a. Pakistan EIA Guidelines

Neither an IEE nor an EIA is required for the project because the project is not applicable to both “Schedule I” and “Schedule II”. There are no descriptions on landslide project in the Pakistan EIA Guidelines.

b. JICA Screening Form

As Table 11.2.2 shows, the project will not expect to impact on the local environment negatively. Therefore, neither an IEE nor an EIA is required for the project.

Table 11.2.2 Screening for Landslide Pilot Project for Muzaffarabad City

| Environmental Item | | Description | Evaluation | Remarks(Reason) |
|---------------------|----------------|---|---|---|
| Social Environment | 1 | Involuntary Resettlement | Resettlement due to land occupancy(transfer of rights of residence/land ownership) | No No land acquisition is required because the purposes are to install the equipment of warning system and educate the inhabitant about disaster prevention. |
| | 2 | Economic Activities | Loss of bases of economic activities, such as land, and change of economic structure | No The project does not include components to lose bases of economic activities. |
| | 3 | Traffic/Public Facilities | Impacts in schools, hospitals and present traffic condition, such as the increase of traffic congestion and accidents | No The project does not include components to impact traffic/public facilities. |
| | 4 | Splits of Communities | Community split due to interruption of area traffic | No The project does not include components to interrupt area traffic. |
| | 5 | Cultural Property | Damage to or loss of the value of churches, temples, shrines, archaeological remains or other cultural assets | No No cultural properties in and around the project site. |
| | 6 | Water Rights /Common | Obstruction of fishing rights, water rights, rights of common | No No fishing rights, water rights, rights of common in the project site. |
| | 7 | Public Health Condition | Deterioration of public health and sanitary conditions due to generation of garbage and the increase of vermin | No The project does not include components to deteriorate public health and sanitary conditions. |
| | 8 | Waste | Generation of construction and demolition waste, debris and logs | No No construction works and demolition in the project. |
| | 9 | Hazards(Risk) | Increase in risk of landslides, rock falling and accidents | No The project is to prevent and mitigate damage to the inhabitant from landslide. |
| Natural Environment | 10 | Topography and geology | Changes of valuable topography and geology due to excavation or filling work | No The project does not include components to change topography and geology. |
| | 11 | Soil Erosion | Topsoil erosion by rainfall after reclamation and vegetation removal | No The project does not include components to lead to soil erosion. |
| | 12 | Groundwater | Changes of distribution of groundwater by large-scale excavation | No The project does not include excavation to change distribution of groundwater. |
| | 13 | Hydrological Situation | Changes of river discharge and riverbed condition due to landfill and drainage inflow | No The project site is not located on rivers. |
| | 14 | Coastal Zone | Coastal erosion and sedimentation due to landfill or change in marine condition | No The project site is not located on costal zone. |
| | 15 | Fauna and Flora | Obstruction of breeding and extinction of species due to changes of habitat conditions | No There is no habitat of precious fauna and flora in the project site. |
| | 16 | Meteorology | Changes of temperature, precipitation, wind, etc. due to large-scale reclamation and building construction | No The project does not large-scale reclamation and building construction. |
| 17 | Landscape | Changes of topology and vegetation due to reclamation. Deterioration of aesthetic harmony by structures | No The project is not large-scale construction to change landscape. | |
| Pollution | 18 | Air pollution | Pollution caused by exhaust gas or toxic gas from vehicles and factories | No The project does not include construction works with vehicles. |
| | 19 | Water Pollution | Pollution by inflow of silt, sand and effluent into rivers and groundwater | No The project does not include construction works to generate silt, sand and effluent. |
| | 20 | Soil Contamination | Contamination of soil by dust and chemicals, such as herbicides | No The project does not include construction works with materials to contaminate soil. |
| | 21 | Noise and Vibration | Noise and vibration generated by vehicles | No The project does not include construction works with vehicles. |
| | 22 | Land Subsidence | Deformation of land and land subsidence due to the lowering of groundwater table | No The project does not include construction works deform land and pump up a large amount of groundwater. |
| 23 | Offensive Odor | Generation of exhaust gas and offensive odor by facility construction and operation | No The project does not include construction works with vehicles. | |
| Overall evaluation: | | Either IEE or EIA is necessary for the project implementation? | No | No negative impact can be expected because the purposes are to install the equipment of warning system and educate the inhabitant about disaster prevention. |

Source: JICA Study Team

11.3. Environmental Considerations for Action Plans

11.3.1. Action Plan No. 1: West Bank Bypass Road Construction Project

(1) Project Summary

The West Bank Bypass Road Construction Project is summarized as follows. More details are described in Table 6.6.1 in the section “6.6 Action Plan” of the main report.

1) Project components:

- Total length of bypass road : 5.0 km
- Construction of Naluchi bridge : L = 210 m
- Rehabilitation of small size bridge : 3 locations
- Countermeasure for land slide section at Panjgran Area : L = 300 m
- Widening existing road section: L=4.4 km, New alignment section: L=0.7 km
- Slope stability measure at climbing section : L = 1.2 km
- Intersection improvement : 4 location

2) Project costs: US\$ 18 million

3) Construction period: 18 months

4) Implementation agency: PWD of AJK Government

(2) Screening

An EIA is required for the project through the screenings in the Pakistan EIA Guidelines and JICA Screening Form.

a. Pakistan EIA Guidelines

The EIA is required for the project because the total project cost is estimated about Rs. 1,080 million (US\$ 18 million). The amount of project cost is applicable to the “Schedule II” in the Pakistan EIA Guidelines. The item “D. Transport” stipulates that an EIA is required for the following projects.

- Federal or provincial highway or major roads (except maintenance, rebuilding or reconstruction of existing roads) with total cost of Rs. 50 million and above”

b. JICA Screening Form

As the Table 11.3.1 shows, the project is expected to impact on several items of the local environment negatively. Therefore, an EIA is required for the project especially for the negative impacts on the social environment.

Table 11.3.1 Screening for West Bank Bypass Road Construction Project

| Environmental Item | | Description | Evaluation | Remarks(Reason) | |
|---------------------|----|--|---|---|---|
| Social Environment | 1 | Involuntary Resettlement | Resettlement due to land occupancy(transfer of rights of residence/land ownership) | Yes | There are cultivated lands and buildings such as houses, shops, and temporary school on the existing road. The ROW would affect the lands and buildings in some cases according to the design of alignment. |
| | 2 | Economic Activities | Loss of bases of economic activities, such as land, and change of economic structure | Yes | The alignment could affect economic activities on the existing road and the new alignment section. |
| | 3 | Traffic/Public Facilities | Impacts in schools, hospitals and present traffic condition, such as the increase of traffic congestion and accidents | Yes | Increase of through traffic could generate traffic accidents. |
| | 4 | Splits of Communities | Community split due to interruption of area traffic | Yes | The section of new road construction could interrupt area traffic. |
| | 5 | Cultural Property | Damage to or loss of the value of churches, temples, shrines, archaeological remains or other cultural assets | Uncertain | There would be no cultural properties on the provisional alignment. |
| | 6 | Water Rights /Common | Obstruction of fishing rights, water rights, rights of common | No | No fishing rights, water rights, rights of common in the project site. |
| | 7 | Public Health Condition | Deterioration of public health and sanitary conditions due to generation of garbage and the increase of vermin | Uncertain | There is no large amount of garbage during the construction period but more exhaust gas could affect the inhabitant on the road. |
| | 8 | Waste | Generation of construction and demolition waste, debris and logs | Yes | Construction and demolition waste, construction surplus soil can be generated during construction period. |
| | 9 | Hazards(Risk) | Increase in risk of landslides, rock falling and accidents | No | Countermeasures for landslide are included in the project. |
| Natural Environment | 10 | Topography and geology | Changes of valuable topography and geology due to excavation or filling work | Uncertain | The project is not large-scale construction to change topography and geology but several parts of alignment would include cut and fill works. |
| | 11 | Soil Erosion | Topsoil erosion by rainfall after reclamation and vegetation removal | Uncertain | Several parts of alignment would include cut and fill works. |
| | 12 | Groundwater | Changes of distribution of groundwater by large-scale excavation | No | The project has no large-scale excavation to change distribution of groundwater. |
| | 13 | Hydrological Situation | Changes of river discharge and riverbed condition due to landfill and drainage inflow | Uncertain | The bridge construction could lead to change of river discharge. |
| | 14 | Coastal Zone | Coastal erosion and sedimentation due to landfill or change in marine condition | No | The project site is not located on coastal zone. |
| | 15 | Fauna and Flora | Obstruction of breeding and extinction of species due to changes of habitat conditions | Uncertain | There would be no habitat of precious fauna and flora in the project site. |
| | 16 | Meteorology | Changes of temperature, precipitation, wind, etc. due to large-scale reclamation and building construction | No | The project is not large-scale construction to change local weather. |
| Pollution | 17 | Landscape | Changes of topology and vegetation due to reclamation. Deterioration of aesthetic harmony by structures | Uncertain | The bridge structure could spoil harmony with surrounding landscape. |
| | 18 | Air pollution | Pollution caused by exhaust gas or toxic gas from vehicles and factories | Uncertain | The construction vehicles could increase exhaust gas, and through traffic could generate more exhaust gas. |
| | 19 | Water Pollution | Pollution by inflow of silt, sand and effluent into rivers and groundwater | Uncertain | Road construction works and bridge construction works could affect quality of river water. |
| | 20 | Soil Contamination | Contamination of soil by dust and chemicals, such as herbicides and asphalt emulsion | Yes | Asphalt emulsion for paving works could leak during the construction period. |
| | 21 | Noise and Vibration | Noise and vibration generated by vehicles | Yes | The construction noises are generated, and increase of through traffic could generate noise and vibration. |
| | 22 | Land Subsidence | Deformation of land and land subsidence due to the lowering of groundwater table | No | The project is not large-scale construction to deform land and pump up a large amount of groundwater. |
| | 23 | Offensive Odor | Generation of exhaust gas and offensive odor by facility construction and operation | No | No negative impact, however, there could be some exhaust gas or odor during the construction period. |
| Overall evaluation: | | Either IEE or EIA is necessary for the project implementation? | Yes | Negative impacts are expected in several items. | |

Source: JICA Study Team

(3) Scoping

a. Pakistan EIA Guidelines

The Pakistan EIA Guidelines include sectoral guidelines for environmental reports-Major Roads that the Federal Agency may issue for preparation of an EIA. Purposes of the sectoral guidelines are to assist proponents to identify the key environmental issues that need to be addressed as well as mitigation measures and alternatives should be considered for projects of major roads. The issues of potential environmental impacts are as follows.

Table 11.3.2 Checklist of Environmental Parameters for Major Road Projects (1/2)

| Actions affecting environmental resources and values | Potential damage to the environment | Recommended protection and mitigation measures |
|--|---|---|
| 1. Site selection | Water, Flora and Fauna, Geological or soils, Transport, Community and Cumulative issues | Depends on nature of problem -reject site if inappropriate |
| 2. Land use | | |
| (a) displacement of existing uses | loss of livelihood and cultural amenity for those persons displaced | adequate resettlement and compensation to allow viable lifestyle to continue |
| (b) severance | reduces access and viability of land uses | reinstatement of access, and amalgamation of severed properties |
| (c) indirect impacts on natural resources | loss of natural resources and ecosystems | management planning and controls to protect sensitive resources and ecosystems |
| (d) induced land use change | loss of traditional uses, and deterioration of environment from unplanned change | implement strong planning controls where essential, and plan to provide infrastructure for inevitable land use change |
| 3. Transport and traffic | | |
| (a) dislocation of traffic during construction | safety and convenience for existing road users can be jeopardised | adequate planning of the delivery of construction materials, and the provision and signing of alternative routes for local traffic |
| (b) adequate planning for safe operating conditions | bottlenecks and congestion can led to accidents and pollution | adequate planning of future traffic volumes (including traffic from induced development) and provision of suitable connections to the existing road network |
| (c) Lack of provision for a variety of road users | safety and convenience for existing road users can be jeopardised | provide adequate road space for public transport and slower non-motorised transport modes including cyclists & pedestrians |
| 4. Noise and vibration | | |
| (a) vehicle noise at source | stress and hearing loss | introduce and enforce national standards |
| (b) noise from traffic stream | sleep interference and reduced speech intelligibility | ensure major new roads have wide road reservations to allow treed buffer; provide noise barriers and acoustic treatment to protect sensitive receptors |
| 5. Air quality | | |
| (a) construction | damage to human health | control dust and odour generation by watering haul Toads, ceasing work in high winds, and adopting air quality control systems on crushing, concrete and bitumen plants |
| (b) operations | damage to human health | regulate to reduce emissions at source & remove lead from petrol; increase public transport use and reduce congestion through traffic management |
| 6. Soil stability and erosion | environmental degradation | minimise area denuded of ground cover at any one time; stabilise cuttings, embankments, river banks, trenches and open channels; revegetate cleared surfaces |

Source: Sectoral guidelines for environmental reports-major roads, 1997

Table 11.3.3 Checklist of Environmental Parameters for Major Road Projects (2/2)

| Actions affecting environmental resources and values | Potential damage to the environment | Recommended protection and mitigation measures |
|--|--|---|
| 7. Water quality | | |
| (a) erosion and sedimentation | degradation of natural water bodies and wildlife habitats | minimise stormwater flow onto the project site, and from it: minimise erosion, sedimentation and nutrient run-off (e.g. artificial basins and wetlands, grass filter strips and buffers) |
| (b) contamination from accidental spills | degradation of natural water bodies and wildlife habitats | bund storages of chemicals, and collect wash down water and run-off from concrete, bitumen and crushing plants for clean-up and re-use |
| 8. Ground water | impairment of beneficial uses; changes to groundwater levels | prevent groundwater contamination by bunding and sealing fuel and chemical storages; compensate landowners affected by lowered water tables and provide alternative water sources; allow for stability effects in design process |
| 9. Stormwater management and flooding | threat to human health and amenity, and to natural systems | allow for flood impacts of the in design process: provide adequate water-way area under bridges and around embankments |
| 10. Water supply | deprivation of other users | make arrangements for water supply that do not impact on existing users; re-use and recycle water on site |
| 11. Flora and fauna | destruction of habitats and species | provide compensatory habitat; protect habitat from accidental damage; time disturbances to minimise impacts on breeding cycle |
| 12. Social | breakdown of community well-being and cohesion | if community severance and loss of valued community facilities and amenity are unavoidable, provide replacement facilities |
| 13. Landscape and visual amenity | loss of aesthetic values and human amenity | design, implement and maintain detailed rehabilitation and landscaping works for cleared construction areas; aim for visual harmony in bridges and other structures |
| 14. Heritage values | loss of cultural heritage | record and relocate artifacts in accordance with a conservation plan |
| 15. Hazards | | |
| (a) during construction | threat to human life and the environment | carefully store chemicals and explosives and implement safety procedures for their use |
| (b) during operations | threat to human life and environmental degradation | road related hazards (sight distance, fog, ice) should be minimised through good design and maintenance practices, and operational emergency procedures to respond to accidents involving hazardous chemicals should be prepared and practiced |
| (c) natural hazards | threat to human well being | road design parameters should allow for natural hazards (e.g. seismic activity and land slips). A Disaster Plan should be prepared in cooperation with regional authorities |
| 16. Economic issues | impacts on the local and regional economy (e.g. displaced activity, induced development, tourism, and town bypasses) | assistance programs may be necessary, to ensure that communities are able to cope with the predicted changes. In cases of rapid induced development, infrastructure (power and water supply, and waste management facilities) will need to be provided. |
| 17. Health | spread of mosquito borne and communicable diseases | good planning and design will minimise the likelihood of ponded water, the accumulation of wastes, and service areas problems |

Source: Sectoral guidelines for environmental reports-major roads, 1997

b. JICA Scoping Form

Table 11.3.4 shows the results of scoping by JICA's form based on the screening. These are preliminary evaluations. Evaluations are difficult at present because the project plan has not studied enough. Therefore, there are few data about the project and the local conditions. Most parts of the bypass road alignment are on the existing road. However, the ROW has not been designed yet. Besides, the AJK-EPC can not work adequately due to lack of manpower. The members have other tasks to manage rehabilitation and reconstruction works. Therefore further detail investigation about the local environment is required in the detail studies of project.

Evaluated categories of environmental items are as follows. Resettlement action plans are required for the involuntary resettlement.

A: Serious impacts is expected

- Involuntary Resettlement

B: Some impact is expected

- Economic Activities, Traffic/Public Facilities, Splits of Communities, Waste, Soil Contamination, and Noise and Vibration

C: Extent of impact is unknown

(Examination is needed. Impacts may become clear as study progresses.)

- Cultural Property, Public Health Condition, Topography and geology, Soil Erosion, Hydrological Situation, Fauna and Flora, Landscape, Air pollution, and Water Pollution

Table 11.3.4 Scoping Checklist for West Bank Bypass Road Construction Project

| | Environmental Item | Evaluation | Reason | |
|---------------------|--------------------|---------------------------|--------|--|
| Social Environment | 1 | Involuntary Resettlement | A | About 50 houses and more would be affected due to widening of the existing road and new road construction. |
| | 2 | Economic Activities | B | Some cultivated land would be affected due to widening of the road or new road construction. |
| | 3 | Traffic/Public Facilities | B | Increase of through traffic generates traffic accidents on the bypass road especially for schools. |
| | 4 | Splits of Communities | B | The new road might split some communities. |
| | 5 | Cultural Property | C | There would be no cultural properties on the provisional alignment. |
| | 6 | Water Rights /Common | D | No fishing rights, water rights, rights of common in the project site. |
| | 7 | Public Health Condition | C | Low negative impact because there is no large amount of garbage during the construction period. Depending on natural conditions on the alignment, exhaust gas could diffuse into the air easily. |
| | 8 | Waste | B | Construction and demolition waste, construction surplus soil can be generated during construction period. |
| | 9 | Hazards(Risk) | D | The project site is located on gentle slope land. Countermeasures for landslide are included in the project. |
| Natural Environment | 10 | Topography and geology | C | Cut and fill works at several parts of alignment would change geography on a small scale. |
| | 11 | Soil Erosion | C | Several parts of alignment would include cut and fill works. The construction works could cause soil erosion in rain season. |
| | 12 | Groundwater | D | The project has no large-scale excavation to change distribution of groundwater. |
| | 13 | Hydrological Situation | C | The bridge construction could lead to change of river discharge. However, the design and construction method of bridge can address the issues. |
| | 14 | Coastal Zone | D | The project site is not located on costal zone. |
| | 15 | Fauna and Flora | C | There would be no habitat of precious fauna and flora on the provisional alignment, and the site is not close to environmentally sensitive area. |
| | 16 | Meteorology | D | The project is not large-scale construction to change local weather. |
| Pollution | 17 | Landscape | C | The bridge structure could spoil harmony with surrounding landscape, however, it is manageable by design of bridge structure. |
| | 18 | Air pollution | C | The construction vehicles could increase exhaust gas but temporarily. Increase of through traffic could generate more exhaust gas. |
| | 19 | Water Pollution | C | Serious impact is not expected on water pollution due to toxic substance, however, some could be expected by sediment discharge due to bridge pier construction according to the bridge design of structure. |
| | 20 | Soil Contamination | B | Asphalt emulsion for paving works could leak during the construction period, however, it is manageable level by prevention measure. |
| | 21 | Noise and Vibration | B | The construction noises are generated but temporarily. Increase of through traffic could generate more noise and vibration. |
| | 22 | Land Subsidence | D | The project includes cut and fill works to widen the existing road and construct new road, however, these are no activities to deform land and pump up a large amount of groundwater considerably. |
| | 23 | Offensive Odor | D | Temporary offensive odor is expected due to asphalt emulsion for paving works, and exhaust gas of construction vehicles and machine during construction period. |

Note: Evaluation categories:

A: Serious impacts is expected

B: Some impact is expected

C: Extent of impact is unknown (Examination is needed. Impacts may become clear as study progresses.)

D: No impact is expected. IEE/EIA is not necessary.

Source: JICA Study Team

11.3.2. Action Plan No. 2: New Satellite Urban Zoon (Airport Area) Creation and Access Road Project

(1) Project Summary

The New Satellite Urban Zoon (Airport Area) Creation and Access Road Project is summarized as follows. More details are described in Table 6.6.2 in the “section 6.6 Action Plan” of the Main Report.

5) Project components:

- New land creation : 50 ha (supposed embankment volume 2.5 M m³)
- Inter-road construction for new land : 12 km
- Retaining wall for new land : H = 10 m, L = 5,000 m
- Water supply to new land : Intake, purification and transmission facility
- Rehabilitation of Airport Road : L = 5.0 km
- Rehabilitation of small size bridge on Airport Road : 2 locations
- Construction of new bridge cross over Jhelum River form Jhelum Valley Road for access to new land : L = 100 m (for bridge)
- Construction of new road from Jhelum Valley Road to Airport Road : L = 0.65 km

6) Construction period: 18 months

7) Implementation agency: AJK Governments

(2) Screening

An EIA is required for the project through the screenings in the Pakistan EIA Guidelines and JICA screening form.

a. Pakistan EIA Guidelines

The EIA is required for the project because the scale of project is large: new land creation of total 50 ha with infrastructure. This large scale urban plan would be applicable to the “Schedule II” in the Pakistan EIA Guidelines although the guidelines do not specify the scale in detail. The item “H. Urban development and tourism” stipulates that an EIA is required for the following projects.

- Land use studies and urban plans (large cities).

b. JICA Screening Form

As the Table 11.3.5 shows, the project is expected to impact on several items of the local environment negatively. Therefore, an EIA is required for the project especially for the negative impacts on the social environment.

Table 11.3.5 Screening for New Satellite Urban Zoon (Airport Area) Creation and Access Road Project

| Environmental Item | | Description | Evaluation | Remarks(Reason) | |
|---------------------|----|--|---|---|--|
| Social Environment | 1 | Involuntary Resettlement | Resettlement due to land occupancy (transfer of rights of residence/land ownership) | Yes | Houses and cultivated lands of inhabitant are located at major part of the project site. |
| | 2 | Economic Activities | Loss of bases of economic activities, such as land, and change of economic structure | Yes | Land acquisition could force inhabitant to change their economic activities. |
| | 3 | Traffic/Public Facilities | Impacts in schools, hospitals and present traffic condition, such as the increase of traffic congestion and accidents | Uncertain | Public facilities are relocated according to the plan, but the locations of existing public facilities are uncertain. |
| | 4 | Splits of Communities | Community split due to interruption of area traffic | Uncertain | New road pattern will be designed not to interrupt area traffic. |
| | 5 | Cultural Property | Damage to or loss of the value of churches, temples, shrines, archaeological remains or other cultural assets | Uncertain | Existences and locations of cultural properties are uncertain. |
| | 6 | Water Rights /Common | Obstruction of fishing rights, water rights, rights of common | Uncertain | Existences of water rights and rights of common are uncertain. |
| | 7 | Public Health Condition | Deterioration of public health and sanitary conditions due to generation of garbage and the increase of vermin | Yes | Population increase can generate more garbage. |
| | 8 | Waste | Generation of construction and demolition waste, debris and logs | Yes | Construction and demolition waste, construction surplus soil can be generated due to cut and fill works. |
| | 9 | Hazards(Risk) | Increase in risk of landslides, rock falling and accidents | No | Countermeasures for landslide are included in the project. |
| Natural Environment | 10 | Topography and geology | Changes of valuable topography and geology due to excavation or filling work | Uncertain | Existences of valuable topography and geology are uncertain, but the project requires cut and fill works. |
| | 11 | Soil Erosion | Topsoil erosion by rainfall after reclamation and vegetation removal | Yes | Soil erosion can be generated during land formation works. |
| | 12 | Groundwater | Changes of distribution of groundwater by large-scale excavation | Uncertain | The project would not include a large-scale excavation to change distribution of groundwater. |
| | 13 | Hydrological Situation | Changes of river discharge and riverbed condition due to landfill and drainage inflow | Uncertain | The bridge construction could lead to change of river discharge. |
| | 14 | Coastal Zone | Coastal erosion and sedimentation due to landfill or change in marine condition | No | The project site is not located on costal zone. |
| | 15 | Fauna and Flora | Obstruction of breeding and extinction of species due to changes of habitat conditions | Uncertain | There would be no habitat of precious fauna and flora in the project site. |
| | 16 | Meteorology | Changes of temperature, precipitation, wind, etc. due to large-scale reclamation and building construction | No | The project is not large-scale construction to change local weather. |
| | 17 | Landscape | Changes of topology and vegetation due to reclamation. Deterioration of aesthetic harmony by structures | Uncertain | The bridge structure could spoil harmony with surrounding landscape, but it is manageable by design of bridge structure. The land is prepared based on the existing landscape. |
| Pollution | 18 | Air pollution | Pollution caused by exhaust gas or toxic gas from vehicles and factories | Uncertain | The construction vehicles could increase exhaust gas, and increase of traffic could generate more exhaust gas after constructions. |
| | 19 | Water Pollution | Pollution by inflow of silt, sand and effluent into rivers and groundwater | Yes | All construction works and bridge construction works could affect quality of river water. |
| | 20 | Soil Contamination | Contamination of soil by dust and chemicals, such as herbicides | Yes | Asphalt emulsion for paving works could leak during the construction period. |
| | 21 | Noise and Vibration | Noise and vibration generated by vehicles | Yes | The construction noises are generated, and increase of traffic could generate noise and vibration as the area will be urbanized. |
| | 22 | Land Subsidence | Deformation of land and land subsidence due to the lowering of groundwater table | No | The project is not large-scale construction to deform land and pump up a large amount of groundwater. |
| | 23 | Offensive Odor | Generation of exhaust gas and offensive odor by facility construction and operation | No | No negative impact, however, there could be some exhaust gas or odor during the construction period. |
| Overall evaluation: | | Either IEE or EIA is necessary for the project implementation? | Yes | Negative impacts are expected in several items. | |

Source: JICA Study Team

(3) Scoping**a. Pakistan EIA Guidelines**

The Pakistan EIA Guidelines include sectoral guidelines for environmental reports-Housing Estates and New Town Development that the Federal Agency may issue for preparation of an EIA. Purposes of the sectoral guidelines are as same as the one for projects of major roads. The issues of potential environmental impacts are as follows.

Table 11.3.6 Checklist of Environmental Parameters for Housing Estates and New Town Development Projects (1/2)

| Actions Affecting Environmental Resources and Values | Damage to Environment | Recommended Feasible Measures |
|--|--|--|
| A. Problems Related to Site Selection | A. Depends on Nature of Problem | A. Depends on Nature of Problem - Reject site if inappropriate |
| 1. Displacement of existing land use e.g. agricultural land | 1. Loss of economic resource | 1. Proper quantification of impacts. |
| 2. Destruction of sensitive areas | 2. Loss of natural habitat | 2. Proper valuation of impacts. |
| 3. Natural adverse site conditions | 3. Impact on human welfare | 3. Design accordingly. |
| 4. Existing hazardous man-made conditions | 4. Impact on human welfare | 4. Design accordingly. |
| 5. Existence of hazards from adjacent land | 5. Nuisance/hazards to workmen & residents | 5. Abate pollution adequate buffer areas |
| 6. hazards from air pollution due to temperature inversions | 6. Impact on human health and welfare | 6. Design accordingly use non-polluting technologies |
| 7. Displacement of other site users particularly people & businesses | 7. Social inequities | 7. Adequate resettlement planning and budgeting |
| 8. Impairment of historical/cultural resources | 8. Loss or impairment of these values | 8. Careful planning/design, plus offsetting measures |
| 9. Availability of existing infrastructure and services | 9. Overloading of existing infrastructure | 9. Expanding infrastructure where possible |
| 10. Local and traditional industry | 10. Interference to existing patterns of activity and resource use | 10. Review and adapt the design; consider indigenous building techniques |
| B. Problems Related to Design Phase | B. Depends on Nature of Problem | B. Depends on Nature of Problem |
| 1. Impairment of natural habitat & recreational areas | 1. Loss of habitat and recreational areas | 1. Careful layout and design sympathetic to natural characteristics |
| 2. Depletion/pollution of local ground water | 2. Loss of water supplies for human & other use | 2. Careful planning and monitoring. |
| 3. Downstream effects of drainage and pollution | 3. Health and safety of down stream users | 3. Careful design/ O&M, & operation monitoring |
| 4. Traffic and transport issues | 4. Air pollution & noise affect human health | 4. Careful traffic and circulation planning |
| 5. Degrading habitat - introduced species | 5. Loss of habitat | 5. Careful planning and management practice |
| 6. Local infrastructure impacts | 6. Deteriorating services for local community | 6. Careful regional planning |
| 7. Solid waste management | 7. Impacts on human health | 7. Careful planning, O&M and monitoring |
| 8. Co-ordination of utilities | 8. Disruption of services and safety | 8. Careful planning and standards compliance |

Source: Sectoral guidelines for environmental reports- Housing Estates and New Town Development, 1997

Table 11.3.7 Checklist of Environmental Parameters for Housing Estates and New Town Development Projects (2/2)

| Actions Affecting Environmental Resources and Values | Damage to Environment | Recommended Feasible Measures |
|---|--|--|
| C. Problems During Construction Stage | C. Unnecessary Environmental Damages | C. Careful Construction Planning & Monitoring |
| 1. Silt runoff from construction operations | 1. Soil erosion with damage to property and aesthetic values | 1. Erosion control planning and careful monitoring |
| 2. Dangers to workers from accident, disease quarrying, & emissions | 2. Injuries to workers and nearby residents | 2. Careful construction planning and monitoring |
| 3. Local flooding from watering excavations, flushing of pipes | 3. Local flooding damages | 3. Careful construction planning and monitoring |
| 4. Loss/degradation of vegetation from mechanical damage | 4. Loss of vegetation, forest and habitat in general | 4. Careful construction planning and monitoring |
| 5. Traffic congestion and blocking of access | 5. Loss of time and fuel and accidents | 5. Careful construction planning/monitoring |
| D. Problem During Operation Stage | D. Depends on Nature of Problem | D. Careful O&M, plus Operation Monitoring |
| 1. Occupational health inadequacies | 1. Damage to worker safety and health | 1. Occupational health plan plus monitoring |
| 2. Inadequate O&M performance | 2. Damage to worker safety | 2. Occupational health plan plus monitoring |
| 3. Nuisance, pollution hazards poor O&M | 3. Nuisance/damage to workers & residents | 3. Competent O&M |

Source: Sectoral guidelines for environmental reports- Housing Estates and New Town Development, 1997

b. JICA Scoping Form

Table 11.3.8 shows the results of scoping by JICA’s form based on the screening. These are also preliminary evaluations. Evaluations are difficult at present because the project plan has not studied enough yet; it is the same reason of the west bank bypass road construction project. Therefore further detail investigation about the local environment is required in the detail studies of project.

Evaluated categories of environmental items are as follows. Resettlement action plans are required for the involuntary resettlement.

A: Serious impacts is expected

- Involuntary Resettlement, Economic Activities, and Water Pollution

B: Some impact is expected

- Public Health Condition, Waste, Soil Erosion, Soil Contamination, Noise and Vibration

C: Extent of impact is unknown

(Examination is needed. Impacts may become clear as study progresses.)

- Traffic/Public Facilities, Splits of Communities, Cultural Property, water right/Common, Topography and geology, Groundwater, Hydrological Situation, Fauna and Flora, Landscape, and Air pollution

Table 11.3.8 Scoping Checklist for New Satellite Urban Zoon (Airport Area) Creation and Access Road Project

| | Environmental Item | Evaluation | Reason | |
|---------------------|--------------------|---------------------------|--------|---|
| Social Environment | 1 | Involuntary Resettlement | A | Most area is occupied by houses and cultivated lands, but the number of families, population and size of land affected by the project are uncertain. |
| | 2 | Economic Activities | A | Most cultivated lands are affected by the project. The inhabitant possibly have to change their livelihood, however, there could be opportunities to obtain new business due to the construction of new urban area. |
| | 3 | Traffic/Public Facilities | C | The existing structure of traffic/public facilities are restructured by the project plans. |
| | 4 | Splits of Communities | C | It is uncertain how the existing communities are resettled or restructured for inside and outside of the project site. However, the existing communities should be sustained at anywhere. |
| | 5 | Cultural Property | C | The existing mosques should be reconstructed if those are located in the project site. |
| | 6 | Water Rights /Common | C | Existences of water rights and rights of common are uncertain. |
| | 7 | Public Health Condition | B | Population increase can generate more garbage in the long term. |
| | 8 | Waste | B | Construction and demolition waste, construction surplus soil can be generated due to cut and fill works. |
| | 9 | Hazards(Risk) | D | The project site is located on gentle slope land. Retaining wall construction for new land is included in the project. |
| Natural Environment | 10 | Topography and geology | C | The project requires cut and fill works. However, the site has been prepared for houses and agricultural lands. |
| | 11 | Soil Erosion | B | Soil erosion can be generated during land formation works in rain season. |
| | 12 | Groundwater | C | The project would not include a large-scale excavation to change distribution of groundwater. |
| | 13 | Hydrological Situation | C | The bridge construction could lead to change of river discharge. However, the design and construction method of bridge can address the issues. |
| | 14 | Coastal Zone | D | The project site is not located on costal zone. |
| | 15 | Fauna and Flora | C | There would be no habitat of precious fauna and flora on the provisional alignment, and the site is not close to environmentally sensitive area. |
| | 16 | Meteorology | D | The project is not large-scale construction to change local weather. |
| Pollution | 17 | Landscape | D | The bridge structure could spoil harmony with surrounding landscape, but it is manageable by design of bridge structure. The land is prepared based on the existing landscape. |
| | 18 | Air pollution | C | The construction vehicles could increase exhaust gas but temporarily. Increase of traffic can generate more exhaust gas as the area will be urbanized. |
| | 19 | Water Pollution | A | Serious impact is not expected on water pollution due to toxic substance, however, some could be expected by sediment discharge due to bridge pier construction according to the bridge design. However, population increase can generate more waste water as the area will be urbanized. |
| | 20 | Soil Contamination | B | Asphalt emulsion for paving works could leak during the construction period but it is manageable level by prevention measure. |
| | 21 | Noise and Vibration | B | The construction noises are generated but temporarily. Increase of traffic could generate more noise and vibration as the area will be urbanized. |
| | 22 | Land Subsidence | D | The project includes cut and fill works to prepare new land, however, these are no activities to deform land and pump up a large amount of groundwater considerably. |
| | 23 | Offensive Odor | D | Temporary offensive odor is expected due to asphalt emulsion for paving works, and exhaust gas of construction vehicles and machine during construction period. |

Note: Evaluation categories:

A: Serious impacts is expected

B: Some impact is expected

C: Extent of impact is unknown (Examination is needed. Impacts may become clear as study progresses.)

D: No impact is expected. IEE/EIA is not necessary.

Source: JICA Study Team

12. DONOR ACTIVITIES

12.1. Emergency Response

12.1.1. Summary of the Donors Conference

On November 19, 2005, about a month after a massive earthquake and several aftershocks hit northern Pakistan, the government held a Donors Conference on Rehabilitation and Reconstruction of Earthquake Affected Areas. President Pervez Musharraf of Pakistan chaired the conference and representatives from 53 countries and 20 international organizations participated in the meeting, including Mr. Kofi Annan, Secretary General of the United Nations and Mr. Haruhiko Kuroda, President of Asian Development Bank. From the Japanese Government, His Excellency Yasuhisa Shiozaki, Senior Vice-Minister for Foreign Affairs attended it. In the session, Mr. Kofi Annan, Secretary General of the United Nations, called for the support of the international communities, and afterwards President Pervez Musharraf of Pakistan requested additional assistance. In the end of the conference, Mr. Shaukat Aziz, Prime Minister of Pakistan, announced that the total amount of US\$5.8 billion was pledged for rehabilitation and reconstruction of the affected areas, which meant that US\$ 5.2 billion, the amount calculated according to the Preliminary Damage and Needs Assessment released by World Bank and ADB, would meet the financial need. The Japanese Government announced that it would provide yen loan amounting to US\$ 100 million to the Government of Pakistan.

12.1.2. Government and Army Response

The Government of Pakistan has done an excellent job in responding to the needs of the disaster victims in Azad Kashmir and NWFP utilizing their leadership skill, resources and organizational capability. In particular, the Pakistan Armed Forces were the ones that led efforts to control and focus government relief efforts, when no other domestic agency could handle the logistical and manpower required for this gigantic and difficult task. And the Armed Forces showed that they could be relied upon in times of crisis.

News of the devastation in AJK and NWFP reached the government within the first hour of the earthquake, according to Inter Services Public Relations (ISPR) sources. And Pakistan Army helicopters were airborne within 50 minutes of the news. They were at the frontline of the rescue operations because the earthquake had blocked all roads leading to the affected areas. There were countless of trips made by the helicopters to fly out the injured to hospitals all over the country.

Army and civilian doctors provided medical treatment; thousands of injured were treated by a team of 121 army doctors and 334 paramedics in forward areas. This was in addition to

hundreds of doctors and paramedics in hospitals all over Pakistan that treated the injured from the earthquake-affected areas.

At the Combined Military Hospital and Military Hospital Rawalpindi, which received the most number of victims that needed medical attention, army doctors carried out 1,925 major operations and 3,100 minor operations. At Armed Forces Institute of Pathology and its affiliated laboratories, over 12,000 tests were carried out and an almost similar number of X-rays were taken. Hundred were also brought in at RGH, Rawalpindi and PIMS, Islamabad with spinal injuries, serious head injuries and multiple fractures, and most of them required major operations.

Rescue and Relief operations were performed by hundreds of Army soldiers. They removed debris to rescue people, provided medical assistance, carried heavy packs of relief supplies to remote areas in hills and returned with the injured on their backs.

Various government and army agencies (NHA & FWO) were able to clear and restore access to the affected areas in record time, so that relief workers and goods could be transported. There was also a tremendous effort made by some other government department to provide services in restoring electricity, water supply and communication.

Assistance from multiple international governments, relief agencies and the private sector were welcomed. The Pakistan Armed Forces embraced and accepted support and advice from external countries, organizations, and the private sector.

Throughout the tremendous pressure of handling the earthquake crisis, the Government of Pakistan has shown remarkable strength and leadership. Emergency powers were given to agencies that needed to increase their capacity to be able to act immediately. A presidential relief fund was set up to oversee the collection of donations for relief and their distribution to where they were needed most. This was done to avoid duplication of efforts and to properly and efficiently serve the target group's needs.

The government did not overlook the danger posed by those who would take advantage of the chaotic situation brought on by the earthquake to kidnap orphans and widows. Checkpoints were set up to ensure the safety of the survivors.

All in all, the governmental response came not only in the form of military operations regarding rescue and relief, but also made some significant accomplishments in the form of organization of efforts done by various individuals and NGOs, by coordinating these efforts and directing them to where needed most.

Moreover, the government of Pakistan organized a Donors conference to coordinate the efforts of various international donors and recorded their pledges and form of donation regarding the earthquake areas of AJK and NWFP as mentioned in above.

12.1.3. Japanese Government Response

Four days after the earthquake occurred, the government of Japan mobilized several teams to help in the rescue and relief operations. Members of Japan Disaster Relief Rescue Team arrived from October 10 to 14, 2005. The team, comprising 49 officials from Foreign Ministry, National Police Agency, Fire and Disaster Management Agency, Coast Guard and JICA, conducted search and rescue operations in Batagram in the North-West Frontier Province of Pakistan. And subsequently from October 12, Medical Teams were dispatched to provide medical care to the afflicted people and they examined more than 2,200 patients; these activities were taken over by Japanese NGOs later on. The Self-Defense Force helicopters commenced relief operations in Batagram area from October 17, to transport relief materials as well as patients. Six helicopters participated in the operations till the end of November 2005. The Government of Japan provided emergency assistance in kind (2,000 blankets, 768 plastic containers, 500 sleeping mats etc.), equivalent to approximately ¥ 25 million. In addition, the Government decided to extend grant assistance amounting to US\$ 20 million for the affected people.

Japan's NGOs under Japan Platform (JPF) have been deeply engaged in humanitarian assistance including distribution of materials for medical assistance with ODA support (approximately ¥ 440 million). JPF commenced the JPF Initial Response: Pakistan Earthquake, scheduled from October 9 to December 8, 2005, targeting 51,000 beneficiaries. 12 NGOs (HuMA, SCJ, JAFS, SVA, JCCP, JEN, NICCO, PWJ, WVJ, Japan Rescue Association, Japan Red Cross Society, AAR) and working in appropriate sectors and in different areas. After December 8, upon the request of the Government of Pakistan, JPF launched "Camp Japan", wintering camp, as Emergency Assistance in the outskirts of Muzaffarabad including Tandoli, Khun Bandway and Ghari Doppata areas. Tandoli Camp had the capacity of more than 1,656 people (276 households) with more than 300 shelters and it contained temporary school tents and safe play area for children. This "Camp Japan" program lasted until the end of April 2006, with ODA support reaching approximately ¥ 120 million, as of December 2005.

Taking into account the continued needs of the earthquake victims, in January 2006, Foreign Minister Taro Asano announced Japan's additional assistance of US\$ 20 million for Emergency Humanitarian Assistance through eight international organizations, namely

UNDP, WFP, UNICEF, UNFPA, UNESCO, UN-HABITAT, ICRC and IFRC, and committed the following:

- ¥ 4 billion (approximately US\$ 35 million) of non-project Grant Assistance for the reconstruction of hospitals and schools and provision of materials
- Support for Rehabilitation of Bridges of Jhelum Valley Road leading to LOC (Line Of Control)
- Emergency Development Study on Rehabilitation and Reconstruction in Muzaffarabad to: 1. draw up a hazard map to identify dangerous areas of landslides; 2. formulate programs on land utilization; and 3. formulate the plan of priority sectors for rehabilitation and reconstruction

Total amount of Japan's assistance (as of January 2006) is

- Loan: ¥ 11.22 billion (approximately US\$ 100million)
- Grant: Approximately US\$ 90.93 million (including bilateral assistance, the one through international organizations and NGOs)
- Total: Approximately US\$ 200 million

12.1.4. UN Agencies' Response

Asian Development Bank (ADB) had publicized that an assistance package totaling US\$ 300 million to help restore infrastructure and livelihoods in the two provinces (AJK and NWFP), which are the areas worst hit by the earthquake in October 2005. This Earthquake Emergency Assistance Project is part of US\$ 1 billion in assistance ADB announced in November. It would reconstruct lost assets and restore services and the most urgent needs would be addressed like transport, power, health and education sectors in AJK and NWFP. The project was designed according to the findings of a preliminary damage and needs assessment for the Government of Pakistan, carried out by ADB and World Bank.

The preliminary needs assessment revealed that Pakistan would need approximately US\$ 5.2 billion to effectively implement a relief, recovery, and reconstruction strategy. It estimated US\$ 3.5 billion would be required for reconstruction, with a large proportion of losses concentrated in housing, public infrastructure; energy, power, and fuel; and the economic sector such as agriculture, livestock, industry and services. The total reconstruction cost for the main sector is as shown below:

Social infrastructure: Private Housing—US\$ 1,552 million; Health—US\$ 303 million; Education—US\$ 472 million; Environment—US \$151 million; Public Administration—US\$ 72 million

Physical Infrastructure: Transport—US\$ 416 million; Water Supply and Sanitation—US\$ 32 million; Irrigation—US\$ 10 million; Energy Power and Fuel—US\$ 40 million.

Economic Sector: Agriculture and Livestock—US\$ 300 million; Industry and Services—US\$ 155 million

World Bank had already transferred US\$ 200 million to Pakistan in the beginning of November 2005.

WB also assessed hazard risk management and social safeguards needs and pointed out that Pakistan needed a more systematic approach to hazard risk management.

12.1.5. International Donors' Response

The international community contributed generously in terms of relief items for the survivors. According to the figures collected from different sources including the ISPR, 49 countries around the globe either donated the relief items or sent their medical or rescue teams to help people in the hour of distress and need.

China, the time-tested friend of Pakistan, with 19% of the total donations remained the main contributor of relief items by sending 1,490 tons of relief items including tents, blankets and medicines.

Saudi Arabia was the second biggest donor, which sent 1,004 tons of relief items for distribution among the needy people. The other main donors of relief items were USA, UAE and Ukraine.

Other countries that sent their donations included Poland, Iran, Greece, Italy, Russia, France, Czech Republic, Jordan, Spain, Singapore, Turkey, Japan, Germany, Malaysia, Netherlands, Sweden, Hungary, Belgium, Cyprus, Qatar, Austria, South Africa, Cuba, Ukraine, Bosnia, Canada, South Korea, Cuba, Libya, Kyrgyzstan, Lebanon, Estonia, Uzbekistan, Thailand, Turkmenistan, Bangladesh, India, UK, Indonesia and Tajikistan.

Non government organizations both national as well as international levels have also contributed generously and remained sixth in the list of main contributors. The role played by NGOs in organizing these efforts was also marvelous. They provided help not only in the relief and rescue, but rather rehabilitation of the people. Running tent schools, locating and securing safety of orphans and widows, organizing media campaign, providing information

regarding hygiene, safety etc were some of the sectors in which local and international NGOs played a vital role.

12.1.6. Media's Response

The role of media should not go without praise. In the entire rescue and relief effort, and even now in reconstruction and rehabilitation, the media played a very positive role. They provided news updates regarding the earthquake, informed people regarding the intensity of devastation, propagated the intensity and need of relief from the private sector, ran shows to provide updates of the relief, reconstruction and rehabilitation process, educated people regarding the reconstruction of their homes as per the requirement of earthquake zone, informed people regarding the procedures laid down by government agencies for seeking compensation and help, organization and coordinated efforts of various NGOs, government agencies and individuals, organizing live shows providing connection between the rescue and relief teams and the people of areas where the help had not reached at that time. It was due to efforts of media that the dire need for the combined and individual efforts was provided. In the rehabilitation sector, a lot of celebrities of TV and film visited earthquake-affected areas to celebrate Eid and other festivals with earthquake-affected people, and bringing gifts and financial assistance for them.

In reconstruction phase, media is still playing its expected role of conducting live shows to provide updates regarding the reconstruction and rehabilitation activities. Besides providing people with requisite information and updates, these live shows serve to push the concerned officials to perform their duties more efficiently.

12.2. Recovery and Rehabilitation Progress

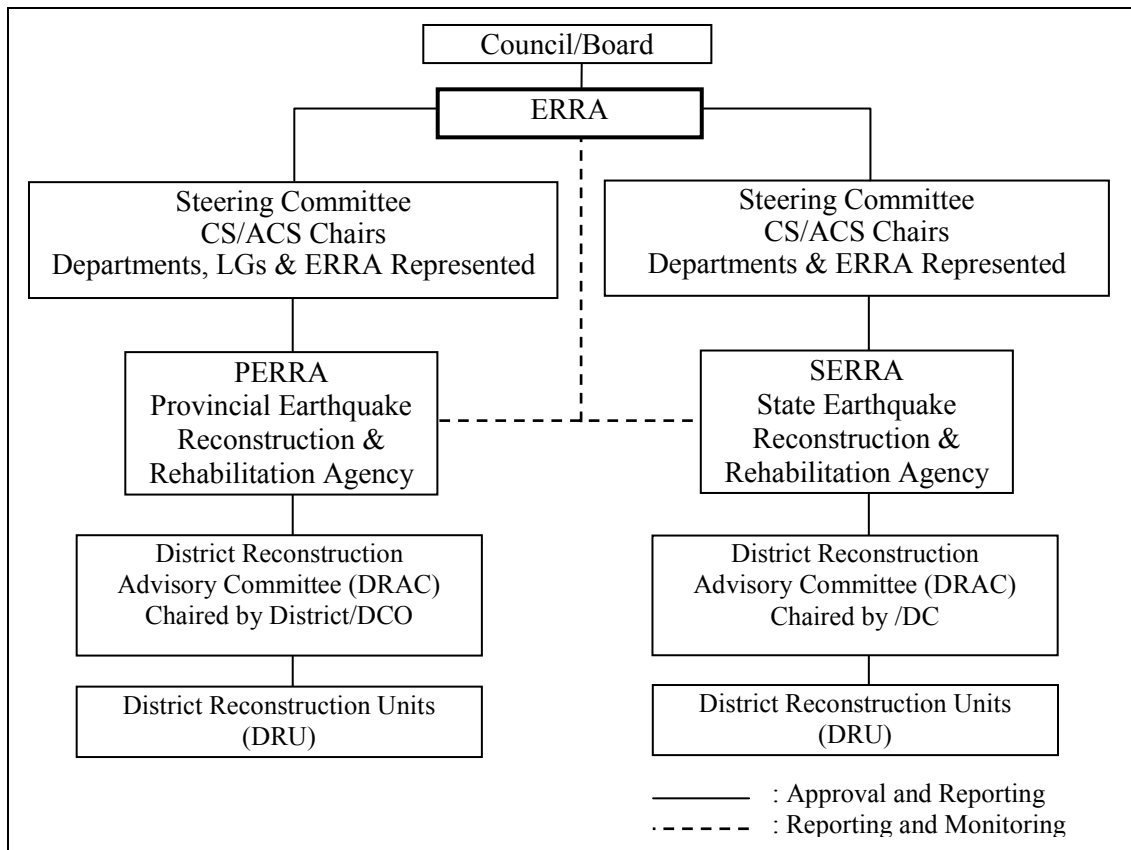
12.2.1. Government Setup

To provide further and ample organization and coordination of efforts, the Earthquake Reconstruction and Rehabilitation Authority (ERRA) was established by the Government in October 2005, which is a responsible body for organizing and coordinating all reconstruction and rehabilitation works being undertaken in the earthquake-affected areas.

There are two regional offices under the umbrella of ERRA, such as PERRA and SERRA. PERRA, which stands for Provincial Earthquake Reconstruction and Rehabilitation Agency, is over NWFP. SERRA (State Earthquake Reconstruction and Rehabilitation Agency) is working under the direct control of AJK planning and development department, located in Muzaffarabad city.

In the district levels, District Reconstruction Advisory Committee (DRAC) and District Reconstruction Unit (DRU) are working in close coordination with NGOs and civil society organization under the control of SERRA, or PERRA as shown in Figure 12.2.1.

Each organization will be explained in next section in detail.



Source: ERRA

Figure 12.2.1 Organization Chart

12.2.2. ERRA

ERRA, established by presidential decree in response to the earthquake, is the executing agency for the project. The role of ERRA is to facilitate, guide, coordinate, approve, monitor, and develop the policy and planning framework for the reconstruction.

ERRA has a council which is the apex body to give general directions in all matters of policy, formulation and administration and other matters performed or done by the Authority.

The composition of the council is as follows.

- | | | |
|----|--|----------|
| 1. | Prime Minister of Pakistan | Chairman |
| 2. | Prime Minister of Azad Jammu & Kashmir | Member |
| 3. | Chief Minister of NWFP | Member |

| | | |
|----|---|--------|
| 4. | Minister for Kashmir Affairs and Northern Areas | Member |
| 5. | Advisor to the Prime Minister for Finance | Member |
| 6. | Deputy Chairman, Planning Commission Pakistan | Member |
| 7. | Chairman, ERRA | Member |

Next to the ERRA council, there is a Board, which shall be responsible for the implementation of the approved programs, projects, and policy decisions of the council as well as for the day-to-day operational matters and shall have such administrative and financial powers as may be delegated to it by the council. The Board comprises the following:

| | |
|--|----------|
| • Chairman ERRA | Chairman |
| • Member (Administration and Coordination) | Member |
| • Member (Planning and Technical) | Member |
| • Member (Implementation) | Member |
| • Member (Finance) | Member |
| • Additional Finance Secretary (Expenditure) | Member |
| • Additional Secretary, Planning Division | Member |
| • Representatives of GHQ / 10 Corps | Member |
| • Senior Member Board of Revenue, NWFP | Member |
| • Senior Member Board of Revenue, AJK | Member |
| • Representatives of National Highways Authority | Member |
| • Representatives of WAPDA | Member |
| • Representatives of PTCL | Member |
| • Representatives of SCO | Member |

As it is, ERRA developed various policies and strategies regarding different sectors of development and rehabilitation. In this sector, ERRA has made comprehensive policies regarding housing, education and health. Similarly, house designs have been prepared and handed over to concerned agencies to be disseminated among the masses free of cost. These designs provide information not only on construction of buildings with various materials in a

seismic-proof manner, but also educating them regarding the site selection for construction of buildings.

Moreover, ERRA has to lead revision of the current arrangements for sub-project approval, implementation and fund flow to simplify procedures so that quick implementation and full transparency are ensured. The sub-projects are developed by SERRA and PERRA following the selection criteria and social compliance and are formalized in an operational manual to be prepared by ERRA.

The Ministry of Finance manages the multi-donor Consolidated Fund for the Emergency Earthquake Assistance established in the State Bank of Pakistan (SBP). ERRA is expected to ensure transparency in funds flow, financial management, accounting, internal control processes, procurement, periodic financial reporting, monitoring and internal and external audits. All donor funds channeled through ERRA are subject to the same operating procedures and processes.

12.2.3. Programme Steering Committee (PSC)

The President of AJK constituted a Programme Steering Committee (PSC) vide notification No.Adman/G-9(15)/2005 dated January 17, 2006. Chief Secretary Government is the chairman, Additional Secretary (Dev.) is the vice chairman and DG SERRA is Secretary of PSC.

PSC is AJK state's focal agency to interface with ERRA in development of implementation strategy, development of program documents, preparation of annual state & district plans, their approval and implementation of planned activities in an efficient manner. The composition of the committee, and its TORs are as shown below.

Composition of Program Steering Committee

| | | |
|----|--|---------------|
| 1. | The Chief Secretary | Chairman |
| 2. | Additional Chief Secretary (dev.) | Vice chairman |
| 3. | Additional Chief Secretary (gen.) | Member |
| 4. | Senior member, Board of Revenue | Member |
| 5. | Secretary of Health | Member |
| 6. | Secretary of Finance | Member |
| 7. | Secretary of Local Govt. & Rural Development | Member |
| 8. | Secretary of Works | Member |
| 9. | Secretary of Education | Member |

| | | |
|-----|---|-----------|
| 10. | Secretary of Electricity | Member |
| 11. | Commissionaire of Affected Division | Member |
| 12. | Director, Provincial Earthquake Reconstruction Agency | Member |
| 13. | Ex-officio Secretary, Planning & Development | Secretary |

Committee may co-opt any officer from any department for its assistance.

Terms of Reference of the Committee are as follows.

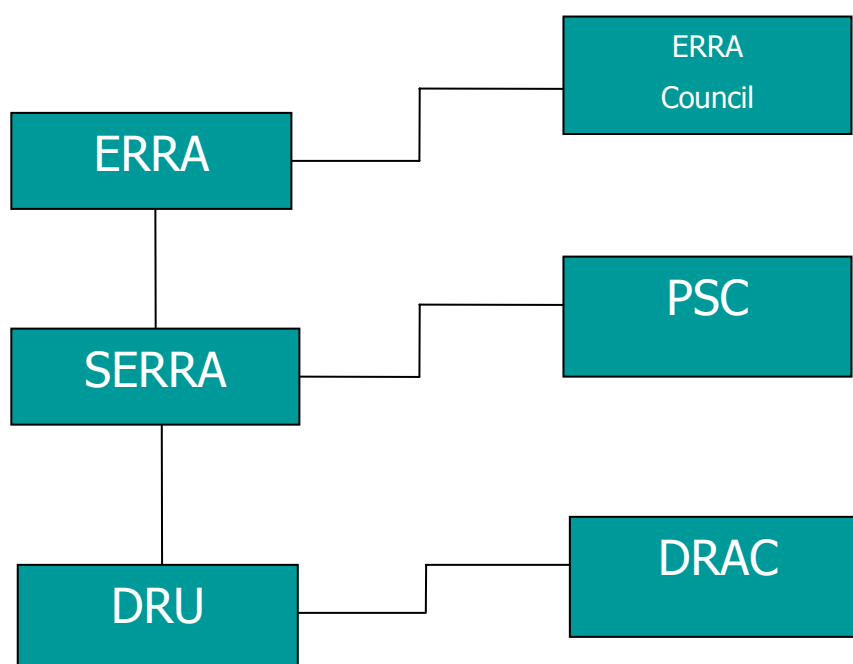
- 1) Be the AJK state's local agency for interface with ERRA in development of implementation strategy, development of program document, preparation of annual state and district plans and their approval and implementation of planned activities in an efficient manner.
- 2) Ensure availability of all required information of state personnel to ERRA staff and consultants in the course of planning and implementation.
- 3) Ensure timely establishment of offices/institutions envisaged for the implementation of ERRA-funded activities at the state and district level.
- 4) Ensure timely selection, recruitment and deployment of required qualified staff at all levels.
- 5) Ensure completion and approval of district annual work plans and consolidated state plans in accordance with specified formats and schedules.
- 6) Ensure submission of consolidated state plans to ERRA by stipulated deadlines for ERRA's approval.
- 7) Ensure prompt establishment of financial management systems at all levels including opening of accounts, draw and disbursement of funds authorizations for drawings / disbursing officers, financial reporting systems etc.
- 8) Hold annual plan approval and review meetings to review the progress in each district and at state level and approve annual work plans for the next year.
- 9) Hold quarterly meetings at the end of each quarter to review the progress in each district and take appropriate actions to remove impediments.
- 10) Ensure implementation of ERRA-funded activities in accordance with the standards set by ERRA.

- 11) Inform ERRA promptly of any policy and management problems that may interfere with timely completion or quality of program activities.
- 12) Establish appropriate monitoring and evaluation system for effective supervision of the program implementation in the target districts.
- 13) Formulate required regulations and/or policies that may be necessary for ensuring transparency, accountability, efficiency and equitability.

12.2.4. SERRA

Since ERRA facilitates contributions by the private sector and bilateral donors, SERRA is the coordination agency in AJK to manage the allocated budget and operate the procedure for getting an approval of Implementation project from ERRA.

SERRA is established in the Planning & Development Department and acts as Secretariat of the Programme Steering Committee (PSC), to coordinate in planning, implementation and supervision of ERRA-funded developmental activities in the affected districts of AJK. Hierarchy is shown in figure below.



Source: SERRA

Figure 12.2.2 Organizational Hierarchy of SERRA

The SERRA is headed by the Director General and has the status of Secretary to the GOAJK. Terms of Reference for SERRA, officially released recently, are given below:

- 1) Provide managerial and institutional capabilities for implementation where state line departments and district agencies do not have capacities to implement the sub-project.
- 2) Support Steering Committee in performance of its functions and undertake all the works assigned to it by the Steering Committee.
- 3) Coordinate and supervise the preparation of district annual work plans for all Programme components and ensure that all plans are prepared and submitted for approval as per specified schedule and formats.
- 4) Examine the plans prepared by the districts and ensure that they are in line with the ERRA guidelines and Programme documents and submit consolidated plans (including the provisional plans) for the consideration and approval of Programme Steering committee.
- 5) Provide technical and management backstopping to District Reconstruction Units (DRUs) in all respects of Programme management.
- 6) Prepare annual plans and budgets for the Provisional level activities.
- 7) Ensure prompt submission of Annual Work plans approved by Programme Steering Committee to ERRA.
- 8) Prepare working papers for the provincial steering committee meetings and prepare minutes of the meetings and decisions taken therein and circulate to all concerned in a timely manner.
- 9) Prepare Quarterly work plans for the AJK-ERRA (SERRA) related activities and manage their implementation in an efficient manner.
- 10) Establish appropriate financial management, accounting and reporting systems with due regard for transparency and accountability.
- 11) Establish robust monitoring and evaluation systems to ensure that all Programme activities are implemented in an efficient and cost effective manner.
- 12) Generate quarterly and annual progress reports for the information of Programme Steering Committee, ERRA and ERRA council on specified formats and as per specified deadlines.
- 13) Promptly inform the Programme Steering Committee of any developments that may have a bearing on smooth implementation of Programme activities.

- 14) Perform all other planning, coordination and implementation functions as notified by ERRA and Steering Committee from time to time as agreed with Asian Development Bank and World Bank in their respective loan documents.

(Source) SERRA

12.2.5. District Reconstruction Advisory Committee (DRAC) and District Reconstruction Unit (DRU)

District Reconstruction Advisory Committee (DRAC) is responsible for the identification of sub-projects and needs, and for recommendation of plans for approval of the steering committee. The approved plan by the steering committee or ERRA will be implemented through DRU.

DRU is an autonomous unit in each of the earthquake-affected districts and is responsible for planning, coordination, financial management and supervision of all ERRA-funded activities in the District. The DRU is headed by the Program Manager (PM) of the respective districts in Muzaffarabad, Bagh and Rawalakot.

Terms of Reference for each organization are given below.

DISTRICT RECONSTRUCTION ADVISORY COMMITTEE (DRAC)

Terms of Reference:

- 1) Approve the annual reconstruction plans by the DRU and forward approved plans to AJK-ERRA.
- 2) Hold quarterly meetings to approve quarterly plans and review progress of the preceding quarter.
- 3) Ensure synergy and coordination between various components of the district Programme and ensure complementarity between Programme activities and activities being carried out by NGOs and private sector.
- 4) Ensure full cooperation and support from all concerned departments and their district heads to the DRU and take prompt appropriate steps when such support is found wanting.
- 5) Ensure full operational autonomy of the DRU.
- 6) Ensure that all DRU staff, equipment, vehicles and finances are used only for the Programme-related activities and not deployed for any other purpose even in emergencies.

- 7) Conduct six monthly and annual performance reviews of the DRU and furnish findings to PERA/PSC.
- 8) Submit annual plans, approved by DRAC, to the Programme Steering Committee for its approval.
- 9) Prepare quarterly work plans, on the basis of approved annual plans, in consultation with implementing agencies and get the same approval in quarterly DRAC meetings.
- 10) Assume leadership role in implementation of programme activities while maintaining a good working relationship with all relevant implementing agencies.
- 11) Establish a proper financial management and accounting system for the funds received for programme implementation.
- 12) Maintain a close liaison with NGOs and civil society organizations involved in reconstruction and rehabilitation activities in the district and develop synergies between theirs and programme activities.
- 13) Hold monthly review meetings with the implementing agencies to review progress and take appropriate corrective actions whenever needed.

(Source) SERRA

DISTRICT RECONSTRUCTION UNIT (DRU)

Terms of Reference:

- 1) Prepare annual Work Plan and budgets for the Programme activities in the district and submit to Programme Steering Committee (PSC) for approval in line with the specified schedules and deadlines.
- 2) Contribute to the AJK-ERRA's (SERRA) preparation of working papers for the Programme steering Committee.
- 3) Prepare quarterly work plans, on the basis of approved annual plans, in consultation with implementing agencies and get the same approved in quarterly PSC meetings.
- 4) Implementation of approved plans in an efficient and coordinated manner with due regards to timelessness, efficiency, transparency and equity.
- 5) Assume a leadership role in implementation of Programme activities while maintaining a good working relationship with all relevant implementing agencies.

- 6) Hold review meetings with the implementing agencies to review progress and take appropriate corrective actions whenever needed.
- 7) Establish a proper financial management and accounting system for the funds received for Programme implementation.
- 8) Establish that all procurements and contracts are prepared and executed in accordance with the rules and procedures notified by ERRA and AJK-ERA.
- 9) Establish an efficient monitoring and evaluating system and generate quarterly and annual progress reports on specified formats for the information of Govt. of AJK, AJK-ERRA Programme Steering Committee and ERRA.
- 10) Maintain a close liaison with NGOs and civil society organizations involved in reconstruction and rehabilitation activities in the district.

(Source) SERRA

12.2.6. Rehabilitation and Reconstruction Policy and Strategy adopted by the Government

The Government of Pakistan is aware of the fact that early reconstruction and rehabilitation of government offices under this sector not only holds key to full-scale resumption of social services delivery but would also facilitate the reconstruction work in other sectors. The government therefore attaches great importance to swift restoration of buildings, complexes and facilities of Provincial /State departments and District Governments.

The government of Pakistan plans to reconstruct and rehabilitate the damaged buildings, provide equipment and logistics lost in the wake of earthquake, and build the lost capacity of government departments to effectively cope with the enormous challenges of reconstruction, ERRA has devised a strategy for reconstruction and rehabilitation of damaged and destroyed physical infrastructure.

The strategy takes stock of overall damage and need assessment, delineates the key components to be addressed under this sector and outlines the strategies for reconstruction and rehabilitation.

ERRA's vision for the reconstruction and implementation strategy is to Build Back Better. For the Governance Sector, it means not only reconstruction/repair of all damaged/destroyed building structures in the affected areas of AJK and NWFP but also to build seismic-safe and quality structures meeting the current and future requirements.

The basic thrust of the strategy for governance sector is to restore and improve the system of governance in the affected districts through reconstruction and rehabilitation of damaged

government buildings, provision of required logistic support to these facilities and to restore the capacity of those facilities to the pre- earthquake level. Wherever necessary and justifiable, the physical structures of the damaged departments would be expanded and improved using the earthquake resistant techniques.

The specific objectives are as follows:

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

Reconstruction and rehabilitation of partially and fully damaged buildings and provision of equipment and logistic support is the priority of ERRA. Due to lack of capacity, it is not possible to complete all reconstruction in one year; therefore, a three-year reconstruction plan has been devised. However, priority must be accorded on the basis of the following criteria:

- Functioning of service delivery department must be the top priority
- Population served by the facility
- Lack of alternative facilities
- DRU in consultation with the concerned department and implementing agency will submit the work plan by prioritizing on the basis of need assessment

12.3. Donors and NGOs in Muzaffarabad

12.3.1. Donor's Activities

Muzaffarabad, the capital city of AJK, became the hub of relief efforts for the affected areas in AJK, receiving various international and domestic donors' assistance for emergency relief, such as rescue for survivors and provision of shelters and food based in the city. Hence there were several emergency camps organized by different agencies, inclusive of JPF in the urgent rehabilitation stage. However, after the government stated that the tent villages should be closed by the end of April 2006, many donors withdrew from the areas.

As of June 5, 2006, some organizations are still there and working in the field shown in Table 12.3.1. Although Camp management activities are not operating lately, the data issued March 27, 2006, is a reference.

Table 12.3.1 Activities of Donors in Muzaffarabad MC

| Sector | Donors |
|----------------------------|---|
| Food | Turkish Red Crescent Society, Ummah Welfare Trust, Noor Social Welfare Organization, National Rural Support Programme |
| Emergency Shelter | Médicins Sans Frontières (Holland), Islamic Relief, Conern, International Organization for Migration, Turkish Red Crescent Society, Ummah Welfare Trust, Noor Social Welfare Organization |
| NFI (Non-Food Item) | Médicins Sans Frontières (Holland), Islamic Relief, Conern, International Organization for Migration, United Nation High Commissioner for Refugees |
| Health Supplies & Services | International Committee of Rescue Centre, Agha Khan Support Programme (AKSP), Doctors Worldwide, Médicins Sans Frontières, District Health Office, Canadian Relief Foundation, Turkish Red Crescent Society, Ummah Welfare Trust, Central Design Office, Noor Social Welfare Organization |
| Wastan | Oxfam, Médicins Sans Frontières, PCRWR, Turkish Red Crescent Society |
| Education | AL-FALAH Welfare Society, Programme for Rehabilitation of Hearing Impaired, PROHI, Turkish Red Crescent Society, National Rural Support Programme, Read Foundation, Rasees-ul-Ahrar, National Education Foundation |
| Protection | Save the Children (UK) |
| Camp Management | Al Khidamat Foundation, Al Mustafa Network, Al Mustafa Welfare Society, Al Rasheed Trust, Al Suffa Foundation, Community Group, Daily Newspaper Khabrain, Dewan Mushtaq Group, Ehssas Relief Foundation, Fatima Welfare Trust, Idara Khidmat-e-Khaliq Foundation, Khubaib Foundation, Lighthouse Association, Turkey, Minhag Welfare Foundation, MQM, Muslim Hands, Pakistan People's Party, Peera Da Bagh, Star Managment Group, Veerjee Manir Singh, Youth Federation, Youth Group, HF-G, UWT, NSW0 |

Note: Sectors except Camp Management issued May 31, 2006
Camp Management Sector issued March 27, 2006

Source: HIC (Humanitarian Information Center for Pakistan)

12.3.2. Pledges

According to the updated document issued by SERRA in May, the committed amount for AJK by donors is around Pak Rs. 64,420 million, which is equivalent to US\$ 1,073 million as shown in Table 12.3.2. The main donors are ADB, Japan, Saudi Fund, IDA/WB and Germany.

Table 12.3.2 Sector/Donors Wise Reconstruction Estimates

| S.# | Sector | Estimated Reconstruction Cost | Donors Pledges/Commitments | | | | | | | | | | | | | | | Million | | |
|-----|--------------------------------|-------------------------------|----------------------------|-----------------|-----------------|---------------|-----------------|----------------|-----------------|----------------|----------------|---------------|---------------|---------------|----------------|----------------|----------------|------------------|------------------|-----------|
| | | | ADB | JAPAN | SAUDI FUND | Bosnia | IDA/WB | PRCS | GERMANY | USAID | UPT HEART BEAT | MGPO | PAK NAVY | KRCS | UAE | IDB | APCA | TOTAL | BALANCE | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | |
| 1 | Transport & communication | 6140.4 | 5055.750 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 5055.750 | 1084.650 |
| 2 | Physical Planning & Housing | 5153.226 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 5153.226 |
| 3 | Local Development & Rural Dev. | 4297.153 | 0.000 | 0.000 | 0.000 | 1038.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1038.000 | 3259.153 |
| 4 | Education | 28239.670 | 1416.45 | 3015.642 | 2700.000 | 22.568 | 1323.540 | 85.044 | 39.784 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 8603.028 | 19636.642 |
| 5 | Health | 5926.171 | 1782.000 | 932.799 | 0.000 | 10.785 | 0.000 | 43.140 | 1099.260 | 414.117 | 155.277 | 10.785 | 51.759 | 10.785 | 640.472 | 1340.52 | 640.472 | 5926.171 | 0.000 | |
| 6 | Live Stock | 8504.133 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 8504.133 |
| 7 | Agriculture | 3686.643 | 0.000 | 0.000 | 0.000 | 0.000 | 38.460 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 38.460 | 3648.183 |
| 8 | Electricity | 781.850 | 781.85 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 781.850 | 0.000 |
| 9 | Hydro Electric Board | 104.819 | 104.819 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 104.819 | 0.000 |
| 9 | Forestry | 506.273 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 506.273 |
| 10 | Industries/sericulture | 907.120 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 907.120 |
| 11 | Social Welfare | 78.189 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 78.189 |
| 12 | Tourism | 76.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 76.000 |
| 13 | Information Technology | 19.231 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 19.231 |
| | Total Pak Rs. | 64420.050 | 9140.040 | 9101.667 | 2700.000 | 33.372 | 2400.000 | 128.184 | 1139.044 | 414.117 | 155.277 | 10.785 | 51.759 | 10.785 | 640.472 | 134.520 | 640.472 | 21547.250 | 42872.800 | |
| | Total US \$ | 1073.668 | 152.334 | 151.694 | 45.000 | 0.566 | 40.000 | 2.136 | 18.984 | 6.902 | 2.588 | 0.180 | 0.863 | 0.180 | 10.675 | 2.242 | 10.675 | 359.121 | 714.547 | |

Source: SERRA

12.3.3. Education Sector

Because the Department of Education was not functioning properly after the earthquake, UNICEF is playing the role of coordination body to have meetings with other donors, organizing sub-groups such as reconstruction, teacher training, camp school and so on. The groups are functioning through monthly coordination meetings. UNICEF is taking care of private sector as well as public sector in terms of education.

According to the information on school construction plan gained from UNICEF, other donor agencies including DFID, UNICEF and WB are focusing more on rural areas than urban, so there has not been much donor intervention so far within the Study's target area of Muzaffarabad. Only ADB has already committed to construct 132 middle schools and 9 high schools, covering some permanent structured schools in the municipality. Additionally, Turkish NGOs have commenced to construct 6 schools, including 2 colleges and 4 high schools. They are prefabricated buildings and cannot be used for permanent buildings. Other donor's activities in AJK are shown as Table 12.3.3.

Table 12.3.3 Partners School Construction Plans in AJK

| Semi-Permanent Structures | | | | | | | | |
|---|----------------|-----------|--|--------------------------------------|------------------|---|--|---|
| Implementation partners | Semi-permanent | Permanent | Ucs | No of Schools | No of Classrooms | Design | Descriptions | Remarks |
| International Rescue Committee (IRC) | * | | Danna, Kacheli, Katker | | 100 | Foundation and 3 feet stonewall, Structure of Wood and GI Sheet | Focusing on primary schools; 2 rooms per school ; To be lasted for min 5 yrs | Children and Community involved in construction |
| Save the children (SCF-UK) | * | | Charakpura, Langerpura | 55 by end Oct; 25-30 by June | | Steel Frame and easy to carry | Last for 15 years | |
| Diakonie/ Support to Life (DEA/STL) | * | | Salmia, Mera Kalan | 100 | | CGI Sheet Frame | Focusing on Primary, Middle and High Schools, can be used at least 5 years | |
| | * | | Mera Kalan | 15 Community Centers | | | | Use for Child Friendly spaces, vocational training for women and community activities |
| National Rural Support Programme (NRSP) | * | | Pangran and Heerkotli | 38 | | Steel Frame and CGI Sheet | Focusing in two Union Councils | |
| | | * | Gojra | 12 | | Permanent | Focusing 2 schools through USAID funding | |
| Premire Urgence(PU) | * | | Machira | 17 | | Restrengthening of School tents/shelters | Focus on UC Machira | |
| | | * | | 1 | | | Develop Girls Primary School Machira as | |
| Canadian Relief Foundation (CRS) | * | | Hatian Bala, Balgran, Gojra Bandi and Kahliana | 50 | | | Focus on Primary Schools | |
| Khawara Development Organisation (KDO) | * | | Khatker | 10 Private Schools | | 26 x 6 meters Classroom and 3 toilets | Focusing private Schools | Cardid Netherland based NGO is providing support |
| Idara Taleem-o-Aagali (ITA) | | * | Collecting information to construct some private schools | | | | | Got some funding from ITA Office UK for Schools construction |
| CWS | | | Collecting information to construct some Schools | | | | | |
| Permanent Structures | | | | | | | | |
| DFID | | * | | 739 Primary Schools | | | Focus on Primary Schools | |
| UNICEF | | * | | 250 Primary Schools | | | Focus on Primary Schools | Constructing model school in Ucs |
| ADB | | * | | 132 Middle Schools and 9 High School | | | Focus on middle and High Schools | |
| WB | | * | | 240 Primary Schools | | | Focus on Primary Schools | |
| Saudi Govt. | | * | 250 Schools+ Colleges | | | | | |

Source: UNICEF

12.3.4. Debris Removal

The Study Team implemented debris removal project in Ward 13 as a social experiment. Relevant to this, the International Organization for Migration (IOM) is conducting rubble clearing in eight sites in Old Madina Market in Muzaffarabad city, which is funded US\$1.5 million by USAID, and cleared 40,000 ft³ (approximately 1,133 m³) of debris within a year. The project was launched in April and targeted to remove an estimated 16 million ft³

(Approximately 453,079 m³) of rubble in the next nine months. As the Muzaffarabad rubble coordinating agency, IOM is organizing coordination meetings in order to share the information with other donors working on rubble.

12.3.5. Rehabilitation and Reconstruction

Regarding Rehabilitation and Reconstruction projects in the study area, the information gathered by the Study excluding the education sector is shown in the table below.

Table 12.3.4 Rehabilitation and Reconstruction Projects

| Name of Organization | Sector | Targeted Infrastructure | Remarks |
|-------------------------------|------------------------------|---|-----------------------|
| French Embassy | Basic Infrastructure | Rehabilitation of Water Supply and Sanitation | Held Meeting (16 May) |
| KfW (German Development Bank) | Health | Reconstruction of Abbas Institute of Medical Sciences | Held Meeting (17 May) |
| UAE | Health | Reconstruction of CMHs | |
| ADB | Health | Reconstruction of Jinnah Dental Hospital | |
| IOM | Environmental Infrastructure | Neelum Park alongside the river | |

Source: JICA Study Team

12.3.6. Existing situation in Muzaffarabad

As told by the Administrator of Municipal Corporation, Muzaffarabad (MCM), survey for disaster compensation has yet to be started in urban areas. At present there is no suitable place for establishing tents for shelter because debris removal is not yet completed. There is also a problem of drinking water supply. Victims are living in miserable conditions. About 4000 shops were destroyed but no compensation package has been given to the shopkeepers so far. A policy is yet to be decided regarding compensation for victims in the urban area. The victims in the rural area were compensated in installments as per detail given below.

- 1st Installment: Pak Rs. 25,000/household
- 2nd Installment (for Construction): Pak Rs. 75,000/household
- 3rd Installment (disbursed after verification of construction): Pak Rs. 75,000/household
- Urban Areas
- 1st Installment Pak Rs. 25,000/-

12.3.7. Government Assistance to NGOs

According to the Administrator of MCM, owing to resource constraints, the GOAJK is not in a position to provide any assistance to the NGOs, to carry out their relief and reconstruction activities. However, donor agencies are giving support to NGO's.

State Earthquake Reconstruction and Rehabilitation Authority (SERRA) Muzaffarabad has now started coordinating the activities of NGOs operating in AJK. The first general coordination meeting of NGOs with SERRA was held on August 1, 2006, wherein it was decided to develop a management information system for coordinating the activities of NGOs (local, national and international) working in AJK and requiring support from SERRA. Following particulars of NGOs are being collected by SERRA on a prescribed pro-forma.

- Profile of NGO
- Date of Arrival in AJK
- Role in Relief Phase
- Current Activities
- Area of Work (Geographical)
- Staff Position
- Length of Work in AJK
- Any issue faced by NGO
- Required Support from SERRA

12.3.8. Preparation for the coming winter 2006

The Commissioner of Camp Management Organization (CMO), Muzaffarabad is tasked with making the preparations for the coming winter 2006 for rural areas of Azad Jammu & Kashmir. Dr. Shehla Waqar, who is with the Commissioner's Office, is working on it and plans are likely to be finalized within 3-4 days, after which it would be made available.

As far as urban areas are concerned, Municipal Corporation and Muzaffarabad Development Authority are the ones preparing plans for the coming winter 2006.

APPENDICES



13. APPENDICES

13.1. Appendix-1: Damage Assessment of Buildings in Muzaffarabad

13.1.1. Work Sequence

In this chapter a rapid evaluation sequence is described.

(1) Sheet to be applied

Table 13.1.1 “RAPID EVALUATION SHEET” for “RC FRAME STRUCTURE” is used for the RC frame structure.

Table 13.1.2 “RAPID EVALUATION SHEET” for “LOAD BEARING WALL STRUCTURE” is used for the bearing wall structure.

First the building is observed and Rank A or Rank B or Rank C is given to each item of the investigation sheet. Be careful each Rank is not an integrated judgment. Evaluation for each item should be brought together in the last column of the sheet and result obtained.

(2) Earthquake damage

a. Ground damage

① Ground Settlement

When ground settlement has been generated, the entire building may be inclined, and a part of the building inclined at crack's occurring on the wall.

It is effective to observe the cracking of ground to distinguish the ground settlement.

It is also effective to observe the cracking of the indoor floor.

② Failure due to land slide

When the land slide has been generated, the entire building may be inclined, and a part of the building inclined by the crack's occurring on the wall.

When the soil, which moved by land slide, pushes the wall, that sort of failure should be evaluated in this item.

③ In the worst case

If both evaluations of above-mentioned ① and ② are Rank C, there is no need for the following observation. An integrated evaluation as result is assumed to be Unsafe in that case. That building can not be safe without reconstructing the foundation in that case.

Table 13.1.1 Rapid Evaluation Sheet for RC FRAME STRUCTURE

| RAPID EVALUATION SHEET for RC FRAME STRUCTURE | | | | | | | |
|---|----------------------------|----------------------|---|--------------------------------------|---|----------|---------------|
| Name of investigator | | | | Affiliation | | | |
| Date | | Location of Building | | | | | |
| Building Usage | Private | | | | | | |
| | Dwelling | Shops | Dwelling+shop | Hotel | Industry | Storage | Live stocks |
| | Public | | | | | | |
| | School | Mosque | Bank | Hospital | Office | military | Others |
| Number of Stories | | front face | | | dorsal side | | |
| INFILL WALL TYPE | | | | | | | |
| RC walls | Bricks | Cement Blocks | Dressed Stones | Round Rubble | Other | | |
| GROUND CONDITION | | | | | | | |
| <i>Position of structure with respect to slope</i> | | | | | | | |
| ① | ② | ③ | ④ | ⑤ | | | |
| Type of soil strata | | Hard Rock | Loose Composite | Stiff Composite | Unknown | | |
| EARTHQUAKE DAMAGES | | | | | | | |
| 1. GROUND DAMGE | | | | | | | |
| Ground Settlement | Rank A (Not identified) | | Rank B (There is a doubt of the settlement) | | Rank C (Identified obviously) | | |
| Failure due to land slide | Rank A (No Failure) | | Rank B (Less than 20 % Failure) | | Rank C (More than 20 % Failure) | | |
| 2. COLUMN DAMAGE | | | | | | | |
| The most severely damaged floor | | | | Total Number of column of that floor | | | |
| Cracked Column | Rank A (NC< 10%) | | Rank B (10%–20%) | | Rank C (NC>20%) | | |
| NC=Number of Cracked Column / Total Number of Column Crack with more than 2mm opening shall be count | | | | | | | |
| Column with bared rebar (Buckling) | Rank A (NB< 5%) | | Rank B (5%–10%) | | Rank C (NB>10%) | | |
| NB=Number of Column with bared rebar / Total Number of Column | | | | | | | |
| 3. INFILL WALL DAMAGE | | | | | | | |
| Damage of infill wall | Rank A (No Failure) | | Rank B (Crack with more than 2mm opening) | | Rank C (more than 50% of wall are Collapsed) | | |
| Summarize | | | | | | | |
| Rank of GROUND DAMGE are both C | | Yes | No | | | | |
| Ground floor collapsed | | Yes | No | | | | |
| Number of Rank A | | | | | | | |
| Number of Rank B | | | | | | | |
| Number of Rank C | | | | | | | |
| if "Yes" | | | | | | | |
| RESULTS | | | | | | | |
| Safe | Restricted | | | Unsafe | | | |
| It can be used | Repair is needed | | Remedies and Some strengthening measure is needed | | It has to be demolished and reconstructed | | |

Table 13.1.2 Rapid Evaluation Sheet for RC BEARING WALL STRUCTURE

| RAPID EVALUATION SHEET for BEARING WALL STRUCTURE | | | | | | | | |
|---|----------------------------|----------------------|---|------------------------------------|---|--------------|-------------|--|
| Name of investigator | | | | | Affiliation | | | |
| Date | | Location of Building | | | | | | |
| Building Usage | Private | | | | | | | |
| | Dwelling | Shops | Dwelling+shop | Hotel | Industry | Storage | Live stocks | |
| | Public | | | | | | | |
| | School | Mosque | Bank | Hospital | Office | military | Others | |
| Number of Stories | | front face | | | dorsal side | | | |
| BEARING WALL TYPE | | | | | | | | |
| RC walls | Reinforced Bricks | Unreinforced Bricks | Reinforced Cement Blocks | Unreinforced Cement Blocks | Dressed Stones | Round Rubble | Other | |
| Roof TYPE | | | | | | | | |
| RC Slab | Steel Girder | Wooden | CGI Sheet | Other | | | | |
| GROUND CONDITION | | | | | | | | |
| <i>Position of structure with respect to slope</i> | | | | | | | | |
| | | | | | | | | |
| Type of soil strata | Hard Rock | Loose Composite | Stiff Composite | Unknown | | | | |
| EARTHQUAKE DAMAGES | | | | | | | | |
| 1. GROUND DAMAGE | | | | | | | | |
| Ground Settlement | Rank A (Not identified) | | Rank B (There is a doubt of the settlement) | | Rank C (Identified obviously) | | | |
| Failure due to land slide | Rank A (No Failure) | | Rank B (Less than 20 % Failure) | | Rank C (More than 20 % Failure) | | | |
| 2. BEARING WALL DAMAGE | | | | | | | | |
| The most severely damaged floor | | | | Total Number of wall of that floor | | | | |
| Crack on Wall | Rank A (NC < 10%) | | Rank B (10%–20%) | | Rank C (NC > 20%) | | | |
| NC=Number of Cracked Wall / Total Number of Wall Crack with more than 3mm opening shall be count | | | | | | | | |
| Interlocking Failure on corner of Wall | Rank A (No failure) | | Rank B (1 panel) | | Rank C (More than 1 panel) | | | |
| collapse of Wall | Rank A (No collapse) | | Rank B (1 panel) | | Rank C (More than 1 panel) | | | |
| Summarize | | | | | | | | |
| Rank of GROUND DAMAGE are both C | | Yes | No | | | | | |
| Ground floor collapsed | | Yes | No | | | | | |
| Number of Rank A | | | | | | | | |
| Number of Rank B | | | | | | | | |
| Number of Rank C | | | | | | | | |
| if "Yes" | | | | | | | | |
| RESULTS | | | | | | | | |
| Safe | Restricted | | | Unsafe | | | | |
| It can be used | Repair is needed | | Remedies and Some strengthening measure is needed | | It has to be demolished and reconstructed | | | |

b. Structural damage

If the ground floor has collapsed, there is no need for the following observation. An integrated evaluation as result is assumed to be Unsafe in that case.

If the 1-2 floors of upper part has collapsed, the remaining most severely damaged floor should be observed.

Basically, an integrated evaluation as result is made referring the observation of the most severely damaged floor.

The judgment standard in that case is as follows.

Damage of RC frame

① Cracked Column

Crack with more than 2 mm opening shall be counted.

② Column with bare rebar (Buckling)

The damage shown in the figure below is counted.



③ Damage of infill wall

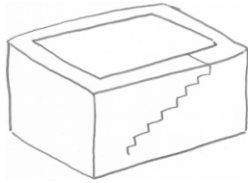
The destruction of infill wall itself is not so difficult to be mended but when the wall damages main Frame, it becomes a problem.

Damage of bearing wall

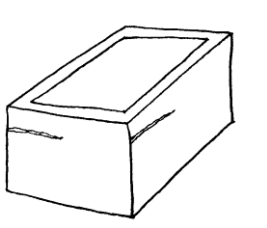
There can be various kinds of failure in masonry wall as shown below.

① Crack on Wall

Diagonal crack on Wall

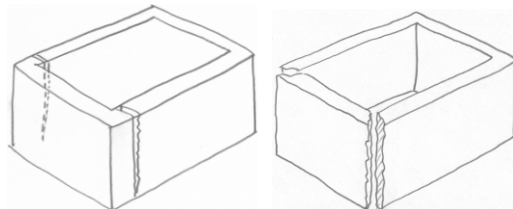


Horizontal crack on Wall

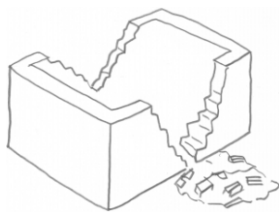


② Interlocking Failure on corner of Wall

Vertical Crack on corner of Wall



③ Collapse of Wall



13.1.2. Integrated Evaluation as Result

Basically, an integrated evaluation as result is made referring the observation of the most severely damaged floor.

(1) RC Frame structure

Criterion applied to RC Frame structure is shown below.

Safe (It can be used)

Rank is all "A"

and

No "Cracked Column"

and

No "Column with bare rebar"

Restricted Use (A) (Repair is needed)

There is no Rank C

and

There is no "Column with bare rebar"

Restricted Use (B) (Repair and Some strengthening measure is needed)

There is no Rank C

Unsafe (It has to be demolished and reconstructed)

Rank C exist

or

more than two rank B exist

(2) Load Bearing Structure

Criterion applied to Bearing wall structure is shown below.

Safe (It can be used)

Rank is all "A"

and

No " Crack on Wall"

and

No "Interlocking failure on corner of Wall "

Restricted Use (A) (Repair is needed)

There is no Rank C

and

No " Crack on Wall"

And

No "Interlocking failure on corner of Wall "

Restricted Use (B) (Repair and Some strengthening measure is needed)

There is no Rank C

Unsafe (It has to be demolished and reconstructed)

Rank C exist

or

more than two rank B exist

13.1.3. Instance

(1) Agha G Hotel



【Judgment】

Restricted (Repair is needed)

It is a 7 storey building and was constructed in two steps: originally the building was designed up to five stories and the upper two (2) stories were extended after previous completion. Extended part should be removed.

【Judgment reason】

The rebar of upper 2 stories does not overlap the rebar of lower part of column.



Destruction of previously constructed part was prevented because the bending moment of the upper 2 stories was not transmitted to the previously constructed part.

If the upper 2 stories are mended and the rebar is fixed to lower part, the previously constructed part may be destroyed heavily in the next earthquake.

【Other notes】

It is necessary to install the drainage channel in the ground behind the building. The building may receive over turning moment when the ground behind the building contains excessive water and earth pressure increases.

Table 13.1.3 Rapid Evaluation Sheet of Agha G Hotel

| RAPID EVALUATION SHEET for RC FRAME STRUCTURE | | | | | | | |
|---|----------------------------|-----------------|---|--------------------------------------|---|----------|-------------|
| Name of investigator | | | | Affiliation | | | |
| Date | | | Location of Building | | | | |
| Building Usage | Private | | | | | | |
| | Dwelling | Shops | Dwelling+shop | Hotel | Industry | Storage | Live stocks |
| | Public | | | | | | |
| | School | Mosque | Bank | Hospital | Office | military | Others |
| Number of Stories | | front face | | | dorsal side | | |
| INFILL WALL TYPE | | | | | | | |
| RC walls | Bricks | Cement Blocks | Dressed Stones | Round Rubble | Other | | |
| GROUND CONDITION | | | | | | | |
| Position of structure with respect to slope | | | | | | | |
| | | | | | | | |
| Type of soil strata | Hard Rock | Loose Composite | Stiff Composite | Unknown | | | |
| EARTHQUAKE DAMAGES | | | | | | | |
| 1. GROUND DAMAGE | | | | | | | |
| Ground Settlement | Rank A (Not identified) | | Rank B (There is a doubt of the settlement) | | Rank C (Identified obviously) | | |
| Failure due to land slide | Rank A (No Failure) | | Rank B (Less than 20 % Failure) | | Rank C (More than 20 % Failure) | | |
| 2. COLUMN DAMAGE | | | | | | | |
| The most severely damaged floor | | | | Total Number of column of that floor | | | |
| Cracked Column | Rank A (NC < 10%) | | Rank B (10%-20%) | | Rank C (NC > 20%) | | |
| NC=Number of Cracked Column / Total Number of Column Crack with more than 2mm opening shall be count | | | | | | | |
| Column with bared rebar (Buckling) | Rank A (NB < 5%) | | Rank B (5%-10%) | | Rank C (NB > 10%) | | |
| NB=Number of Column with bared rebar / Total Number of Column | | | | | | | |
| 3. INFILL WALL DAMAGE | | | | | | | |
| Damage of infill wall | Rank A (No Failure) | | Rank B (Crack with more than 2mm opening) | | Rank C (more than 50% of wall are Collapsed) | | |
| Summarize | | | | | | | |
| Rank of GROUND DAMAGE are both C | Yes | No | | | | | |
| Ground floor collapsed | Yes | No | | | | | |
| Number of Rank A | 2 | | | | | | |
| Number of Rank B | 3 | | | | | | |
| Number of Rank C | 0 | | | | | | |
| RESULTS | | | | | | | |
| Safe | Restricted | | | Unsafe | | | |
| It can be used | Repair is needed | | Remedies and Some strengthening measure is needed | | It has to be demolished and reconstructed | | |

(2) Madina Market



【Judgment】

Safe

【Judgment reason】

The cracks of columns and beam are not so large.

Table 13.1.4 Rapid Evaluation Sheet of Madina Market

| RAPID EVALUATION SHEET for RC FRAME STRUCTURE | | | | | | | |
|---|----------------------------|----------------------|--|---|---|---|-------------|
| Name of investigator | | | | Affiliation | | | |
| Date | | Location of Building | | | | | |
| Building Usage | Private | | | | | | |
| | Dwelling | Shops | Dwelling+shop | Hotel | Industry | Storage | Live stocks |
| | Public | | | | | | |
| | School | Mosque | Bank | Hospital | Office | military | Others |
| Number of Stories | | front face | | | dorsal side | | |
| INFILL WALL TYPE | | | | | | | |
| RC walls | Bricks | Cement Blocks | Dressed Stones | Round Rubble | Other | | |
| GROUND CONDITION | | | | | | | |
| <i>Position of structure with respect to slope</i> | | | | | | | |
| | | | | | | | |
| Type of soil strata | Hard Rock | Loose Composite | Stiff Composite | Unknown | | | |
| EARTHQUAKE DAMAGES | | | | | | | |
| 1. GROUND DAMAGE | | | | | | | |
| Ground Settlement | Rank A (Not identified) | | Rank B (There is a doubt of the settlement) | | Rank C (Identified obviously) | | |
| Failure due to land slide | Rank A (No Failure) | | Rank B (Less than 20 % Failure) | | Rank C (More than 20 % Failure) | | |
| 2. COLUMN DAMAGE | | | | | | | |
| The most severely damaged floor | | | | Total Number of column of that floor | | | |
| Cracked Column | Rank A (NC < 10%) | | Rank B (10%-20%) | | Rank C (NC > 20%) | | |
| NC=Number of Cracked Column / Total Number of Column Crack with more than 2mm opening shall be count | | | | | | | |
| Column with bared rebar (Buckling) | Rank A (NB < 5%) | | Rank B (5%-10%) | | Rank C (NB > 10%) | | |
| NB=Number of Column with bared rebar / Total Number of Column | | | | | | | |
| 3. INFILL WALL DAMAGE | | | | | | | |
| Damage of infill wall | Rank A (No Failure) | | Rank B (Crack with more than 2mm opening) | | Rank C (more than 50% of wall are Collapsed) | | |
| Summarize | | | | | | | |
| Rank of GROUND DAMAGE are both C | Yes | No | | | | | |
| Ground floor collapsed | Yes | No | | | | | |
| Number of Rank A | 4 | | | | | | |
| Number of Rank B | 1 | | | | | | |
| Number of Rank C | 0 | | | | | | |
| if "Yes" | | | | | | | |
| RESULTS | | | | | | | |
| Safe | Restricted | | | Unsafe | | | |
| It can be used | Repair is needed | | | Remedies and Some strengthening measure is needed | | It has to be demolished and reconstructed | |

(3) Income Tax Office



【Judgment】

Restricted (Some strengthening measure is needed)

【Judgment reason】

There are some columns, which are destroyed and rebars are bare, but it was judged that they were possible to be mended and strengthened.

【Other notes】

It is thought that the story drift more than the allowance was generated at earthquake. It is requested to provide the RC shear walls to control the story drift and for strengthening purposes.

Table 13.1.5 Rapid Evaluation Sheet of Income Tax Office

| RAPID EVALUATION SHEET for RC FRAME STRUCTURE | | | | | | | |
|---|----------------------------|----------------------|---|--------------------------------------|---|----------|-------------|
| Name of investigator | | | | Affiliation | | | |
| Date | | Location of Building | | | | | |
| Building Usage | Private | | | | | | |
| | Dwelling | Shops | Dwelling+shop | Hotel | Industry | Storage | Live stocks |
| | Public | | | | | | |
| | School | Mosque | Bank | Hospital | Office | military | Others |
| Number of Stories | | front face | | | dorsal side | | |
| INFILL WALL TYPE | | | | | | | |
| RC walls | Bricks | Cement Blocks | Dressed Stones | Round Rubble | Other | | |
| GROUND CONDITION | | | | | | | |
| <i>Position of structure with respect to slope</i> | | | | | | | |
| | | | | | | | |
| Type of soil strata | Hard Rock | Loose Composite | Stiff Composite | Unknown | | | |
| EARTHQUAKE DAMAGES | | | | | | | |
| 1. GROUND DAMAGE | | | | | | | |
| Ground Settlement | Rank A (Not identified) | | Rank B (There is a doubt of the settlement) | | Rank C (Identified obviously) | | |
| Failure due to land slide | Rank A (No Failure) | | Rank B (Less than 20 % Failure) | | Rank C (More than 20 % Failure) | | |
| 2. COLUMN DAMAGE | | | | | | | |
| The most severely damaged floor | | | | Total Number of column of that floor | | | |
| Cracked Column | Rank A (NC < 10%) | | Rank B (10%-20%) | | Rank C (NC > 20%) | | |
| NC=Number of Cracked Column / Total Number of Column Crack with more than 2mm opening shall be count | | | | | | | |
| Column with bared rebar (Buckling) | Rank A (NB < 5%) | | Rank B (5%-10%) | | Rank C (NB > 10%) | | |
| NB=Number of Column with bared rebar / Total Number of Column | | | | | | | |
| 3. INFILL WALL DAMAGE | | | | | | | |
| Damage of infill wall | Rank A (No Failure) | | Rank B (Crack with more than 2mm opening) | | Rank C (more than 50% of wall are Collapsed) | | |
| Summarize | | | | | | | |
| Rank of GROUND DAMAGE are both C | Yes | No | | | | | |
| Ground floor collapsed | Yes | No | | | | | |
| Number of Rank A | 3 | | | | | | |
| Number of Rank B | 2 | | | | | | |
| Number of Rank C | 0 | | | | | | |
| RESULTS | | | | | | | |
| Safe | Restricted | | | Unsafe | | | |
| It can be used | Repair is needed | | Remedies and Some strengthening measure is needed | | It has to be demolished and reconstructed | | |

(4) House

【Judgment】

Restricted (Repair is needed)

【Judgment reason】

Because the destruction of the main masonry wall was small, it was judged that mending was possible.

【Other notes】

This building survived the previous earthquake without remarkable destruction, and this is the reason why this building is possible to mend; also the ground conditions are stable. However the masonry structure of more than 3 storeys made by conventional construction method is not originally allowed. This judicial precedent does not apply to other buildings when that is done without careful observation.

Table 13.1.6 Rapid Evaluation Sheet of House

| RAPID EVALUATION SHEET for BEARING WALL STRUCTURE | | | | | | | | |
|---|----------------------------|---------------------|---|------------------------------------|---|--------------|-------------|--|
| Name of investigator | | | | | Affiliation | | | |
| Date | | | | Location of Building | | | | |
| Building Usage | Private | | | | | | | |
| | Dwelling | Shops | Dwelling+shop | Hotel | Industry | Storage | Live stocks | |
| | Public | | | | | | Others | |
| School | Mosque | Bank | Hospital | Office | military | | | |
| Number of Stories | | front face | | | dorsal side | | | |
| BEARING WALL TYPE | | | | | | | | |
| RC walls | Reinforced Bricks | Unreinforced Bricks | Reinforced Cement Blocks | Unreinforced Cement Blocks | Dressed Stones | Round Rubble | Other | |
| Roof TYPE | | | | | | | | |
| RC Slab | Steel Girder | Wooden | CGI Sheet | Other | | | | |
| GROUND CONDITION | | | | | | | | |
| Position of structure with respect to slope | | | | | | | | |
| | | | | | | | | |
| Type of soil strata | Hard Rock | Loose Composite | Stiff Composite | Unknown | | | | |
| EARTHQUAKE DAMAGES | | | | | | | | |
| 1. GROUND DAMAGE | | | | | | | | |
| Ground Settlement | Rank A (Not identified) | | Rank B (There is a doubt of the settlement) | | Rank C (Identified obviously) | | | |
| Failure due to land slide | Rank A (No Failure) | | Rank B (Less than 20 % Failure) | | Rank C (More than 20 % Failure) | | | |
| 2. BEARING WALL DAMAGE | | | | | | | | |
| The most severely damaged floor | | | | Total Number of wall of that floor | | | | |
| Crack on Wall | Rank A (NC < 10%) | | Rank B (10%-20%) | | Rank C (NC > 20%) | | | |
| NC=Number of Cracked Wall / Total Number of Wall Crack with more than 3mm opening shall be count | | | | | | | | |
| Interlocking Failure on corner of Wall | Rank A (No failure) | | Rank B (1 panel) | | Rank C (More than 1 panel) | | | |
| collapse of Wall | Rank A (No collapse) | | Rank B (1 panel) | | Rank C (More than 1 panel) | | | |
| Summarize | | | | | | | | |
| Rank of GROUND DAMAGE are both C | Yes | No | | | | | | |
| Ground floor collapsed | Yes | No | | | | | | |
| Number of Rank A | | | | | | | | |
| Number of Rank B | 4 | | | | | | | |
| Number of Rank C | 1 | | | | | | | |
| 5 | | | | | | | | |
| RESULTS | | | | | | | | |
| Safe | Restricted | | | Unsafe | | | | |
| It can be used | Repair is needed | | Remedies and Some strengthening measure is needed | | It has to be demolished and reconstructed | | | |

(5) Mir Muhammad Hussain



【Judgment】

Unsafe (to be reconstructed)

【Judgment reason】

Less numbers of heavily damaged columns but they are excessively slim for RC Frame.

There are many cracks generated by unequal settlement of the ground. There is high possibility that this defect will expand and cause collapse in the future.



【Other notes】

It is thought that the area of the foundation is insufficient, and for each column it was “Isolated Footing”. It is needed to provide a “Raft Footing” with footing beam or even provide a sufficient area of the foundation.

Table 13.1.7 Rapid Evaluation Sheet of Mir Muhammad Hussain

| RAPID EVALUATION SHEET for RC FRAME STRUCTURE | | | | | | | |
|---|----------------------------|----------------------|---|--------------------------------------|---|----------|-------------|
| Name of investigator | | | | Affiliation | | | |
| Date | | Location of Building | | | | | |
| Building Usage | Private | | | | | | |
| | Dwelling | Shops | Dwelling+shop | Hotel | Industry | Storage | Live stocks |
| Building Usage | Public | | | | | | |
| | School | Mosque | Bank | Hospital | Office | military | Others |
| Number of Stories | | front face | | | dorsal side | | |
| INFILL WALL TYPE | | | | | | | |
| RC walls | Bricks | Cement Blocks | Dressed Stones | Round Rubble | Other | | |
| GROUND CONDITION | | | | | | | |
| Position of structure with respect to slope | | | | | | | |
| | | | | | | | |
| Type of soil strata | | Hard Rock | Loose Composite | Stiff Composite | Unknown | | |
| EARTHQUAKE DAMAGES | | | | | | | |
| 1. GROUND DAMAGE | | | | | | | |
| Ground Settlement | Rank A (Not identified) | | Rank B (There is a doubt of the settlement) | | Rank C (Identified obviously) | | |
| Failure due to land slide | Rank A (No Failure) | | Rank B (Less than 20 % Failure) | | Rank C (More than 20 % Failure) | | |
| 2. COLUMN DAMAGE | | | | | | | |
| The most severely damaged floor | | | | Total Number of column of that floor | | | |
| Cracked Column | Rank A (NC < 10%) | | Rank B (10%-20%) | | Rank C (NC > 20%) | | |
| NC=Number of Cracked Column / Total Number of Column Crack with more than 2mm opening shall be count | | | | | | | |
| Column with bared rebar (Buckling) | Rank A (NB < 5%) | | Rank B (5%-10%) | | Rank C (NB > 10%) | | |
| NB=Number of Column with bared rebar / Total Number of Column | | | | | | | |
| 3. INFILL WALL DAMAGE | | | | | | | |
| Damage of infill wall | Rank A (No Failure) | | Rank B (Crack with more than 2mm opening) | | Rank C (more than 50% of wall are Collapsed) | | |
| Summarize | | | | | | | |
| Rank of GROUND DAMAGE are both C | Yes | No | | | | | |
| Ground floor collapsed | Yes | No | | | | | |
| Number of Rank A | 2 | | | | | | |
| Number of Rank B | 2 | | | | | | |
| Number of Rank C | 1 | | | | | | |
| RESULTS | | | | | | | |
| Safe | Restricted | | | Unsafe | | | |
| It can be used | Repair is needed | | Remedies and Some strengthening measure is needed | | It has to be demolished and reconstructed | | |

(6) Mosque



【Judgment】

Unsafe (to be reconstructed)

【Judgment reason】

It was judged that this building is unsafe because serious destruction was seen in the columns.

It is thought that the columns are made of the cement block with no reinforcing or, perhaps, it is insufficient. Self weight (dead load) of the front cantilever portion of the wall also generated some moments in that portion which caused a continuous crack pattern at this level.

【Other notes】

It is a case which can be classified as a historical building. When people's attachment is strong, retrofitting can be adopted. It might cost more than expected compared to reconstruction.

Table 13.1.8 Rapid Evaluation Sheet of Mosque

| RAPID EVALUATION SHEET for BEARING WALL STRUCTURE | | | | | | | | |
|---|----------------------------|---------------------|---|------------------------------------|---|--------------|-------------|--|
| Name of investigator | | | | | Affiliation | | | |
| Date | Location of Building | | | | | | | |
| Building Usage | Private | | | | | | | |
| | Dwelling | Shops | Dwelling+shop | Hotel | Industry | Storage | Live stocks | |
| | Public | | | | | | | |
| | School | Mosque | Bank | Hospital | Office | military | Others | |
| Number of Stories | | front face | | | dorsal side | | | |
| BEARING WALL TYPE | | | | | | | | |
| RC walls | Reinforced Bricks | Unreinforced Bricks | Reinforced Cement Blocks | Unreinforced Cement Blocks | Dressed Stones | Round Rubble | Other | |
| Roof TYPE | | | | | | | | |
| RC Slab | Steel Girder | Wooden | CGI Sheet | Other | | | | |
| GROUND CONDITION | | | | | | | | |
| Position of structure with respect to slope | | | | | | | | |
| | | | | | | | | |
| Type of soil strata | Hard Rock | Loose Composite | Stiff Composite | Unknown | | | | |
| EARTHQUAKE DAMAGES | | | | | | | | |
| 1. GROUND DAMAGE | | | | | | | | |
| Ground Settlement | Rank A (Not identified) | | Rank B (There is a doubt of the settlement) | | Rank C (Identified obviously) | | | |
| Failure due to land slide | Rank A (No Failure) | | Rank B (Less than 20 % Failure) | | Rank C (More than 20 % Failure) | | | |
| 2. BEARING WALL DAMAGE | | | | | | | | |
| The most severely damaged floor | | | | Total Number of wall of that floor | | | | |
| Crack on Wall | Rank A (NC < 10%) | | Rank B (10%–20%) | | Rank C (NC > 20%) | | | |
| NC=Number of Cracked Wall / Total Number of Wall Crack with more than 3mm opening shall be count | | | | | | | | |
| Interlocking Failure on corner of Wall | Rank A (No failure) | | Rank B (1 panel) | | Rank C (More than 1 panel) | | | |
| collapse of Wall | Rank A (No collapse) | | Rank B (1 panel) | | Rank C (More than 1 panel) | | | |
| Summarize | | | | | | | | |
| Rank of GROUND DAMAGE are both C | Yes | No | | | | | | |
| Ground floor collapsed | Yes | No | | | | | | |
| Number of Rank A | 2 | | | | | | | |
| Number of Rank B | 2 | | | | | | | |
| Number of Rank C | 1 | | | | | | | |
| if "Yes" | | | | | | | | |
| RESULTS | | | | | | | | |
| Safe | Restricted | | | Unsafe | | | | |
| It can be used | Repair is needed | | Remedies and Some strengthening measure is needed | | It has to be demolished and reconstructed | | | |

(7) Raza Hospital



【Judgment】

Restricted (Repair is needed)

【Judgment reason】

The columns destruction due to the earthquake is seen in the columns in an uppermost floor. At least the uppermost floor is demolished. This is one of the reason why the judgment is “Restricted”.



There is a serious damage in the column of middle story caused by inappropriate drilling. This column should be strengthened carefully.



【Other notes】

There are a lot of parts where the problem exists in a concrete quality and protection cover of rebar.



Table 13.1.9 Rapid Evaluation Sheet of Raza Hospital

| RAPID EVALUATION SHEET for RC FRAME STRUCTURE | | | | | | | |
|---|----------------------------|----------------------|--|---|---|---|---------------|
| Name of investigator | | | | Affiliation | | | |
| Date | | Location of Building | | | | | |
| Building Usage | Private | | | | | | |
| | Dwelling | Shops | Dwelling+shop | Hotel | Industry | Storage | Live stocks |
| | Public | | | | | | |
| | School | Mosque | Bank | Hospital | Office | military | Others |
| Number of Stories | | front face | | | dorsal side | | |
| INFILL WALL TYPE | | | | | | | |
| RC walls | Bricks | Cement Blocks | Dressed Stones | Round Rubble | Other | | |
| GROUND CONDITION | | | | | | | |
| <i>Position of structure with respect to slope</i> | | | | | | | |
| | | | | | | | |
| Type of soil strata | | Hard Rock | Loose Composite | Stiff Composite | Unknown | | |
| EARTHQUAKE DAMAGES | | | | | | | |
| 1. GROUND DAMAGE | | | | | | | |
| Ground Settlement | Rank A (Not identified) | | Rank B (There is a doubt of the settlement) | | Rank C (Identified obviously) | | |
| Failure due to land slide | Rank A (No Failure) | | Rank B (Less than 20 % Failure) | | Rank C (More than 20 % Failure) | | |
| 2. COLUMN DAMAGE | | | | | | | |
| The most severely damaged floor | | | | Total Number of column of that floor | | | |
| Cracked Column | Rank A (NC < 10%) | | Rank B (10%-20%) | | Rank C (NC > 20%) | | |
| NC=Number of Cracked Column / Total Number of Column Crack with more than 2mm opening shall be count | | | | | | | |
| Column with bared rebar (Buckling) | Rank A (NE < 5%) | | Rank B (5%-10%) | | Rank C (NE > 10%) | | |
| NB=Number of Column with bared rebar / Total Number of Column | | | | | | | |
| 3. INFILL WALL DAMAGE | | | | | | | |
| Damage of infill wall | Rank A (No Failure) | | Rank B (Crack with more than 2mm opening) | | Rank C (more than 50% of wall are Collapsed) | | |
| Summarize | | | | | | | |
| Rank of GROUND DAMAGE are both C | | Yes | No | | | | |
| Ground floor collapsed | | Yes | No | | | | |
| Number of Rank A | | 3 | | | | | |
| Number of Rank B | | 2 | | | | | |
| Number of Rank C | | 0 | | | | | |
| RESULTS | | | | | | | |
| Safe | Restricted | | | Unsafe | | | |
| It can be used | Repair is needed | | | Remedies and Some strengthening measure is needed | | It has to be demolished and reconstructed | |

(8) Sangam Hotel



【Judgment】

Unsafe (to be reconstructed) for the block that is a part of collapsed frame
Restricted (Repair is needed) for the block that is already used

【Judgment reason】

Almost all cracks were covered by plaster. Whether the main frame of a survived block received severe damage or not can not be identified.

At least, it is thought that the block that is a part of collapsed frame requires being demolished. The reason is that the design is improper. The consideration of Load path is poor. Complex shape is connected to adjoining block and they are connected without expansion joint.

【Other notes】

The remedial work is already advanced, and vested rights are generated.