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SUSTAINABLE DEVELOPMENT OF WATER RESOURCES, WATER SUPPLY AND ENVIRONMENTAL SANITATION

Pakistan Earthquake – WatSan reconstruction strategy

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This paper presents an overview of the formulation process and salient features of the strategy for reconstruction and rehabilitation of water and sanitation facilities and infrastructure damaged or destroyed by the earthquake of 08 October 2005. The strategy was prepared through a consultative process that involved line agencies, NGOs and development partners at sub-district, district, provincial and federal levels. The salient features of the strategy include overview of damages, vision, objectives, scope, strategies for building back better, component activities, district-wise budget estimates, implementation arrangements, targets, indicative work plan, monitoring and evaluation mechanism and district-wise inventory of 3,880 affected water and sanitation schemes

Background

The earthquake of 08 October 2005 severely impacted drinking water supply and sanitation systems in five districts each of the North West Frontier Province (NWFP) and Azad State of Jammu and Kashmir (AJK). In response to the tragedy, the Government of Pakistan, in collaboration with national and international development partners, launched a water and sanitation emergency relief programme. As a result of the interventions carried out under the programme, safe water and sanitation facilities were made accessible to the affected population living in camps as well as settled areas and any major incidence of water and sanitation related diseases was averted. A detailed account of the emergency WatSan response programme has been presented elsewhere (Ahmad, Malik and Zai, 2006).

To coordinate rehabilitation and reconstruction efforts in the earthquake affected areas, the Government of Pakistan established Earthquake Rehabilitation and Reconstruction Authority (ERRA) in October 2005. Soon after it was established, ERRA embarked upon preparation of rehabilitation and reconstruction strategies for various sectors including housing, health, education, livelihood, water and sanitation, social protection, transport, communication, environment and governance. This paper describes the process followed for preparation of ERRA's strategy for water supply and sanitation sector as well as its salient features.

The process

UNICEF Pakistan, at the request of Government of Pakistan, supported ERRA in preparation of the strategy through a consultative process during February-May 2006. The main steps involved in preparation of the strategy are listed below:

- A comprehensive work plan for preparation of the strategy

was prepared, shared with the members of water, environment and sanitation (WES) clusters and improved in light of feedback.

- Two questionnaires for collection of data were developed in consultation with the Governments of NWFP and AJK and line agencies at Tehsil (sub-district) Municipal Administrations and District Governments. These questionnaires were formally sent to the line agencies through the provincial and AJK governments. The first questionnaire pertained to water and sanitation schemes/ infrastructure and solicited information including district name, sub-district name, union council name, name of the affected water supply/sanitation system/scheme, population served, year of construction, estimated cost of rehabilitation and reconstruction, duration required for completion of rehabilitation work and name of agency/ organization which was operating and maintaining the system prior to the earthquake. The second questionnaire related to the capacity building needs i.e. equipment, training and manpower requirements for rehabilitation and reconstruction of water and sanitation infrastructure over a period of three years.
- Visits were undertaken to the earthquake affected areas and staff of the line agencies, elected representatives and partners were briefed about the data collection process and filling in of the questionnaires. Timelines for submission of the data to ERRA was also agreed during these visits. The visits played a vital role in spreading the message that submission of requisite data to ERRA was the only way to ensure rehabilitation and reconstruction of schemes. This facilitated positive and quick response from all the line agencies and partners.
- Raw data received in ERRA was compiled in the form of district-wise inventories of affected schemes using

spreadsheets and analysed to check discrepancies such as inclusion of schemes not affected by earthquake, cost per capita and duplication of lists submitted by various line agencies working in the same district. In many cases, the district-wise inventories of schemes were sent back to the line agencies for rectification. This process of exchange of inventories of affected schemes between ERRA and line agencies continued and it was thought that the data provided was though to be reasonably accurate and consensus was reached.

- On the basis of data provided by the line agencies, district-wise inventories of affected schemes and draft strategy for water and sanitation sector were prepared. These documents were placed on ERRA's website and also shared with relevant government agencies at sub-district, district and provincial levels; members of WES cluster and other partners through e-mail, mail and consultative meetings held at federal, provincial and district-level. The strategy and inventories of schemes were revised and finalized in light of observations and recommendations of these organizations.
- The inputs received from partners during the consultation process resulted in major changes in strategy, especially number of schemes and budget estimates. Over 200 schemes recommended for inclusion in ERRA's inventories, for instances, were excluded due to the fact that they did not exist prior to the earthquake or were not damaged by it. Similarly, about 700 genuinely affected schemes, which could not be reported by the line agencies, were added on recommendations of NGOs.

Salient features

The salient features of ERRA's Reconstruction and Rehabilitation Strategy for Water and Sanitation Sector include overview of damages, vision, objectives, scope, strategies for building back better, component activities, district-wise budget estimates, implementation arrangements, targets, indicative work plan, monitoring and evaluation mechanism and district-wise inventory of the affected schemes (Earthquake Reconstruction and Rehabilitation Authority, 2006). These are briefly described in the following sub-sections:

Overview of damages

- A total of 3880 public and community owned drinking water supply systems- 1902 in NWFP and 1978 in AJK- were damaged. These included 3525 gravity schemes, 56 tube wells/lift schemes and 299 hand pumps.
- About 25 kms of sewerage system in Muzaffarabad, the capital city of AJK, was damaged while significant damages to drains, public latrines, street pavements and solid waste management system (bins, filth depots and dumpers) was reported. Over 50,000 household latrines were also damaged.
- Water and sanitation facilities in 420 healthcare facilities and 5857 educational institutions were damaged or

destroyed.

- Damages to loss of lives as well as to equipment and office and residential buildings (over 300,000 square feet) were also reported.

Vision and objectives

The vision of the strategy is to improve the quality of life of people of the earthquake affected areas by reducing risks to the public health through provision of equitable, sustainable and reliable supply of sufficient quantity of safe water and appropriate sanitation services. The objectives are (i) to rehabilitate and reconstruct all public and community-owned drinking water supply, sanitation and solid waste management systems damaged or destroyed as a result of the earthquake of 08 October 2005; (ii) to expand, improve and upgrade the affected water supply and sanitation systems for increased disaster preparedness and enhanced service delivery in line with the National Drinking Water and Sanitation Policy, Pakistan Poverty Reduction Strategy and Millennium Development Goals; (iii) to restore, build and strengthen the capacity of relevant government departments, agencies and institutions, Non-Governmental Organizations (NGOs), community-based organizations and other partners; and (iv) to bring about behavioral changes in favor of safe hygiene practices.

Scope

The strategy stipulates that all public and community-owned schemes damaged or destroyed by the earthquake of 08 October 2005 and reflected in the inventories prepared by ERRA will be rehabilitated/ reconstructed/upgraded on the basis of priority criteria including population served, extent of damages, schemes serving, inter-alia, schools and hospitals, accessibility, level of involvement of community in implementation and availability of water source. The strategy further stipulates that any affected scheme which may have been left out at this stage due to error or omission or lack of information will be rehabilitated or reconstructed subject to intimation of such scheme to ERRA and approval thereof. The strategy, however, specifies that new schemes will not be allowed from the funds made available for implementation of the strategy. The strategy, however, provides for "Replacement schemes", for relocated settlements or in lieu of the destroyed schemes. In order to ensure that only qualified scheme are taken up for rehabilitation or reconstruction and to ascertain the extent of damages and refine cost estimates and design parameters, the strategy specifies that the schemes reflected in ERRA's inventories will be assessed in-depth prior to initiation of on-ground work.

Strategies for building back better

The main strategies which are envisaged to be pursued to achieve the objectives of the strategy are (i) improved disaster preparedness (design of earthquake resistant structures, locating water and sanitation facilities away from hazard

prone areas, use of earthquake resistant materials e.g. RCC water tanks, submersible pumps, steel borehole casing, earthquake resistant construction techniques such as flexible pipe joints, and preparation of disaster management strategy for water and sanitation sector), (ii) enhanced service delivery (upgradation keeping in view the current population and anticipated future demand), (iii) use of cost-effective and locally appropriate technologies, (iv) community participation, (v) integration of water and sanitation in housing, education, health, governance and environment sector strategies, (vi) capacity building of line agencies and communities, (vii) linkages and partnerships, (viii) effective coordination and (ix) quality assurance through standardization, effective monitoring and third-party supervision.

Component activities and budget estimates

The key component activities to be carried out under the strategy include (i) rehabilitation and reconstruction of drinking water supply systems, (ii) water quality monitoring and management, (iii) rehabilitation and reconstruction of sanitation systems, (iv) rehabilitation and upgradation of solid waste management system, (v) rehabilitation and reconstruction of buildings, (vi) capacity building of implementing agencies through provision incremental staff, consultancy services, training, office equipment and mobility support, and (vii) community mobilization and hygiene promotion.

The total budget for the above mentioned activities has been estimated at Pak Rs. 3,674 Million (US\$ 61.23 Million) – Rs. 1,635 Million for NWFP and Rs. 2,039 Million for A.J.K. Sub-district and district-wise budgets for each of the implementing agency are also presented in the strategy.

It may be noted that the budget estimates given above do not include cost estimates for household latrines and water and sanitation facilities in educational institutions and health care facilities as the budgetary provisions for the same have been reflected in the corresponding sectoral strategies.

Implementation mechanism

Considering the fact that over 70% of rural water and sanitation schemes are likely to be directly implemented by national and international NGOs and development partners who have arranged their own funds, specific mechanism for implementation of schemes by these agencies has been defined in the strategy. This mechanism involves:

- Selection by NGO/develop partner of a package of schemes from the inventory prepared by ERRa, preferably on the basis location/region/administrative unit (union council/tehsil/district) or departmental ownership, in consultation with the line agencies.
- Submission of application to ERRa for issuance of No Objection Certificate (NOC)/allocation of schemes
- Issuance of NOC by ERRa in consultation with the line agencies
- Detailed assessments, preparation of project proposals

and detailed implementation plan and submission to ERRa. At this stage partners are also required to report to ERRa in case any of the schemes allocated to them does not qualify for rehabilitation and reconstruction and allocation of alternate schemes.

- Submission of designs/specifications to District Reconstruction Units (district level branches of ERRa) for endorsement
- Implementation as per the provisions of the strategy
- Supervision and monitoring by line agencies, district reconstruction units and development partners
- Commissioning and handing over of the schemes to the line government agency or communities after completion of the work and issuance of a certificate to this affect by the District Reconstruction Units.

Rehabilitation of large urban schemes, buildings and solid waste management schemes, which are unlikely to be sponsored by development partners from grant funding, will be financed by the Government of Pakistan. The implementation of such schemes would entail the following:

- Hiring of consultants
- Detailed assessments, feasibility and preparation of project proposal and designs
- Submission of project proposal/designs to ERRa for approval
- Execution of work through private contractors/firms
- Supervision and monitoring by the consultants and line agencies
- Commissioning and handing over of schemes to the line agency after completion of the work and issuance of certificate to this affect by DRU

Monitoring and evaluation

The strategy sets out year-wise physical and financial targets, indicators and monitoring and evaluation mechanism. Rehabilitation work on about 40% of the schemes is planned to be completed during the first year (financial year 2006-07) and 50% and 10% during second year and third year, respectively. The corresponding financial utilization has been estimated at 45%, 44% and 11%, respectively. Monitoring and evaluation of the strategy is planned to be carried out as part of monitoring and evaluation of the overall reconstruction programme. Third party validation and impact monitoring are also envisaged through an external agency.

Implementation

- Soon after finalization of the strategy and district-wise inventories, NGOs and development partners, who showed interest in direct implementation, were asked by ERRa to select package(s) of schemes from ERRa's inventories for implementation. As of 09 August 2006, about 1900 schemes were allocated to development partners including 1000 schemes to UNICEF and 900 schemes to OXFAM, Mercy Corps, Solidarities, American Refugee Committee, Premiere Urgence, Islamic Relief and others I/NGOs for implementation. Applications for allocation

of hundreds of schemes are also under process. Based on the district-wise cost estimates prepared during the process of formulation of strategy, ERRA has simultaneously initiated negotiations with bilateral and multilateral donors for financing of schemes which are unlikely to be sponsored through grant funding.

- Comprehensive transitional plans for water and sanitation sector are being devised for the city of Balakot, which, being on active fault line, will be wholly relocated and Muzaffarabad, which will be partly relocated. These plans will cater to the needs of people for a period of two to three years, the time required for complete resettlement. Similar plans are being developed for people who have lost their living places due to landslides and will be living in camps till resettlement.
- In line with the provisions of the strategy, Water and Sanitation Technical Advisory Groups (TAGs) have been established at the federal and district levels to replace emergency WES clusters. TAGs, which comprise of representatives of line agencies, development partners, NGOs and private sector organisations, are providing useful fora for alliance building and exchange of ideas, information and experiences.

Major lessons learned

- The strategy has provided a shared vision and common guiding framework for rehabilitation and reconstruction of water and sanitation systems in the earthquake affected areas. The district-wise inventories of 3880 affected schemes and the corresponding cost estimates, though not exhaustive and 100% accurate, have also proved to be a valuable tools for planning purposes. These documents have helped all the partners to swiftly move from emergency to rehabilitation and reconstruction phase, under the leadership of the government and ERRA.
- Collection of reasonably accurate data regarding the earthquake affected water supply and sanitation systems/schemes in a short span of time (i.e. three months) proved to be challenging task. In many cases, the data provided by the line agencies included data in respect of new schemes or schemes which were not actually damaged by the earthquake. Similarly, a number of district authorities missed many affected systems, especially community based water supply schemes because of lack of accessibility in mountainous areas or lack of capacity to undertake field assessments. In certain cases, political representative also tried to influence the process. This delayed finalization of the inventory of the affected schemes due to re-verification and cross-checking of the data. As part of efforts to gather as authentic data as possible, special directives were issued by the provincial and AJK governments to the concerned officials to ensure transparency in the process. The higher officials of these governments along with ERRA team also made field visits to the affected areas to ensure accurate data collection. Data collected by NGOs were also utilized

to cross-check the data received from line agencies.

- The borderline between rehabilitation/reconstruction and expansion/improvement of the affected schemes also emerged as a major issue while finalizing the overall cost of rehabilitation and reconstruction for the sector. Initially, it was planned to rehabilitate and reconstruct the affected schemes so as to restore pre-earthquake conditions. However, the line agencies wanted to expand the same beyond pre-earthquake conditions thus asking for additional funding. Finally, it was agreed to rehabilitate, reconstruct and upgrade (to ensure seismic resistance as well as meet the current and anticipated future needs) all the earthquake affected schemes.

Reference

- Ahmad, T, Malik, M and Zai, T (2006) WatSan Response to Earthquake in Pakistan, Paper submitted for presentation at the 32 WEC Conference, Sri Lanka
- Earthquake Reconstruction and Rehabilitation Authority, (2006) Rehabilitation and Reconstruction Strategy for Water and Sanitation Sector, ERRA, Government of Pakistan (www.erra.gov.pk)

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Disclaimer

The views expressed in this paper are those of the authors and do not necessarily reflect the views of Government of Pakistan, ERRA or the organization they work for.

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