

is moving to mitigate price pressures, and raised the policy interest rate by 0.5 percent in July and by another 0.5 percent (to 13.5 percent) in September.

44. **Government's fiscal position is likely to get weaker as a large proportion of relief, rehabilitation and reconstruction cost would be borne by the government.** The 2009/10 fiscal deficit was 6.3 percent of GDP (compared to a target of 5.1 percent), owing to a substantial overrun on electricity subsidies and other public spending as well as shortfalls in tax revenues. The estimates of overall reconstruction cost range for Rs 662 billion (4.5 percent of 2009/10 GDP) to Rs 779 billion (5.3 percent) depending on mode of reconstruction. While reconstruction and rehabilitation of damaged infrastructure would be spread over 3-4 years, relief activities and restoration of even the basic public infrastructure and services (roads, bridges, railway tracks, irrigation system, schools, health centers, and power sector installations) will require substantial outlays. Rationalizing and reprioritizing the existing development budget could yield some fiscal space, but overall, the floods may add significantly to the budget deficit in 2010/11. A higher fiscal deficit would imply a larger build up of public debt, having adverse fiscal and economic implications for future.
45. **Balance of payments may also come under pressure.** Even before the floods, the current account deficit was projected to widen slightly in 2010/11 from the 2 percent of GDP registered in 2009/10. The disaster is expected accentuate this trend, mainly by increasing the trade deficit. Notwithstanding the positive impact of EU granting Pakistan an enhanced market access for a limited time (one year), export performance is likely to weaken, as the textile sector is impacted by the need to source some 2 million bales of cotton that may have been lost due to crop damage, and a promising new export - cement - will now have to be diverted to domestic consumption. In contrast, reconstruction and rehabilitation will require a significant increase in imports particularly of food, medicines, fuels, construction materials, and machinery. Workers' remittances are likely to continue playing an important role in financing household consumption in Pakistan. Still, substantial external finance will need to be motivated in order to sustain international reserves, which remained steady at US\$12.2 billion at the end of August, 2010.

E. SUMMARY OF DAMAGE AND NEEDS BY SECTOR

46. This section provides an overview of the damage and recovery/reconstruction requirements by sector. Detailed assessments of each sector are provided in the attached annexes.

Housing

47. **(a) Damage - US\$ 1,588 million:** The floods caused total or partial damage to more than 1.6 million housing units across the country. An estimated 913,307 houses have been completely destroyed¹⁸ and another 694,878 partially damaged¹⁹. As expected, the extent of damage incurred to *katcha* houses has been far higher at 19 percent of the pre-disaster *katcha* housing stock (1.45 million housing units), out of which, 847,455 *katcha* housing units have been completely destroyed. Among provinces, the housing stock in Sindh has been the worst affected, with almost 880,000 housing units completely or partially damaged, which is 55 percent of the total affected housing stock across the country. By contrast, only 3 percent of total *pucca* housing stock (156,000 housing units) has suffered damage, with about 65,000 being completely destroyed. The direct damage to housing, reflecting the depreciated value of the affected stock, is US\$ 1,081 million (US\$ 795 million for completely destroyed houses and US\$ 285 million for partially damaged houses). These are based on the aver-

¹⁸ This primarily includes completely washed away, fully collapsed, or structurally damaged houses with foundation failure or erosion of supporting walls

¹⁹ This mostly includes cases of roof damage and repairable damage to walls, etc.

age housing unit sizes across all affected districts in each province, derived from the average number of rooms in a typical house reported for each district in the 1998 census. The cost of a typical *katcha* and *pucca* house has been estimated using unit material and labor costs collected from the field by the DNA team. Indirect losses including: depreciated value of housing assets, appliances and fixtures; value of damaged water and sanitation infrastructure; cost of debris removal and demolition; and cost of providing temporary shelter to affected households, are estimated to be US\$ 508 million.

48. **(b) Strategic, Implementation and Cost Options for Housing Reconstruction:** Since the affected area is prone to multiple hazard risks (floods, earthquake and landslide), reconstruction of houses should be based on appropriate cost-effective, hazard-resistant engineering standards as far as possible. While this approach will, to some extent, increase initial reconstruction costs, it will constitute the most economically efficient solution when viewed over the full useful life of these investments. It is strongly recommended that the Government require the adoption of flood-resistant engineering designs and construction standards as a condition for disbursement of housing reconstruction grants to all eligible affectees living within the fifty year floodplain. This option has been costed for the purpose of this report as Option-2. However, houses located in the 5-year flood plain will need to be relocated outside it.²⁰ Similarly, in areas that are prone to significant seismic risk (Seismic Zones 2B, 3 and 4 according to the Building Code of Pakistan 2007), housing reconstruction must cater for appropriate seismic-resistant standards, to minimize the risk to life and property, and to reasonably secure the proposed investments over their useful life. Housing made of *katcha* construction is not recommended in such areas, since significant seismic resistance cannot be ensured for *katcha* construction.
49. **(c) Recovery/Reconstruction Needs:** The reconstruction and repair needs for housing have been calculated for the three Options, and range between US\$ 1.483 and 2.206 billion. These estimates are based on replacement of a destroyed house with a core unit of 500 sq. ft covered area, calculated on the basis of currently prevailing prices of materials and labor. Option-1, costing US\$ 1.483 billion, is a base case, providing for a uniform subsidy for Building-As-Before calculated on the basis of a *katcha* core unit. It is not recommended and is provided for comparison purposes only. Option-2, costing US\$ 1.690 billion, offers a Partially Differential Subsidy providing for restoration to flood-resistant standard for those units that are located within the flood hazard area. It is recommended only for districts in Punjab and Sindh that are not at seismic risk. Option-3, costing US\$ 2.206 billion, provides for a Differential Subsidy for Building Back Better to applicable multi-hazard-resistant standards for units at risk of flood and/or earthquake - while building as usual in non-risk prone areas. It is the recommended Option providing for optimal use of scarce public resources, while ensuring adequate hazard resistance proportionate with the relative hazard risk exposure and structural vulnerability of houses in the affected districts.

Health

50. **(a) Damage - PKR 4,222 million (US\$ 49.67 million):** The floods resulted in mild to moderate damage to the country's public health infrastructure, including basic health units and dispensaries, which suffered the most damage. However, most of the secondary health care facilities were unaffected. Out of 9,271 health facilities across the country, a total of 515 (5.3 percent of the total) have been partially damaged or completely destroyed. In the two worst affected provinces, KP and Sindh, about 11 percent of total health facilities in the affected districts were damaged or destroyed, followed by 8 percent in FATA. Damage to health facilities in the rest of the country's floods-affected areas total 2 percent or less.

²⁰ Relocation costs are not reflected in the cost estimates.

51. **(b) Recovery/Reconstruction needs - PKR 4,151.5 million (US\$ 48.84 million):** The short, medium and long term needs for the sector have been estimated at PKR 4,152 million (US\$48.84 million). A total of PKR 1,028.5 million (US\$ 12.1 million) will be required to implement the short-term strategy, while PKR 3,123 million (US\$36.74 million) is required for the medium- and long-term reconstruction and rehabilitation of damaged health facilities. In the short-term, strategies should focus on establishing essential health services packages (primary health care, emergency obstetric care, response to disease outbreak, supply of essential medical supplies, etc.). Cross-cutting issues such as care for particularly vulnerable groups (women of reproductive age, children and the elderly) should also be addressed as a priority. In the medium- and long-term, a comprehensive health sector revitalization strategy should aim at the provision of minimum standards for health care, based on the key principles of equitable access to essential health care, timeliness, results, and accountability.

Education

52. **(a) Damage - PKR 26,464.3 million (US\$311.3 million):** The unprecedented floods have damaged a total of 10,407 educational institutions in the country of which 3,741 are fully destroyed and 6,666 are partially damaged. However, affected institutions are only 6.2 percent of the total institutions in the country and 12 percent of the total institutions in the affected districts. The two worst affected provinces (in terms of numbers) are Sindh and Punjab, where 18.5 percent and 8.8 percent of the pre-flood educational facilities have been damaged or destroyed respectively, followed by 12.9 percent and 5.6 percent of pre-flood facilities damaged in Balochistan and KP.
53. **(b) Recovery/reconstruction needs - PKR 42,906.58 million (US\$ 504.8 million):** Recovery needs are estimated as PKR 42,906.58 million (US\$ 504.8 million) including PKR 5,410.575 million (US\$ 63.7 million) for short-term needs. Efforts in the short-term should ensure that the educational process continues in the affected districts. This will also contribute to restoring the community's confidence in government's ability to continue basic service delivery. Ensuring teacher availability, basic shelter, replacing the textbooks lost to the floods, fumigation of surviving school buildings and those being used by IDPs, and vaccination of children are among the basic and immediate requirements to continue the education process. Long-term reconstruction warrants reviewing some aspects of the policy. For example, location of schools in terms of accessibility and maximum utility and involvement of school management committees/Parents Teachers Associations in rehabilitation and repair work is highly desirable. First among the post-DNA follow up actions will be to conduct a detailed facility-by-facility survey to determine actual needs of each educational facility. The Government will not be able to carry out all repair and reconstruction work alone, therefore, communities and credible NGOs will have to be fully engaged in reconstruction and revival work. This may require capacity building of district officials to monitor the processes and establishing working relationships with communities and local credible NGOs.

Irrigation and Flood Protection

54. **(a) Damage - PKR 23,600 million (US\$ 277.6 million):** The most extensive damage occurred in Sindh province (PKR 11,638 million/US\$ 136.91 million) followed by KP (PKR 5,810 million/US\$ 68 million). Damage to WAPDA facilities is estimated at PKR 416 million (US\$ 4.9 million). The damage estimates reflect the reconstruction requirement at depreciated value as most of the sector's infrastructure is more than fifty years old. Indirect losses such as damage to crops due to flooding and disruption of irrigation supplies, siltation and water-logging of agricultural land are covered by the DNA for the agriculture sector. Irrigation departments in Balochistan, KP, Punjab and Sindh expect to have restored essential irrigation supplies by the start of the winter crop season in November 2010.
55. **(b) Recovery/reconstruction needs - PKR 83,499 million (US\$ 982.35 million):** The irrigation,

drainage and flood protection sector reconstruction strategy includes restoration of canals, drains and public tubewells, and strengthening vulnerable and damaged components of barrages and river training works in the short-term-6-12 months. The cost of the short-term measures is estimated at PKR 13,208 million (US\$ 155.4 million). The medium-term program includes reconstruction of significantly damaged infrastructure and building-back-safer measures against flash floods, i.e. floods protection and river training works, for settlements and urban areas in KP and the northern regions and for increasing the freeboard of some flood protections works in Sindh. This program will be completed within 2-3 years at an estimated cost of PKR 70,291 million (US\$ 826.95 million). In light of the severity of the floods damage and losses, it is recommended that the Government reviews its current flood management strategy. The revised strategy should consider: (i) enhancing the absorptive capacity of the catchments to reduce rainfall run-off, (ii) building additional reservoirs to absorb flood peaks, (iii) improving flood regulation through diversions, (iv) enhancing the safe flood disposal capacities of the existing barrages and river training works, (v) adopting a "living with the floods" approach for the riverine areas in Punjab and Sindh, (vi) improving and expanding flood forecasting and early warning systems, and (vii) enhancing evacuation and flood relief capacities.

Transport and Communications

56. **(a) Damage - PKR 112,911 million (US\$ 1.3 billion):** The transport and communications sector consists of various categories of roads, railways, bridges, civil airports, and telecommunications infrastructure. Preliminary estimates indicate that 10 percent of the road network (approximately 25,000 km) and 16 percent of the railways (1,225 km) were damaged by the floods. Within this sector, the road subsector sustained the highest damage and losses (US\$ 1.2 billion) followed by the railway subsector (US\$60 million). Damage to telecommunication infrastructure includes optical fiber transmission lines, feeder cables and, in some cases, transmission towers and equipment (US\$ 35.0 million). The airports sustained only minor damage (US\$ 0.7 million). The disruption to the road and rail network has a two-fold impact on the mobility of the affected population: returning to the villages is difficult and, once returned, access to markets and basic services is curtailed. While some of the national highways and rail network are expected to be restored in the short-term, the district and municipal roads network will continue to hamper rehabilitation and access to basic services - health, education, markets, public services, and communications in the medium- to long-term.
57. **(b) Recovery needs - PKR 196,466 million (US\$ 2.31 billion):** The reconstruction needs of the sector have been estimated at US \$2.31 billion with the reconstruction needs for the road sub-sector estimated at US\$ 2.07 billion.²¹ For telecommunications, the private sector operators mobilized quickly, carried out the repairs, and restored telecom services. For roads and railways, the embankment breaches were plugged, railway line repairs were undertaken, and rail traffic was largely restored. Repair of the minor damage to airports is underway. For the national highways that provide international and inter-provincial road connection, landslides debris was removed, bailey bridges were installed on damaged bridge sites, and temporary repairs were undertaken to restore traffic. For provincial highways and districts and municipal roads, only minimal work has been carried out on critical sections. Reconstruction costs for telecommunications, railways, civil aviation, and 10 percent of the road construction costs are included in the short-term recovery phase. In the medium- and long-term the focus will be solely on the remaining road reconstruction effort.

Water Supply and Sanitation

58. **(a) Damage - Up to PKR 3,195 million (US\$38 million)** in estimated damages to public assets.²² Indirect losses amount to PKR 6,112 million. Some 81 districts and over 230 *tehsils* experienced

²¹ Many parts of Sindh province remain flooded and, therefore, reconstruction estimates are on the high side.

flood damage to water supply and sanitation (WATSAN) infrastructure. The severity of damage varies between geographical areas, with structural damage more extensive and destroyed schemes more likely in KP and mountainous areas. Flash floods have caused serious structural damage to pump houses, storage tanks, and pipes in mountainous districts. Where flooding has been less violent but more extensive in scope and duration, as in Sindh, damage is primarily to electrical and mechanical components, pumping machinery, transformers, building foundations, and sewerage and drainage systems, including vast damage to street pavements and drains, requiring extensive cleaning, de-clogging, de-watering and re-soling. Except in areas subject to flash flows, most schemes suffered only minor damage. While at community level, damage to pavements and drainage is devastating, leaving communities in mud and stagnant water, damage costs are relatively low. Little solid waste management infrastructure was reported damaged by the flood, which is testimony to its absence in flood-affected communities. In contrast, damage to private WATSAN assets, reported in the Housing Sector Annex, exceeded estimated damage to public assets, signaling the critical role the private sector plays in WATSAN service delivery.²³

59. **(b) Recovery needs - Up to PKR 7,982 million (US\$94 million)** for physical reconstruction, including priority enhancements for technical efficiency, to protect against future disasters, and to enhance sustainability of recovery investments. Reconstruction and recovery should aim to re-establish services to households, not simply make physical repairs. The objective should be to reestablish services and promote sustainable WATSAN services so that investment in recovery is not wasted. The recommended investment to Build-Back-Better will also initiate a few essential reforms undertaken hand-in-hand with the recovery actions. Short-term priorities are estimated at PKR 3,364 million (US\$ 40 million) to clean up and undertake priority repairs; followed by planning and designing for better or smarter replacements or modifications to infrastructure. Hygiene promotion will be essential primarily to reduce health risks, but should also be used to encourage consumer demand for WATSAN services in the longer term. Medium- and long-term actions are estimated at PKR 4,618 million (US\$ 54 million), and should build on the strong foundation of baseline service data, asset inventories, Build-Back-Better recommendations and investment plans begun in the first phase.

Energy

60. **(a) Damage - PKR 26.3 billion (US\$ 309 million):** This comprises direct damage of PKR 13.2 billion (US\$ 155 million) and indirect damage of PKR 13.2 billion (US\$ 154 million). Damage was split fairly evenly between the power sector (total damage PKR 13.1 billion / US\$ 155 million) and the petroleum sector (total damage PKR 13.2 billion / US\$ 155 million). In the power sector the majority of the direct damage is to the distribution network and the hydroelectric power generation stations. It is estimated that approximately 3.5 million people are without power due to distribution network outages, with most of the affected population in Sindh, the Multan area and KP. There is also damage to several micro- and mini-hydro facilities which will have little impact on national generation capacity but will adversely affect many remote communities that are serviced solely by these facilities. Damage to the petroleum sector is moderate representing only 1 percent of the annual oil imports by the industry. Oil supplies to some power generation facilities and public retail outlets were suspended, and gas supplies to over 240,000 people are cut off mainly in Balochistan and Sindh. Generally, however, a reasonable level of services and supplies are maintained to the affected areas. About 47 percent of disruptions occurred in the downstream gas transmission and distribution companies, followed by 31 percent for downstream oil sectors (oil refineries, marketing and distribution

²² This includes PKR 1,512 million (US\$18 million) for Sindh province. Sindh figures remain speculative, and require further validation once the flood waters fully recede. Sindh figures were subject to a reduction of 66 percent based on a comprehensive review of damaged schemes reported by Public Health Engineering Department (100 percent of reported damaged schemes were validated).

²³ Damage to WATSAN facilities at household level is estimated at PKR 4,532 million (US\$ 53 million). This related to damaged hand pumps, motors for water supply, underground and roof-top storage tanks, and household latrines. Reconstruction costs related to household sanitation are included under housing.

companies), and 22 percent by upstream oil and gas companies. Reported damage is concentrated in the public sector petroleum companies (98 percent).

61. **(b) Reconstruction needs - PKR 9.03 billion (US\$ 106.3 million):** This covers direct damage for the public sector power companies plus PKR 850 million (US\$ 10 million) for capacity building. Needs for the petroleum sector public companies are PKR 2.8 billion (US\$ 33 million) as about 49 percent of the total damage for public companies is estimated to be covered by insurance. Key recommendations include fast track infrastructure restoration by diverting resources to restoration activities including utilizing existing stores and existing civil works contractors, fast track procurement for continuous replenishment of stores, accelerated implementation of national compact fluorescent lamp program in affected areas in order to reduce power demand and offset generation shortage, provision of free solar lanterns to affected areas where power has been disrupted, and establishment and implementation of emergency standard operating procedures. Recommended policy actions for the energy sector include establishing policies for unrecovered receivables from customers in the affected areas, and for compensation to public sector companies for providing free electricity or gas to flood affectees.

Agriculture, Livestock & Fisheries

62. **(a) Damage - PKR 428.8 billion (US\$ 5 billion):** In the more hilly areas affected by flash floods, mainly in AJK/GB, KP and Balochistan, the rapid and unexpected flow of water swept away people, houses, crops, livestock and stores of feed, food and seed. In the plains, crops were destroyed but as the flood was slow moving, most people were able to relocate themselves, their valuables and livestock to higher areas. The total damage in crops, livestock and fisheries sub-sectors is estimated at about US\$ 5.0 billion. Among the provinces, Sindh suffered most with 46 percent of total damage, followed by Punjab (36 percent), Khyber Pakhtunkhwa and Balochistan (8 percent each), and the rest in AJK and GB. The losses were largest for **crops** (89 percent of total damage) with direct damage to: 2.1 million ha of standing Kharif crops - mainly cotton, rice, sugarcane and vegetables; 1 million tons of food and seed stocks; and a large number of on-farm water channels and tubewells. Further indirect damage may occur as forthcoming crops are not planted due to problems of land preparation and inputs. There is concern about the possible impact of reduced wheat output in the coming season on food security. **Livestock** damage accounts for 11 percent of total damage. A substantial number of livestock were washed away and killed during the flash floods in the hilly areas of KP and Balochistan, while grazing animals and poultry were lost also in the plains area. **Fisheries** were affected as a number of fishponds and public and private hatcheries were washed away or damaged.
63. **(b) Recovery/reconstruction needs - PKR 21.8 billion to 89 billion (US\$ 257 million to 1.04 billion)** Reconstruction needs have been estimated for three scenarios and include the costs for bringing normalcy in the agriculture, livestock, on-farm water management and fisheries sub-sectors. The range given is for the lowest to the highest costing scenario. The team has also costed the interventions for improving key policy and regulatory frameworks.

Private Sector & Industries

64. **(a) Damage - PKR 23,932 million (US\$ 282 million):** While the major industrial hubs of the country have largely been spared, the floods have seriously damaged micro-, small and medium enterprises in manufacturing, trade and services sectors in the affected districts. Direct damage was estimated to be PKR 14,463 million (US\$ 170 million) while indirect damage/losses were calculated at PKR 9,468 million (US\$ 111 million). The largest share of damage was to shops, followed by industry, and Sindh province was the worst affected. In Sindh and Punjab, cotton ginning, sugar, rice processing and flour mills are the main sectors damaged by floods, while in KP they are marble, furniture, silk,

horticulture, mining and tourism. Along with direct damage, the floods have also adversely affected the livelihoods and household incomes of the affected communities. The unlikely recovery of informal credit extended to cotton farmers and the likely increase in production costs due to use of imported cotton are expected to reduce the competitiveness of Pakistani textile products in international markets.

65. **(b) Recovery/reconstruction needs - PKR 8.6 billion - 10.9 billion (US\$ 102 to 129 million):** Reconstruction/recovery of the private sector should be carried out following a holistic and integrated approach. It is very important that the proposed strategy is implemented through an arrangement based on public-private partnership model. The strategy should have measures for immediate restoration of livelihoods and resumption of normal business activity. It should also include medium- to long-term measures for sustainable economic development in the affected areas. Immediate steps in this regard include supporting businesses through matching grants for reconstruction of buildings, restocking of goods and maintenance of machinery and equipment. Provision of rescheduling of existing loans and easy access to new financing on easy terms should be included in the reconstruction strategy. Restoration of utility infrastructure should be ensured on a priority basis for the restart of closed industrial units in the minimum possible time. Marketing access for affected businesses should be improved by giving them preferential treatment in government procurement and getting concessions in duties in the international markets to increase their exports. In the long-term scenario, provision of business development services in the affected districts should be improved by engaging organizations like SMEDA. Complete mapping of the private sector should be carried out for establishing credible baseline numbers. Capacity building programs in technical and vocational education should be strengthened in the affected districts. Insurance of private sector assets should be facilitated through cost sharing support to reduce losses in case of any future disaster.

Financial Sector

66. **(a) Damage - PKR 57,251 million (US\$ 673.5 million):** The impact of the floods on the financial sector has been assessed primarily through the impact on the banking sector, the microfinance sector, and the Non-Bank Financial Institutions (NBFI) sector with particular focus on the insurance industry. The estimated physical damage amounts to PKR 110 million (US\$1.8 million) of which PKR 76 million is in the commercial banking sector while PKR 34 million is to microfinance institutions (MFIs). Loan losses are over PKR 83 billion (about US\$ 1.0 billion); the banking sector constitutes 93 percent of the total (about PKR 79 billion) while the remainder is in MFIs and the insurance and leasing sectors. The largest share of loan losses of 55 percent is of the agriculture sector, while loan losses of SMEs and housing are 20 and 4 percent respectively. Amongst the provinces the largest share of losses is in Punjab (63 percent) followed by Sindh (19 percent) and KP (13 percent). While banks' NPLs in the affected areas have more than doubled, they are still not that significant as a proportion of their overall portfolio of outstanding loans. However, one specialized agriculture bank alone represents about 38 percent of the total NPLs in the affected districts and could face capital constraints.
67. **(b) Recovery/Reconstruction needs - PKR 39 billion (US\$ 463 million):** It is still too early to give precise figures relating to the full extent of the damage and these estimates should be treated with caution until a clearer picture emerges with the passage of time. Recommendations for the banking sector include: (i) Establishing incentive mechanisms to extend fresh credit in the affected areas for revival of business activities particularly for agriculture and Medium to Small Medium Enterprises (MSMEs). This will require concerted efforts and flexible and new products to expand outreach to cater to emerging needs. For this a **Partial Credit Guarantee/ Risk Sharing Facility** can be structured; (ii) Moratorium on existing loans/**rescheduling with interest rate subsidy**. However clearly

defined eligibility would have to be worked out to target the subsidy where it is intended and must be time bound; (iii) **Refinancing line** for liquidity support. In the case of the MFIs, some write-off may be unavoidable due to the loss of livelihoods of the clients and the impact on their capacity to pay. Proposed interventions in the microfinance sectors could include a **Risk Mitigation/ Capital Protection Fund** which would also provide them the liquidity needed for fresh credit requirements, a moratorium on old loans/rescheduling of repayment period, new capital recovery loans as well as rescheduling of loans with creditors including PPAF. Overall, the situation also presents the Government a good opportunity to focus on financial inclusion and increasing outreach and coverage of the potential market.

Social Protection and Livelihoods

68. (a) **Needs -PKR 58 billion (US \$683 million):** A preliminary conservative estimate suggests that around 2.9 million households are affected of which 1.9 million (66 percent) have been severely affected. Addressing the short-term needs of these severely affected households for a period of six months would notionally require PKR 58 billion (US\$ 683 million). The estimates have been reached using two specifications to test the accuracy. The annex 17 provides details of both the specifications; however, the higher estimates have been used for overall costing of this report.

Governance

69. (a) **Damage - PKR 5.9 billion (US\$ 70.3 million):** The direct damage to governance institutions has been considerable, with nearly 1,437 critical public service buildings and facilities affected. Local government infrastructure and post offices have been hit the hardest. In KP, the police force, which is at the forefront in the battle against militancy, was already overstretched due to the volatile situation in the province. Punjab police operations have also been affected by the floodwater in different districts of South Punjab. The capacity of Sindh police in various districts has also been tremendously constrained due to flood damage. Across the country, land records have also suffered partial damage. Indirect losses and strains on public administration systems are more critical and need to be addressed. Broadly speaking: (a) capacity to govern reconstruction has diminished over time and will be further exacerbated by the floods; (b) IDPs' entitlements are under risk; and (c) the public security climate in Sindh, KP and Punjab due to diminished capacities is worrisome.
70. (b) **Recovery/reconstruction needs - PKR 4.9 billion (US\$ 57.65 million):** This cost includes rebuilding vital infrastructure and improving the procurement, PFM and institutional systems within the public sector to support the provincial and local governments during reconstruction. Of the total amount, nearly PKR 1.1 billion is required for restoring and, where needed, augmenting state capacities to deal with the post-disaster situation.

Environment

71. (a) **Damage - PKR 992 million (US\$ 11.67 million):** The floods have resulted in environmental damage, heightened environmental health risks and have affected forests, wetlands and other natural systems. There has been significant damage to trees and forest land, avenue and block plantation, forest nurseries, mangroves, wetlands, wildlife resources, and Forest Department infrastructure. The floods have also caused contamination of drinking water, proliferation of disease vectors caused by stagnant water ponds, and accumulation of solid waste - factors that will further exacerbate health risks for the affected population, particularly women and children. No estimates are available for damage to other environmental resources such as wetlands, mangroves, and cultural heritage sites at this stage.
72. (b) **Recovery/reconstruction needs - PKR 17.7 billion (US\$ 209 million)** The includes the costs for restoring critical forests, riparian vegetation, mangroves and wetlands; costs for reversing the nega-

tive impact of the floods on the environmental health; and costs for institutional strengthening, planning, and capacity building to reduce the risk as well as impact of future floods.

F. GUIDING PRINCIPLES OF THE NEEDS ASSESSMENT AND RECOVERY STRATEGY

73. The experience of implementing the reconstruction program following the devastating 2005 earthquake in Pakistan holds important lessons on how to implement a large-scale reconstruction program. Experiences of recent large-scale post-disaster reconstruction programs in other countries also offer several relevant lessons. Though the institutional arrangements for implementation of reconstruction programs inevitably vary across countries, a **core set of guiding principles** has emerged from these experiences which should be considered for the post-2010 flood reconstruction program. The following principles are the most relevant:
74. ***Coordinate centrally, implement locally.*** - Central coordination with local implementation should be one of the key features of the institutional framework to implement the reconstruction program. The majority of successful large-scale reconstruction programs have carried out central coordination through a Nodal Agency. In past reconstruction programs this has been considered critical for setting overall policies, strategies and standards, especially in areas such as cash transfers, asset compensation, and housing entitlements. In addition, a centrally coordinated mechanism is essential for effective coordination between government agencies as well as engagement with international donors. In cases where many international NGOs are implementing programs a central agency can ensure their efforts are consistent, coordinated and targeted to meet needs and gaps in the program. It will allow the Government to set common standards for all involved including the donor agencies. A central agency can also play a key role in helping to troubleshoot and overcome obstacles in the reconstruction program and maintain a sense of urgency.
75. Within the broader context of central ***coordination***, reconstruction should preferably be implemented at the lowest competent tier of government to ensure that it is tailored to the local conditions. This also encourages more rapid feedback loops from local communities to implementing agencies. Through this "subsidiarity" principle, local ownership is strengthened and sustainability of reconstructed assets is better ensured.
76. ***Focus on poverty reduction and sustainable livelihoods.*** - Ensure that the rehabilitation and reconstruction efforts are socially equitable with support targeted mainly to those in greatest need. Special measures should be put in place to ensure that vulnerable groups living in the flood affected areas, such as landless farmers, tenants, and those in riverine areas where property rights are poorly defined, fully benefit from the support measures to be provided, through targeted outreach and monitoring.
77. ***Support Government Institutions.*** - Prior to the 2010 flood event, most government institutions were already struggling to fulfill their mandated responsibilities. Many government institutions will therefore need support, in the form of additional capacity or specific expertise, to implement their part of the reconstruction program. Support is also needed to deal with the increased demand for interaction with local communities and for public information. This support can be provided by mobilizing and redistributing expertise with the government or it can be provided in the form of technical assistance from international and private sector partners.
78. ***Match greater flexibility and speed in Public Financial Management and Accountability (PFMA)***