

Large-scale development projects, particularly infrastructure, have long life cycles from conceptualization to design and development to implementation to impact, typically a generation of 25-30 years. Infrastructure projects such as water, sanitation, and hygiene, are critical to a country's development because water carries with it many of the elements of life without which life would be impossible and quality of life improbable.

Development planners try to learn from previous projects lessons to be applied to future projects. But each project has its own contexts and situational uniqueness that to study each on its own at different key points in its development and rollout is useful as a case study.

The Punjab Community Water Supply and Sanitation Sector Project (hereafter "Punjab Water") financed by the Asian Development Bank (ADB), among other funders, is a case that can be studied by policymakers and planners over a period of time covering three time periods in its current lifespan: (a) The expansion of a pilot project to a full proposal (2002), (b) project completion (2008), and (c) independent evaluation (2009).

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This case was written by Professor Juan Miguel Luz, Asian Institute of Management. All materials are prepared solely for the purpose of class discussion. It is neither designed nor intended to illustrate the correct or incorrect management of problems or issues contained in the case.

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## FROM THE PROJECT PROPOSAL (November 2002)

### Situation Analysis

Punjab is the most heavily populated province of Pakistan. Despite its apparently affluent agricultural economy, social indicators of Punjab compare poorly with most other provinces in the country. In 1999, thirty-three percent of Punjab's population was poor. In rural Punjab, this was 36 percent compared with 29 percent in 1993.<sup>1</sup> In 1998-99, infant mortality in Punjab was 95 per 1,000 live births against 89 for the country as a whole.

### Problem Analysis

The Government identified low water supply and sanitation coverage as one of the major issues confronting the water supply and sanitation (WSS) sector in Pakistan.<sup>2</sup> In 2001, overall water supply coverage in rural Punjab was 53 percent; about half of that provided by piped systems and the rest through community hand pumps. The remaining 47 percent of households had to rely on distant sources of unsafe water (e.g., uncovered wells, rivers, and rain-fed/canal-fed ponds) generally transported by women and children. These groups suffered significantly from waterborne diseases due to the use of water unfit for human consumption. The cost of healthcare due to illness was high.

Only about 27 percent of the rural population had access to sanitation facilities in the form of household latrines. The remaining population would defecate in open areas, a situation that was particularly difficult for females. By custom, they could only use the fields either before sunrise or after sunset.

The idea of health benefits being associated with good hygiene practices needed to be strengthened if the health of rural communities was to improve. Drainage in rural areas was very poor and maintenance of existing drains was commonly neglected, which resulted in health hazards such as insect infestations and unpleasant odors.

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1 Federal Bureau of Statistics, 2001.

2 Government of Pakistan, Planning Commission 2001. Ten-Year Perspective Development Plan 2001-11 Islamabad.

While some aid-/NGO-assisted projects addressed the WSS problems of smaller village communities, larger villages remained unserved owing to financial and technical constraints. The financial allocations to the sector formed a small fraction of the total budgetary outlay on social services estimated to be as low as 0.18 percent of the GDP and only 0.83 percent of the total expenditures on public health services. The Government's 10-year (2001–2011) Perspective Development Plan (PDP) had a gross allocation of only 6.8 percent for the physical planning and housing sector, of which only 1.1 percent was earmarked for WSS. This compared poorly with the 18 percent available for transport and communications and 14 percent for power. The result was severe cashflow problems in implementing the nationwide public health engineering departments' (PHED's) ongoing projects, with many WSS schemes remaining incomplete.

## Decision Analysis (November 2002)

Nationwide, PHEDs had constructed schemes following a top-down approach to planning and had design schemes that were costly and technically difficult for local communities to maintain. In view of this, the Government, with assistance from external agencies, sought to lift the constraints on the rural water supply sector's performance.

In 1992, it mandated the adoption of a uniform policy framework nationwide for rural WSS. Each provincial government adopted this policy framework, which was to provide that:

1. for all new rural WSS schemes, the communities will be involved in the design and implementation with Government providing the investment cost. After completion, the schemes would be handed over to the communities for full operation and maintenance (O&M);
2. all ongoing schemes, and those requiring rehabilitation, managed by PHED, will be handed over to the communities;
3. PHED will provide the communities with training in O&M of the schemes; and,
4. to cover O&M cost, the communities will open O&M accounts at the local bank, deposit an amount equivalent to two months' O&M expenses as an initial commitment, and designate representatives to operate the account and maintain the schemes.

To specifically address WSS problems in rural Punjab, the Government, in 1994, requested assistance from the Asian Development Bank (ADB). A loan of USD46 million from the Asian Development Fund (ADF) resources was approved by ADB to provide low-cost, low-technology WSS subprojects in seven districts where the situation was serious. The Punjab Water Project (Phase 1) was closed in May 2002. It provided safe drinking water and drainage facilities to about 800,000 people of 335 mostly poor and remote villages of seven priority districts (out of a total 34 districts) of Punjab through simple, low-cost subprojects using the community-based approach.

The benefit monitoring and evaluation carried out under the project and verified during the preparation of the proposed Project has indicated that the project had considerable development impacts such as a significant decrease in the cases of waterborne diseases, an increase in household income, increases in enrollment of schoolchildren, and considerable environmental improvements.

The communities of the project districts were responsible for the 100 percent O&M cost of the subprojects and all the subprojects that were handed over were being operated by communities without any major problems. The demonstrated success of the phase I project not only created myriad opportunities to the mostly very poor beneficiary communities (e.g., getting rid of waterborne diseases and diverting their time savings to income-generating activities), it also created awareness of the benefits of community-based WSS projects from the Government- subsidized inefficient WSS sector to efficient community-run systems.

## Potential Problem Analysis

Experience in the phase I project revealed that the provision of safe drinking water in the house or close to it saved the village communities, particularly the women, substantial time. This generated a demand for credit and technical assistance to set up income-generating ventures to help women rise above acute poverty. Similarly, due to increased school enrollment as a result of providing of water at their doorstep, children, particularly girls, needed additional space in school. At that time, no such resources nor mechanisms existed in poor communities to enable the people to utilize the time saved from fetching water so that they could fully address the issue of poverty reduction and social development.

Another problem (and opportunity) that arose was due to the devolution plan which had decentralized administrative and financial authority to local government institutions for governance, delivery of services, and transparent decision-making through institutionalized participation of the people at the grassroots level. These institutions were now entrusted with substantial autonomy and responsibility, but lacked the necessary capacity to carry out these tasks by themselves and for this purpose still relied on the resources of the provincial line departments. If the situation continued, increased delays in decision-making, declining service standards, and reversal to the previous levels of centralization were likely.

As part of the devolution process, the line department PHED, which was primarily responsible for WSS in the province, was dismantled up to the higher middle order management (superintendent engineer). The responsibilities for the delivery and O&M of these services were now entrusted to the tehsil municipal administration (TMA), where in most cases a junior engineer (tehsil officer for infrastructure and services) looked after these services, in addition to a host of other responsibilities. This situation particularly affected the WSS sector. The development of adequate capacity in TMAs may take several years, stretching beyond the four years of the project implementation period, keeping these institutions from playing a primary role in handling subproject construction. Nevertheless, it is important to ensure the meaningful involvement of the devolved institutions in the Project at present and to prepare them to take over long-term sector development responsibilities. A two-pronged approach including project implementation and institutional capacity building was being pursued. Owing to the current deficient capacity of the devolved institutions, project implementation would be carried out through the existing PMU which had successfully implemented the phase I project.

The capacity of the TMA would be simultaneously enhanced to handle the community-based implementation of similar subprojects in the future. During the preparation of the Project, a preliminary assessment of the TMA constraints and weaknesses was made, and a phased program of capacity building and institutional strengthening was designed for all levels (Appendix 2). The program encompassed resource mobilization, human resources development, establishment of a computerized management information system, and the administration of a complementary training program. To be effective, the program would be carried out along with physical improvements in service levels, through the meaningful involvement of all concerned.

Limited access to WSS facilities had been identified as one of the common characteristics of poverty in the country and the root cause of health-related problems. Accordingly, the 10-year PDP aimed at increasing the overall coverage of safe drinking water to 84 percent and that of sanitation to 63 percent. For rural settlements, the target was to achieve 75 percent coverage of safe water supply and 50 percent sanitation and drainage.

## Project Design

The Government resolved to continue implementing the rural WSS programs, in accordance with its uniform policy framework. The ADB-assisted Water Sector Strategy Study (2002) also endorsed a rural WSS scheme that would be community-based, with O&M handled by the beneficiaries to ensure the participation of beneficiary communities in all stages of development, planning, designing, implementing, and O&M.<sup>3</sup> However, to be effective, the newly installed local government institutions needed a clearer definition of their roles and responsibilities, a setting up of vivid vertical and horizontal linkages, and substantial capacity building through a carefully structured and sustained human resource development program.

Most WSS projects in Pakistan had been supported by international aid agencies.

Approximately USD563 million of external assistance had been committed to WSS since 1995 (Appendix 3). While the World Bank and ADB had been the main sources of financial assistance, the United Nations International Children's Emergency Fund (UNICEF) and the United Nations Development Program (UNDP) had been assisting through awareness-raising, advocacy, institutional strengthening/capacity building, and networking. Other agencies extending support included the Canadian International Development Agency, Department for International Development (DFID), Japan International Cooperation Agency (JICA), and the Swiss Agency for Development and Cooperation (SDC).

A number of national, provincial, and local non-government organizations (NGOs), like the National Rural Support Program (NRSP) and the Provincial Rural Support Program (PRSP) also played an important role in community development in support of WSS.

3 An allocation of PRs10 billion based on the recommended allocations for water resources was made in the midterm investment plan (2002-11) for rural water supply and sanitation sector projects.

A community-based approach to subproject formulation, implementation, and O&M was to be adopted by the Government to sustain the project facilities.

## Lessons Learned from Previous Projects

Key lessons learned from the ADB-financed WSS projects in Pakistan, particularly the phase I project; regional experiences; and the review of selected multilateral, bilateral, and NGOs-managed projects in the country, carried out during the preparation of the Project (May–August 2002) were summarized as follows:

1. to ensure sustainability of community-based projects, it is essential that both male and female community groups are involved in planning, design, implementation, and O&M; community-based organizations (CBOs) have enough capacity to assume their functions, and having been trained in the early stage of project implementation;
2. subproject selection criteria should be widely disseminated to make these transparent, avoiding misinterpretation, and benefiting majority of the communities;
3. community willingness to pay for services is often much higher than expected;
4. the local private sector usually responds well to small rural WSS schemes, and is generally efficient and cost-effective; and construction activities should be properly packaged to capture economies of scale;
5. more attention must be given to gender considerations, sanitation, and hygiene education components so as to achieve lasting results;
6. startup implementation delays should be avoided by taking advance action before loan effectiveness — PC-I approval, establishment of the project management unit (PMU) and the appointment of the project director and PMU staff, recruitment of consultants, and prequalification of contractors;
7. advance action needs to be taken during the execution of subprojects for the electrification of pumping wells to avoid delays in operationalizing the subproject after physical completion;
8. to ensure quality construction and timely completion, consultants' involvement and responsibilities should be enhanced and payment to contractors should be linked with consultants' verification of the quality of fieldwork; and

9. low salaries can result in high community development unit (CDU) staff turnover, which will adversely affect implementation progress and the quality of CDU activities. A summary of lessons learned and measures to incorporate them in the Project are in Appendix 4.

## Project Design Features

The Project intended to use a community-based approach to extend WSS facilities to 54 tehsils in 26 districts of Punjab, which were facing water scarcity and saline groundwater condition. The identified tehsils, mostly villages with a population of more than 1,000 and comprising about 91 percent of the total population in brackish/barani areas, would receive priority.

Any village located in the above tehsils and/or other tehsils with smaller population would also be considered if the subproject were technically viable and communities accepted O&M responsibilities as per subproject selection criteria. Construction of about 500 new subprojects and rehabilitation of about 250 need-based inoperative subprojects (implemented by PHED, prior to the phase I project) would also be included in the Project. A population of about 2.3 million would be covered.

## Components and Outputs

The Project would comprise four components:

1. Construction of water supply and drainage facilities
2. Hygiene education program
3. Institutional strengthening and capacity building for local government institutions
4. Social uplift and poverty eradication program

### 1. Construction of Water Supply and Drainage Facilities

This component consisted of the construction of simple, low-cost water supply, drainage, and sanitation facilities in about 500 project communities and rehabilitation of 250 need-based inoperative schemes meeting the subproject selection criteria. Of the 500 new subprojects, 450

will be pump-based subprojects and 50 gravity-based. Ten sites will be identified for the rain-harvesting subprojects.

## 2. Hygiene Education Program

This component consisted of a hygiene education program in the project villages, as formulated and implemented under the phase I project. Education material, service vehicles, and consulting services would support the program. This component included establishing a revolving fund to assist selected beneficiaries in project villages to install household latrines.

As successfully implemented in the phase I project, the communities would, through male and female CBOs, be provided latrine components according to their choice of material, without any subsidy but with payment in two-three easy installments to the CBO. The CBO would be responsible for managing the fund to recover the cost of latrines from the people, and would procure another batch of latrine components per community demand.

The community development unit (CDU) staff and project consultants would give specific training to female councilors and female health workers to play a catalytic role in hygiene education and household latrine promotion. The village school would be used as a hub of sanitation promotion in the community.

Based on the successful experience of UNICEF in Pakistan, student-parent and inter-child communication techniques would be used extensively to promote sanitation.<sup>4</sup> The revolving fund to be managed jointly by male and female CBOs for the latrine construction program would be provided from the project imprest account, which would be adjusted at the completion of the Project, as in the phase I project.

All schools in the project area would be provided with latrines and connections for supply of safe drinking water. The Project would monitor the effects of water quality improvements on health especially child stunting, by organizing a representative sample study and project performance management system (PPMS).

4 UNICEF. 2002. Guidelines for School Sanitation in Pakistan.

### **3. Institutional Strengthening and Capacity Building**

This component would help attain long-term sector goals by building the capacity of TMAs to manage the new responsibilities acquired from the provincial and federal governments after implementation of the Government's devolution plan.

Major interventions would include resource mobilization through an efficient collection of revenue, improved financial management including budgeting and enhanced O&M of TMA assets; identification of the local government needs for office and field equipment and extending appropriate assistance for their procurement; human resource development through an objectively designed training program; and establishment of a computerized management information system (MIS) and training to manage the human resources, monetary resources, raw materials, and capital resources of the TMAs in all districts of Punjab.

Consulting services, MIS software, and education material would be provided. This component would be implemented in collaboration with the Government's ongoing and future programs related to capacity building of TMAs in accordance with the updated devolution plan. This component also extended institutional support to the PMU in executing the Project by providing (i) consulting services, (ii) equipment and service vehicles, and (iii) operational cost support for the project implementation offices on a declining basis.

### **4. Social Uplift and Poverty Eradication Program**

The Social Uplift and Poverty Eradication Program (SUPER) aimed at addressing poverty reduction and help the poorest segments of society, particularly women and children, attain a better quality of life by productively and economically using for livelihood activities the time previously used in fetching water. SUPER included two key interventions: (1) microcredit schemes, and (2) construction of additional classrooms in the village schools to accommodate the additional children who no longer needed to fetch drinking water from afar.

The microcredit component would comprise a variety of credit schemes to finance handicrafts, embroidery, carpet and rug weaving, and livestock and poultry, etc. The Government would implement SUPER initially in 30 villages of the phase I project where the communities were

already successfully operating and maintaining subprojects, and had already taken some initiatives for income generation activities on a self-help basis with the help of their female CBOs. SUPER would be expanded to the remaining areas of phase I and the proposed Project. The interest rate charged would be consistent with those charged by established microfinance institutions.

The core component of the proposed system was a community development fund (CDF) at each union council (UC) level, to be managed by a UC-level SUPER committee, with a majority of women members: women councilors, female community-based motivators (CBMs), and representative of women CBOs. The CDF would have two components: a revolving fund for microenterprise development and a conduit for expenditures required for classroom construction.

SUPER would cover the provision for financial assistance, a local community liaison advisor, and service vehicles. The funds for SUPER would be released from the project imprest account. The UC-based SUPER committees would assume full responsibility for continuing SUPER after project completion.

## **Cost Recovery and Collection Efficiency**

The Government agreed that, following the successful practice in the phase I project, CBOs with the assistance from the PMU would introduce subproject-specific tariffs sufficient to recover O&M costs. Water connection for those who do not pay would be promptly disconnected with assistance from UCs, and community peer pressure would be used to collect tariffs and conserve water. Similar techniques would be used to ensure timely repayment under the SUPER program.

## **Expected Project Benefits**

The phase I project demonstrated ample evidence of social, environmental, health, and economic impacts, specially its contribution to increased household income and poverty reduction. The community BME system, established under the phase I project, had analyzed the first 116 schemes that were handed over to the communities for O&M. The results showed

a 91.5 percent reduction in the incidence of waterborne diseases, a 30 percent increase in the household income, and a 94 percent increase in the enrollment of schoolchildren. These results were also verified by the consultants during the preparation of the Project.

## **Involvement of Women**

The main project beneficiaries were women and girls who used to spend two- five hours daily in fetching water from a considerable distance. The availability of water at their doorstep not only saved them time, but also improved the quality of life due to improved hygienic conditions. Women were relieved from the stress and discomfort of hauling water, especially during illness and extreme weather conditions, and they had additional time for rest and leisure activities. They could divert their time and energy to more productive social and economic activities, including better child and house care, farm production activities including tending livestock and poultry, making handicrafts and artifacts, etc.

The microcredit component of the Project could enable communities, particularly women, to pursue income-generating activities. Girls who shared the responsibility for water collection could now be enrolled in schools. In the phase I project, school enrollment mainly of girls doubled in several villages.

To maximize benefits, women would have to be involved in subproject planning, design, and implementation. In several subprojects in the phase I project, the female CBOs formed assisted their male counterparts in the successful O&M of the subprojects, and in social development works using savings from the water tariffs.

During project preparation, the consultants refined the ways by which women could effectively participate in subproject planning, implementation, and importantly O&M. Female CBMs and the female UC councilors would help the local women's groups in forming female CBOs in all subprojects. To monitor the women's effective participation and involvement in the training opportunities provided, a female assistant director for CDU, appointed on contract under the Project, would work with the female CBOs and the female CBMs.

## Poverty Reduction

Socio-economic surveys for the proposed Project and also in the phase I project revealed that the household income of more than 90 percent in the project area was below PRs3,800 (USD63) per month (2001). The Project would be implemented in extremely poor areas of rural Pakistan.

The additional income generated by households, accruing from improved health and reduction in health-related expenditures, and utilizing the saved time of women in income-generating activities would reduce the household poverty level. In addition, some of the households that pumped out hazardous and unsuitable water for drinking purposes from stagnant polluted ponds would no longer spend on wasteful investment and on pumping unpotable water. Good WSS would help reduce poverty in rural communities. Improved community health generally would also be reflected in lower welfare costs and more resources being available for community programs directly addressing poverty reduction.

## Health Benefits and Impacts

The expected health benefits generated by the Project were expected to be significant. Sourced water was generally unfit for human consumption and carried the risk of waterborne diseases. The morbidity rate in areas with limited fresh water was estimated at about 200 per 1,000, which was significantly higher than areas with access to areas of fresh groundwater. Similarly, poor-quality water was responsible for about 50 percent of infant mortality. The poor quality of water infested with waterborne diseases was responsible for the significant incidence of diarrhea and typhoid cases, both in children and adults, in the project area. This resulted in school absenteeism in children, and loss of workdays for adults.

The availability of clean water would create better as well as healthy conditions for the people and thus enhance the productivity levels of the population. The benefit monitoring surveys carried out for the phase I project indicated a significant decrease in morbidity, infant mortality, and incidence of diseases and the resultant illness days. The household sanitation and hygiene education program component of the Project was expected to create awareness of the health benefits among the beneficiaries.

## Environmental, Social Impact, and Risk

During the Project preparation, an initial environmental examination (IEE) was carried out on 30 randomly selected subprojects. The IEE concluded that no adverse or harmful impacts of any significance were evident and, therefore, a full-scale environmental impact assessment (EIA) was not required for any subproject.

### Impact on Minorities/Indigenous People

During the implementation of the phase I project, in which 335 schemes were constructed, the political, religious, and ethnic diversity of the people within a village were reviewed as part of the initial needs assessment survey. Detailed analysis of the available reports and actual field visits by the consultants during the preparation of the Project showed no evidence of any negative impact on the above groups mainly because of the very small size of the subprojects.

The minority representatives were involved in the water user committees, and all minority households, wherever they existed, participated in planning, execution, and O&M of the subprojects without any problem, favor, or discrimination. From experience in all the phase I project schemes, the Project was likely to have no adverse or significant impact on indigenous people. Nevertheless, impact on indigenous people still had to be properly reviewed during implementation by introducing performance indicators in the PPMS at baseline, during, and after project execution.

### Involuntary Resettlement

Small-scale WSS subprojects under the Project would consist primarily of a network of underground pipelines, surface drains, and street surfacing. By their very nature, these works would be constructed in the public rights-of-way. Land would be required in small parcels for the purposes of water source development, overhead reservoir, the water transmission line, and wastewater disposal works.

Experience in the phase I project had shown that communities or individuals always volunteered their land for these small facilities that benefited them directly — for example,

community-owned unutilized land. As such, no resettlement had ever been required. The same was confirmed during the preparation of the Project through a study of 50 randomly selected villages in the phase I project (Handbook on Resettlement).

## **Economic and Financial Analyses**

Economic and financial analyses of the proposed subprojects were prepared in accordance with ADB's Guidelines for the Economic Analysis of Projects and the Handbook for the Economic Analysis of Water Supply Projects. The base case economic internal rate of returns (EIRRs) for WSS works, which constituted about 85 percent of the total base cost of the Project, was about 49.7 percent. However, adding the cost of other components to each subproject gave an EIRR of 43.8 percent.

A review of schemes from the phase I project confirmed that returns of this magnitude can be achieved in the proposed Project as well. Across various types of schemes that were analyzed to determine the economic justification for the Project, the EIRR was 35.4–41.4 percent for the new pumping subprojects, about 70.4 percent for gravity-based subprojects, and about 98 percent for the rehabilitation subprojects. A high EIRR with impact of increased costs and decreased benefits suggests that the project was robust and had sound economic justification. The per household tariff accounts for about three–four percent of the low-income household, and the communities have shown a willingness to pay for the user charge.

## **Risk Analysis**

Newly-established district governments and tehsil administrations, elected national/provincial assembly members, or political elites, could interfere in the selection of subprojects. The project planned to mitigate these risks by broadly disseminating and transparently applying the subproject selection criteria.

During implementation of the phase I project and preparation of the proposed Project, the selection criteria was widely disseminated to make these transparent. Further, the roles and the responsibilities of consultants, as independent evaluators, had been enhanced.

The CDU was to prepare a checklist of the needs assessment survey results of each subproject which would be reviewed and verified by the consultants and submitted to ADB with the monthly progress reports. The proposal was to learn from the experience in the phase I project that showed that the risk could be successfully managed.

Lack of adequate attention by CDU staff in forming strong CBOs and building their capacities through comprehensive training, and lack of community involvement in preparing and executing subprojects, could result in unsustainable operation after handover of the subprojects. Mandatory training for CBOs and enhanced community participation, particularly gender involvement in project preparation or strengthening the role of the CDU, would rectify these risks.

Delays in electrifying tubewells experienced in the phase I project could prevent communities from benefiting from the subprojects for several months even after their physical completion. Advance action in applying for connection and timely payment to and intensive follow up with the Water and Power Development Authority, could help avoiding this risk.

In a few instances in the past, community members backed out from their commitments to taking over the subprojects for O&M. Experience with other community-based projects revealed that effective community participation at an early stage and the community contribution toward capital cost greatly minimized this risk.

There remained the potential hazard of installing tubewells for extracting groundwater for irrigation in the vicinity of the established water supply source of any subproject. That could adversely affect the quality and quantity of water. The CBOs, with the active support of TMAs, would ensure that no groundwater extraction would take place in the vicinity of the water sources developed under the Project. The CBO would guarantee this in the MOU to be signed for the subproject.

To ensure good-quality water in all the subprojects, the PMU together with the TMAs staff and CBOs would continue to monitor the water quality in all phase I projects at six-month intervals particularly after the monsoon season. In case of any contamination identified, urgent measures would be adopted to address the problem. TMAs/UCs would gradually take over

from the PMU the responsibility of water quality monitoring and, by the completion of the Project, they would be fully trained in data collection and analysis, and addressing the problems that may occur in future.

## Project Completion Report (June 2008)

### Situational Analysis

By 2006, sixteen percent of the rural population in Punjab had tap water facilities, 31 percent had motorized pumps, 47 percent depended on hand pumps, and five percent were depending on dug wells and other sources of water, whereas sanitation facilities were available to 52 percent.<sup>5</sup>

The level of investment in the water supply and sanitation (WSS) sector remained low compared to other sectors. The 10-year (2001–2011) Perspective Development Plan of the Government of Pakistan (the Government) showed a gross allocation of 6.8 percent for the physical planning and housing sector with only 1.1 percent earmarked for water and sanitation.

### Relevance of Design and Formulation

#### Construction of Water Supply and Drainage Facilities

New subprojects included 450 pump-based subprojects and 50 gravity-based subprojects. Ten sites were identified for rain-harvesting subprojects. A total of 778 water supply, drainage, and sanitation subprojects were completed in 30 districts, including 578 new and 200 rehabilitation schemes. Based on needs, the Project provided water supply and sanitation facilities in 344 villages, water supply facilities in 395 villages, and sanitation facilities in 39 villages. Water supply facilities included 713 pump-based, 14 gravity-based, and 12 rain harvesting subprojects. Sanitation facilities included street drains, street pavement, sillage carriers, and oxidation ponds. Many villages used drainage effluent and sewage for irrigation purposes, following oxidation.

5 Federal Bureau of Statistics, Government of Pakistan. 2007. Pakistan Social and Living Standards Measurement Survey. Islamabad.

## Hygiene Education Program

Hygiene education delivered education materials, service vehicles, and consulting services for awareness-raising and training to:

1. improve hygiene and sanitation in the project villages;
2. monitor the effects of water quality improvement on health;
3. establish a revolving loan fund to assist selected beneficiaries in project villages install household latrines through men's and women's community-based organizations (CBOs), with beneficiaries choosing materials, and repayments to the revolving fund made in two or three installments;
4. provide specific training for female councilors and health workers who play a catalytic role in hygiene education and household latrine promotion; and,
5. construct latrines and provide water connections in all schools in the project area.

Education materials included more than 3,900 charts, 2,110 posters, 6,000 brochures, 130 CDs, and 572 audios, and 240 video cassettes. A unique education initiative involved providing 25 short books in the form of a wall hanging library to the communities. The revolving fund for latrine construction was utilized for the construction of 1,221 latrines. In addition, as a result of the awareness created by the Project, beneficiaries constructed 53,029 latrines on their own in 531 villages. Latrines were also provided in 83 government schools in the project area that lacked such facilities. To train female councilors, health workers, and other female activists in the project villages, 727 women's CBOs were formed, which included a large number of female councilors and health workers. Project benefits, such as the effect of water quality on health, were monitored on a six-month basis through a project performance management system (PPMS).

The community development unit (CDU) developed an effective hygiene education program, which included school sanitation and hygiene education, women's health literacy, and family hygiene education. A conceptual framework was devised for community diagnosis and interactive planning with men's and women's CBOs with the primary objective to improve health and hygiene practices in communities where water and sanitation facilities were provided by the Project.

## Institutional Strengthening and Capacity Building

Major interventions included resource mobilization through efficient revenue collection, improved financial management that included budgeting and improved O&M of TMA assets; identification of local government needs for office and field equipment and extending appropriate procurement assistance; human resource development through a carefully designed training program; establishment of a computerized management information system (MIS); and training to better manage the human, monetary, and capital resources of the TMAs in all districts of Punjab. This component also included institutional support to the PMU for executing the Project by providing (i) consulting services, (ii) equipment and service vehicles, and (iii) support to project implementation offices for operational costs on a declining basis. An MIS comprising four modules (database management, financial management, asset management, and human resource development) was developed.

Training on various aspects of WSS subprojects and on the use of the MIS was given to 45 TMAs. The MIS was handed over to the ADB-financed decentralization support program office in Punjab which focused primarily on building capacity of devolved government institutions, including TMAs. The PMU was provided consulting services.

Three PHED water testing laboratories located in Lahore, Multan, and Rawalpindi were upgraded by procuring additional equipment and chemicals, and their capacity substantially enhanced. A water quality monitoring plan was prepared and implemented through regular collection and testing of water samples.

CBOs were formed in all project villages, and they participated in planning and implementation of subprojects and assumed responsibility for O&M. CBOs were provided training for O&M, tariff-setting, revenue collection, bookkeeping, and basic accounting. A district-wide network of CBOs was formed in two districts to share experience and local knowledge, improve coordination, and establish a common platform for publicizing and addressing their development needs. CBOs were assisted to register as citizen community boards (CCBs) with the district governments.<sup>6</sup> Registration of CBOs as CCBs was recognized as an important initiative in terms of sustainability, and enabled the project CBOs to access CCB funds.

Registration of CCBs was a cumbersome and time-consuming process because of the limited outreach of the district CCB registration authority (community development officer), lengthy procedures involved in the registration system, and the limited capacity of the TMA staff to facilitate registration of CBOs as CCBs. The PMU overcame these hurdles, and 752 project CBOs were registered as CCBs.

The strong social mobilization effect of the Project is also reflected in the savings of CBOs, which equaled PRs33.189 million by loan closing. CBOs were using their savings for various welfare activities such as installation of water meters, street lights, street pavements, establishing vocational training schools for girls, and procurement of ambulances.

### **Social Uplift and Poverty Eradication Program (SUPER)**

The Project disbursed PRs2.073 million to 213 borrowers in 38 CBOs of the phase I project for various income-generating activities, which proved instrumental in enhancing household incomes. Subsequently, linkages with MFIs such as Khushali Bank (KB), National Rural Support Program (NRSP), Punjab Rural Support Program (PRSP), and Punjab Small Industries Corporation (PSIC) were also developed. The PMU organized 13 workshops for this purpose with participation by MFI staff, TMA officials and representatives of CBOs.

The Punjab Rural Support Program also imparted training to the CDU staff in microfinance procedures. The linkage with these MFIs saw PRs129.49 million disbursed within a span of 12 months to 14,725 borrowers in 385 beneficiary communities of the Project, and 232 communities of the phase I project. By loan closing, the amount of microcredit disbursed was PRs279.25 million and the number of borrowers had reached 17,617. MFIs will continue providing microcredit after loan closing.

Construction of additional classrooms by the Project was not required because the Punjab government initiated an education sector reform project in the province, under which additional classrooms were constructed to increase the capacity of primary and secondary schools in the project area.

6 CCBs are the lowest tier of the devolved government institutions under the local government ordinance of 2001.

## Evaluation of Performance

### Relevance

The Project was “highly relevant” to the Government’s development and poverty reduction strategy outlined in its Perspective Development Plan 2001–2011, and to achievement of the Millennium Development Goals for WSS. It was also relevant to ADB’s strategy of supporting projects with the potential for economic growth and poverty reduction.

The Project was appropriately designed to achieve its development objectives, particularly poverty reduction, gender and development, and environmental improvement, through construction of cost-effective WSS subprojects with the involvement of beneficiary communities.

### Effectiveness in Achieving Outcome

The Project was “highly effective” in achieving outcomes. More WSS subprojects were completed than envisaged. Achievements under the hygiene education, institutional strengthening and capacity building, and the SUPER program components were significantly greater than envisaged. The Project benefited a population of about 2.6 million as compared to the 2.3 million envisaged at appraisal. The strong social mobilization, coupled with capacity building of CBOs, resulted in ownership of the Project facilities by the beneficiaries, which helped implement innovative initiatives like installation of water meters.

Effectiveness of the hygiene education program was demonstrated by the number of latrines constructed by the beneficiaries using their own resources. The Project’s achievements included the linkages developed with microfinance institutions, registration of CBOs as CCBs, community savings by CBOs and utilization of those savings for social welfare initiatives, participation of women in decision- making and development activities, awareness of health and hygiene, and above all, the creation and strengthening of grassroots institutions to act as agents of change.

## Efficiency in Achieving Outcome and Outputs

The Project was “highly efficient” and the desired economic benefits had been achieved. The composite economic internal rate of return (EIRR) of 78 subprojects was estimated to be 41.6 percent, ranging between 7.2 percent and 129.5 percent. This is calculated using only one benefit: time saved from fetching water.

In addition, the Project yielded other significant benefits, including an increase in household incomes as a result of microcredit intervention, reuse of liquid waste for irrigation, and health improvements.

## Preliminary Assessment of Sustainability

Sustainability of the Project was found to be “most likely” because (i) the subprojects were selected based on need and demand, and beneficiaries provided upfront cash contributions equivalent to two percent of the capital cost of subprojects and about four percent in in-kind contributions; (ii) beneficiaries had a strong feeling of ownership of the facilities provided by the Project because they were involved in the planning, design, and implementation; (iii) CBOs had taken over O&M responsibilities, set tariffs at a level that accounted for O&M requirements, and established effective collection systems; (iv) the Project trained CBOs for effective and efficient O&M; (v) CBOs were collecting savings from their members on a regular basis, which was a key indicator of their strength to sustain the facilities provided by the Project; (vi) the CBOs had begun funding initiatives for other development and welfare activities, particularly installation of water meters, on a self-help basis using their savings;<sup>7</sup> (vii) the Project’s strong social mobilization and effective training enabled CBOs to become financially and technically self-sufficient in the O&M of the schemes; and (viii) 34 randomly selected subprojects visited by the project completion review mission were operational and well maintained, and CBOs were found to be operating in a manner similar to water utilities.

## Impact

The overall impact of the Project was “positive”.

None of the subprojects caused involuntary resettlement or had a negative impact on indigenous people. The environmental impact of the Project was positive. Environmental assessment of the subprojects was carried out at the design stage and arrangements for implementation of mitigation measures and monitoring were effective.

Provision of drinking water had reduced expenditures on health, indicating the Project had reduced the incidence of waterborne diseases and had a positive impact on the health of the beneficiary population. The school enrollment of girls also increased. Sanitation facilities provided by the Project, including street pavements and street drains with oxidation ponds and disposal channels, drained existing wastewater ponds in the project villages and were serving proper disposal of wastewater. The drainage effluent and sewage were being used for irrigation after treatment by means of the oxidation ponds.

The social mobilization process and formation of CBOs created a sense of ownership and responsibility in the communities. Involvement of beneficiaries, particularly women, in the decision-making process boosted their confidence and self-help initiatives, approaching government departments and other organizations to secure resources to meet their developmental needs.

The installation of water meters was an indicator of the strong sense of ownership by beneficiaries in the facilities constructed through the Project which resulted in water being available 24 hours a day in those villages. The impact of water meters on the equitable distribution and conservative use of water in addressing reduced pressure complaints and building trust amongst and reducing conflicts between users was unprecedented. Microcredit provided by the Project and the MFIs resulted in enhanced household incomes. Registration of CBOs as CCBs with the district governments turned them into formal grassroots institutions responsible for their own development agenda.

7 Using their own resources in combination with technical support from the project, CBOs have installed water meters in 63 villages, where residents now enjoy a constant (24-hour) supply of water.

## Overall Assessment

The Project was rated “highly successful” by the project managers. The outputs achieved were more than envisaged at appraisal in terms of the number of subprojects completed with community participation and regarding ownership for sustainable O&M.

The Project was highly relevant, effective, and efficient, and is “most likely” to be sustained following the ADB Operations Evaluation Department’s suggested weights.

## Lessons Learned

The Project’s successful implementation stemmed primarily from its design which accounted for on-the-ground realities, applied lessons from previous interventions, and incorporated and adopted efficient and sustainable delivery mechanisms.

Involvement by beneficiaries in the project process through effective social mobilization was key to the success of rural WSS projects. Training, awareness raising, and capacity building of beneficiaries were also instrumental in ensuring the sustainability of subprojects owned and operated by the communities.

Appointing qualified staff and retaining them for the duration of the project avoided delays in implementation. The active support of the provincial government and of senior EA management helped smooth implementation.

## Estimation of EIRR

The average EIRR for the 78 schemes was estimated as 41.63 percent. The figure was a conservative one, as it did not include benefits derived from sanitation improvements and health benefits.

For individual schemes, the EIRR ranges between 20.3 percent and 110.7 percent. Across the schemes, the EIRR estimates varied as a function of scheme size, distance of source from the settlement, population, and household size.

## Project Benefits

The Project was seen to benefit a population of about 2.6 million, which was expected to increase to about 3.8 million in 20 years. The main benefit was the economic value of the time saved by women and diverted to activities that would enhance household income. The resultant time saved significantly reduced the stress on women and girls. With water available at their doorstep, women's contribution to farm-related activities, tending livestock, and other off-farm income generating activities increased considerably. Women also had more time for household chores and better child care. Girls that formerly shared the burden of fetching water were now able to attend school regularly.

There were other significant non-quantifiable benefits, especially in health improvement. Access to clean water significantly reduced the incidence of waterborne diseases and other illnesses, and the related loss in productivity due to absenteeism from work — benefits difficult to quantify and excluded from the EIRR estimate.

Based on anecdotal evidence collected in the field, an average PRs125–Rs150 had been saved on health expenditures per household per month. Similarly, stagnant ponds that served as breeding places for mosquitoes had been eliminated. Use of drainage effluent for irrigation after treatment in oxidation ponds also generated additional economic benefits.

Community mobilization done by the Project also accrued indirect benefits to the communities involved. Communities undertook several initiatives on a self-help basis and linked themselves to various other government projects, district governments, and civil society organizations. Nearly 100 percent of the project communities registered with their local government as a community citizen board (CCB), allowing them to access public funds. The communities also lined their water courses, installed streetlights, and started various small businesses by accessing microfinance from the project's social uplift and poverty eradication program component, as well as other microfinance institutions.

## Independent Evaluation Study (August 2009)

The study first assessed the project's influence on access to water supply and thereafter estimated welfare impacts on (i) health, (ii) education, and (iii) labor force participation rate and hours worked. The results showed that the project had clear and large influence on the intermediate outcome on access to water supply. The projects drastically reshaped the sources of household water in project areas, raising the proportion of households with piped water in their dwellings and reducing reliance on hand pumps, tubewells, and boreholes, which were still the major sources of water in the comparison villages. Consequently, time spent and distance traveled to fetch water had been reduced significantly.

The impact on sanitation, however, was statistically insignificant. This is not surprising given the project's minimal resource allocation to hygiene and sanitation relative to their allocations for civil works, equipment, and materials, which absorbed almost 90 percent of project resources. As such, the project can be considered a water supply rather than a WSS project.

The significant impact on health was consistently revealed in terms of reduced drudgery or pain associated with fetching water. However, the reduction of the incidence of waterborne illness such as diarrhea and its severity was insignificant, though disaggregated analysis revealed some cases, particularly in the middle socioeconomic group. Another significant contribution was in increasing school attendance, particularly among high school students. The positive impact in this age group was statistically significant for girls but not for boys. The reduction of time spent fetching water, rather than the reduction in labor force participation explains the significant improvement in the attendance rate for those of high school age in project communities over comparison communities.

The findings did not support the hypothesis that the project significantly increased labor force participation and work hours with the exception of the middle socioeconomic group. Time saved from fetching water, as documented in the study, did not translate into increased income, reflected by there being no significant increase in labor force participation or hours worked. This may be because of the prevailing high unemployment and underemployment in the project areas, individual preferences for leisure, social restriction on girls' employment, or other reasons.

The findings by socioeconomic group revealed some interesting results and highlighted that impacts were not uniform across socioeconomic strata. The project significantly reduced the incidence of diarrhea in the middle socioeconomic group. Similarly, drudgery reduction was statistically significant in the lowest socioeconomic group but not in the middle or highest socioeconomic groups. The education impact was felt strongly in the middle socioeconomic group. Although fewer children refused to go to school for lack of safe water in both project and comparison areas, school dropout rates were significantly lower in project areas than in comparison areas in the lowest socioeconomic group. The provision of toilet facilities in the school had no significant impact on school dropout rates.

The labor force participation rate, however, statistically declined for school-goers in the age groups 11–17 and 18–24 in the middle socioeconomic group resulting from the projects. In addition, projects significantly reduced the hours worked per week by 11–17 year olds in the middle socioeconomic group. The reduction in labor force participation and hours worked may have led to increased school attendance and/or increased leisure. The more positive impact overall on the middle socioeconomic group may suggest that this group had a stronger influence on project activities than did other groups.

Comparison of different types of projects shows mixed results. Using matched villages, the results demonstrate larger impacts in terms of better health, fewer household members reporting drudgery from fetching water, and a lower proportion of children not attending school for lack of water facilities, from the older PRWSSP than the more recent PCWSSP. This may suggest that the subprojects under the PRWSSP were better targeted to address local needs.

## **Sustainability Results**

Overall, eighty percent of the water supply systems provided water to the beneficiaries and, hence, were functional, with the proportion greater under the PCWSSP, at 89 percent, than under the PRWSSP, at 68 percent. The functionality of water supply systems positively correlated with the lack of alternative water sources. Similarly, willingness to pay for water was found to be higher in areas with no alternative water sources. Water supply system efficiency varied widely and it could have been improved if sufficient attention had been given to basic management practices. The projects took sufficient care in identifying water sources

uncontaminated by heavy metals, but bacteriological contamination was found to be high in many locations. While chlorination kits were provided, these were not used in most of the subprojects. However, households widely practiced boiling water for drinking purposes. As a result, negative impact of bacteriological contamination on diarrhea incidence was not found. A change in local perceptions about the technical deterioration of water systems is a concern and would call for necessary support and redress through technical backstopping and improved institutional arrangements. However, rising fuel costs, electricity tariff, and erratic power supply pose major challenges to sustainability.

The status of CBOs running the subprojects was less than satisfactory, as only 43 percent of the sample subproject CBOs were considered partly or fully functional. Positive correlation between the functional status of the CBOs and process ownership suggested the need to strengthen the capacity of the CBOs.

While the project was designed to integrate water supply, sanitation, and hygiene promotion, sanitary hazards were high in many locations. The information, education, and communication materials developed under the hygiene education program were less effective and less useful for local needs because (1) the booklets were heavily text-driven and had limited readability, and (2) other materials were sparingly used and did not reach intended beneficiaries. In addition, project support in linking with service providers, including microfinance institutions, was of little relevance in the project context due to prior strong presence of microfinance institutions, which raises questions about including a social-uplift and poverty-eradication program in the project.

Financial sustainability could not be assessed due to lack of data but it appeared to be a major challenge for majority of the subprojects; more so for capital replacements and routine maintenance works. However, local enthusiasm was strong and they were willing to pay more for water in functional CBOs and water-deficit areas despite the only modest capacity of these CBOs to meet immediate O&M requirements.

## Overall Performance Assessment

The study rated the overall performance as “successful” but at the lower end of the scale. The project was rated relevant, effective, efficient at the low end, and sustainable at the low end.

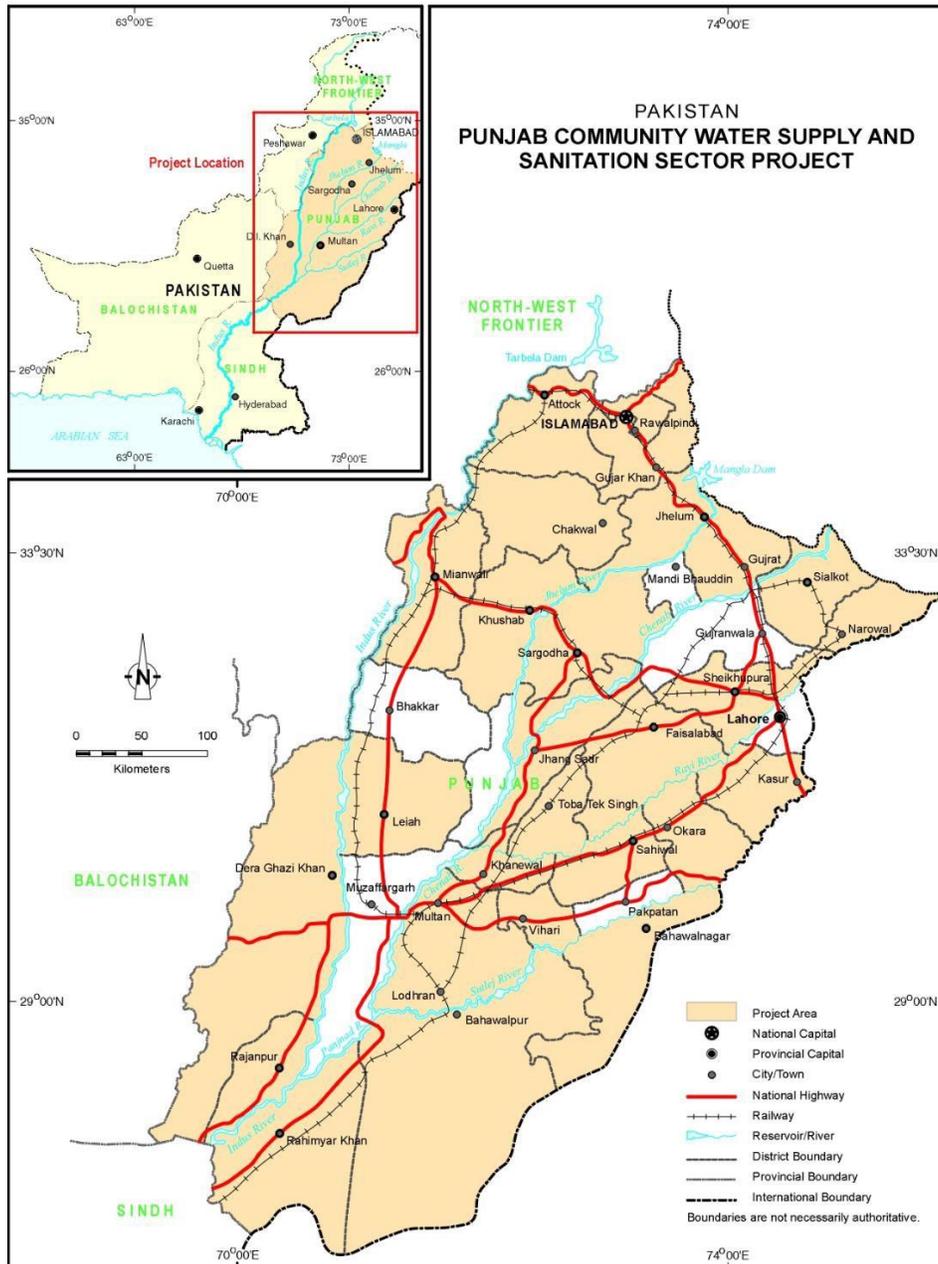
In aggregate terms, the project had positive impact on local communities and people, and project impacts are likely to be sustained with required technical support and the strengthening of the CBOs responsible for managing respective subprojects.

Some of the major concerns were:

1. 20 percent of the subprojects were non-functional;
2. only 43 percent of CBOs responsible for subprojects are functional;
3. cost recovery and capital replacement mechanisms are not built-in;
4. high fuel and electricity costs, and erratic power supply have potential to bring operational subprojects to halt;
5. CBOs capacity remains weak;
6. government commitment to continued support for subprojects was weakening;
7. participation of poor remains low due to upfront cash requirements; and
8. operational links between the Public Health Engineering Department and the tehsil municipal administrations remains very weak.

## Appendix 1 Map of Punjab

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**Appendix 2  
Institutional Analysis**

**Evaluating the Capacity of Government Institutions**

Local governments in Pakistan lack resources and generally are manned by poor-quality staff. The lists of tasks that tehsil municipal administrations (TMAs) and union councils (UCs) are required to fulfill according to Local Government Ordinance 2001 are very long. Considering their limited capacities, the local governments cannot undertake all the tasks envisaged. To be effective, they need to focus on some key functions while outsourcing the rest to the private sector. However, the autonomy of local government tiers in appointing and dismissing of staff is very limited. As all senior staff appointments are carried out by the provincial government, the local governments cannot ensure staff continuity and commitment and often find themselves helpless to control the frequent transfer of qualified personnel.

**Current Roles and Activities**

The water supply and sanitation (WSS)-related functions – on various tiers of the devolved departments/agencies are summarized in the following table.

**WSS-Related Functions on Different Tiers of Government**

Provincial Government	For schemes exceeding PRs20 million, technical sanction has to be obtained from the chief engineer of PHED at provincial level.
PHED Monitoring and Evaluation Units	Under the devolution plan, the administrative divisions have been abolished. Hence superintendent engineers at (ex) divisional level ceased to exist. At four locations in the province, however, establishment of PHED monitoring and evaluation units has been approved. Each unit will be headed by a superintendent engineer (monitoring and evaluation), with powers to sanction schemes between PRs5million to 20 million. The approved locations for monitoring and evaluation (M&E) units are Multan, Rawalpindi, Faisalabad, and Lahore.
District Government	Under the devolved local government setup, district government does not have a role in the WSS sector. However, in the tehsil district headquarters (i.e., the tehsil in which district administration is located), the tehsil officer (infrastructure & services) is normally in Grade 18 as against Grade 17 technical officers, Infrastructure and Services (TOs I&S) in other tehsils of the same district. The TO (I&S) in TMA of tehsil district headquarters plays a surrogate role of the (ex) Executive Engineer (XEN) of PHED at district level.

Tehsil Government	<p>The TO (I&amp;S) at district tehsil headquarters can sanction schemes up to PRs5 million. The WSS-related responsibilities of TO (I&amp;S) of a tehsil include</p> <ul style="list-style-type: none"> <li>• water supply</li> <li>• control and development of water resources, other than systems maintained by the union and village councils</li> <li>• sewage and sewage treatment and disposal</li> <li>• storm water drainage</li> <li>• sanitation and solid waste collection and sanitary disposal of solid, liquid, industrial and hospital wastes</li> </ul>
Union Councils	<p>Provide and maintain public sources of drinking water including</p> <ul style="list-style-type: none"> <li>• wells, water pumps, tanks, ponds</li> <li>• other works for the supply of water</li> </ul>

Most of the administrative and financial management functions of the offices of the Department of Local Government and Rural Development and Department of Housing, Urban Development and Public Health Engineering- which were providing services at the regional, zonal, circle, divisional, district, and tehsil levels- have been entrusted to the TMA, as the case may be, along with the employees working in such offices. The current WSS-related roles and activities of various tiers of government institutions are as follows:

### A. Local Government and Rural Development Department

1. District Administration. The executive district officer (services and works) does not have any district officer for WSS under him. WSS is considered a municipal function and has been devolved to tehsil level. The district officer (buildings and roads), apart from other functions, is also responsible for water supply and sanitary works, but limited to government buildings and estates.

2. Tehsil Municipal Administration. Tehsil Nazim is the head of the TMA. The tehsil municipal officer acts as coordinating and administrative officer in charge of the four tehsil officers. The tasks allocated to tehsil officer (infrastructure and services) is to provide, manage, operate, maintain, and improve municipal infrastructure and services, including:

1. water supply and control and development of water resources other than systems maintained by the union and village councils;
2. sewage and sewage treatment and disposal;
3. storm water drainage;
4. sanitation and solid waste collection and sanitary disposal of solid, liquid, industrial, and hospital wastes;
5. roads and streets other than roads falling under the jurisdiction of, and maintained by, the district government or provincial government, and streets maintained by the union administration or village council;
6. traffic planning, engineering and management including traffic signaling system, signs on roads, street marking, parking places, transport places, stops, stands and terminals;

7. street lighting;
  8. fire fighting;
  9. parks, playgrounds, open spaces, and arboriculture;
  10. slaughter houses.
3. The tehsil officer also organizes sports, cultural, recreational events, fairs, and shows; and cattle fairs and cattle markets.
4. Union Councils. The union nazim heads the union administration. The deputy union nazim deputizes the union nazim during his temporary absence. The union secretaries coordinate and facilitate community development, functioning of the union committees, and delivery of municipal services under the supervision of the union nazim.
5. Where there is more than one secretary of the union administration, the distribution of work among the union secretaries is as follows:
1. The secretary for union committees is responsible for all works relating to the council meetings and the work of all committees and any other function entrusted to him by the union nazim.
  2. The secretary for municipal services is responsible for municipal services provided by the union administration and carries out all other functions entrusted to him by the union nazim.
  3. The secretary for community development is responsible for the community development work in the union administration, besides carrying out any other functions entrusted to him by the union nazim.
6. Among many of the union council functions listed in the Local Government Ordinance are providing and maintaining public sources of drinking water, such as wells, water pumps, tanks, ponds, and other works for supplying water.

## **B. Flow of Funds to Local Government Entities**

1. The devolution plan has decentralized administrative and financial authority to local government institutions for governance, effective delivery of services, and transparent decision making through institutionalized participation of the people at the grassroot level.
2. Since November 2001, under the new system, the funds (Annual Development Program (ADP), Khushhal Pakistan Program (KPP, federal/provincial grants) are being transferred in cash instead of the previous budgetary methods. The funds are transferred from the State Bank to the district provincial account in national banks in all the 34 districts of the province. From districts, the funds are transferred to the tehsil provincial account in the national bank of each tehsil.
3. The allocation of development funds from the province to the districts is based on the level of underdevelopment of the districts, determined on the basis of a criterion prepared by Punjab Economic Research Institute (PERI). The funds transferred to districts include the normal ADP budget, KPP (based on federal/provincial grants for small works at local level) and the federal allocation in lieu of the abolished octro.
4. There is no criterion to allocate development funds to tehsils. The same is true about

the tehsil-to-union council flow of funds. A provincial finance commission that was constituted is now formulating proposals for this purpose. Tehsils and union councils are currently generating revenues by levying certain local taxes and collecting the proceeds from transfer of property. These revenues, however, are grossly inadequate to fund a comprehensive WSS program in their respective areas.

5. Since around 1990, the recruitment of graduate engineers through Punjab Public Service Commission has stopped. During this period, many Public Health Engineering Department (PHED) engineers got promoted to higher grades, and some left the department for various reasons. The result, is a shortage of qualified Grade 17 engineers, and the void is being filled by promoting technicians. Similarly, many of the TOs (regulations) and TOs (finance) are inadequately qualified for their prescribed responsibilities.

6. In most UCs, the secretaries are only secondary school graduates. Local Government Ordinance 2001 provides detailed job descriptions of the UC secretaries. However, the functions given in the ordinance are too ambitious as against the present qualifications and experience of the secretaries and the councilors. There are no specific job descriptions. The ordinance describes in detail the functions and roles of different units/sections, but the local institutions have not yet prepared written job descriptions for the individual functionaries. There is an urgent need to do so. Many TMAs at present are in the process of preparing a new schedule of establishment for their institutions, but that may take several months to complete.

7. The staff in different tiers of local institutions came from different departments and service formations, such as the local government service (LCS), LG&RDD, and PHED, and joined the local government tiers recently. Many of such transferred staff are still drawing salaries from the parent departments. Most of the lower staff are from the defunct municipal committees/corporations. There are problems of assimilation, shortage of office space, and lack of coordination, often leading to polarization and clique formation. In many TMAs, the staff of the ex- municipal committees/corporations form the major part of TMA. Staff transferred from different devolved departments also create seniority problems. Some reshuffling is required to achieve a balance between the existing and the devolved staff.

8. The area of jurisdiction of the engineering staff of TMA is now the entire tehsil, and they have to visit a large number of UCs. At present, they make visits at their own expense. This is not justified, as apart from being a drain on their meager resources, it is also an inefficient and unproductive way of getting things done. The movement of staff remains limited and they are able to achieve less than what they should. Similarly, at UC level, only the nazim has been provided with a motorcycle. The secretaries are not (officially) mobile. If the three proposed secretaries in the UC are to fulfill their functions as given in the ordinance, they must be provided with one motorcycle each.

## **C. Institutional Strengthening and Capacity Building**

### **1. Structural Improvements and Staffing**

The critical factors for the current reform process to succeed and be effective include human resource development, structural transformation, and the successful implementation of fiscal decentralization policies. Any local government reform process must embrace social and capital investment strategies as part of the reform agenda.

TMAs and other tiers of local government should have the capacity to manage their newly

acquired powers. Capacity needs to be defined in a comprehensive sense and go beyond training to include staffing, rules, procedures, tools, incentives, promotions, and accountability. Capacity growth should also include enabling the local governments to enter into new institutional arrangements with the private sector and NGOs, and to expand physical capital. The degree of autonomy and resources given to local governments is obviously one of the most important factors for shaping the attitudes and roles of their organs. The more autonomy a particular tier of local government has and the more resourceful it is, the more service and development-oriented will it be. Under the present situation, various tiers of local government have attained varying degrees of autonomy. Nevertheless, they lack resources to discharge the responsibilities demanded of them at that level of autonomy. It is therefore important to focus on local resource mobilization.

For structural improvements in the TMAs and other tiers, the project consultants will work for the following proposals:

(i) Accountability and transparency. Lack of transparency often leads to lack of accountability. Thus citizens must have access to relevant information such as budgets, accounts, plans, and all financial matters. Citizens must also know that officials who violate the law will be punished. Consultants will help TMAs to review and compile all the above information for dissemination to the public for the purpose of transparency in all financial matters.

(ii) Alliance building and coordination. The provincial government and various tiers of the local government should see each other as partners in the development process. Structures that facilitate dialogue between levels of government should be created. This is already true in the case of the union-tehsil and union-district relationship, as the deputy nazim of a UC is a member of the tehsil council and nazim of a UC is a member of the district council. However, there appears to be a void between the tehsil council and the district council. There need to be associations of district nazims and tehsil nazims so that they can become reliable partners on policy questions. TMAs must coordinate and develop communication mechanisms among various local organizations for community-based integrated programs and long-term partnerships and a culture of collective action among local organizations, nongovernment organizations (NGOs), and the CBOs so as to enhance their organizational capacity for efficient delivery of local services. They may also establish networks that can provide a forum for the exchange of experiences, ideas, knowledge, and information. The network will serve liaison and also articulate the perspectives and concerns of communities.

(iii) Capacity building. TMAs need to enhance resource mobilization including application of the tax on immovable property, efficient delivery system, and maximum use, operation and maintenance techniques for the available equipment. TMAs also must be helped in improving their financial management, including budgeting, resource mobilization, and enhanced O&M of TMA assets; assessment of financial obligations of TMAs and appropriate improvements in collecting the tax on immovable property and tapping new avenues for increasing the TMAs revenue. The local governments should be well-equipped with technological infrastructure. The consultants will build TMAs' capacity to mobilize resources through an efficient collection of revenue, improved financial management including budgeting and enhanced O&M of TMA assets; identify the local government needs for office and field equipment and extend appropriate assistance in procuring them; human resource development through the administration of an objectively designed training program.

## 2. Human Resource Development

Human resource development is concerned with people and aims at acquiring their services, developing their skills, motivating them to a high level of performance, and ensuring that they continue to maintain their commitment to the organization.

Procurement of Services (Staffing). An initial review of the situation, under the devolved system, reveals that all the three tiers of government are adequately staffed (there is overstaffing at some places). However, there is a need to allocate proper functions and train the staff in their respective function.

Skills Development. Keeping in view the objectives, target group, level, and course contents, Skills development can be grouped into two broad categories: orientation and intensive training

Orientation will contain information such as project background, objectives, selection criteria, implementation strategy, role of stakeholders, monitoring and evaluation (M&E) system etc. The target group will be the senior-level officials/personnel like executive district officer (EDO), tehsil municipal officer (TMO), elected representatives, etc. The objectives of orientation will be to involve the key players right at the inception stage of the project and to equip them with the overall concept of the project. The orientation session will be conducted in clusters (grouping 3-4 tehsils).

An initial training needs assessment (TNA) carried out under the PPTA reveals that intensive training will be required at different levels. The major focus would be at TMA level as TMA is the hub of all activities. In the devolved system, because of the reshuffling of staff from various ex-line departments, the concept of participatory approaches is totally new for most of the staff members. Moreover, because of the transition period, the majority of the staff member do not know their job description. The findings of initial TNA and project implementation mechanisms suggest that training be conducted at three levels: TMA, UC, and communities.

### **3. Management Information System**

A management information system (MIS) is a set of interrelated components that collect, manipulate, and disseminate data and information and provide a feedback mechanism to meet an objective. One of the major objectives of an information system is to provide the correct information to the authorized person at the right time, at the right place, and at the right cost.

The proposed MIS is a computerized system to manage human resources, monetary resources, raw materials, and capital resources of the TMA and consists of a set of people, hardware, software, databases, telecommunications, and procedures that should be configured to collect, manipulate, store, and process data into information.

As regards the architecture of this system, a local area network (LAN), initially consisting of one server machine and five terminals will be established in each participating TMA. The server machine in the MIS room of TMA and five terminals— one in the office of the TMO and one in each of the functional units of the TMA— i.e. I&S, P&C, Finance, and Regulation—are all connected. Initially this setup will serve the local needs of information processing and sharing. Various LANs established at each TMA will eventually be connected to the main server machine at the provincial level.

## Appendix 3 EXTERNAL ASSISTANCE 1995 2002

Description	Amount (\$ million)	Approval Date
<b>ADB</b>		
Punjab Rural Water Supply and Sanitation Sector Project	46.00	1995
Social Action Program Sector Project II <sup>1</sup>	200.00	1996
NWFP Urban Development Sector Project Loan	20.80	2001
<b>Japan</b>		
Metropolitan Water Supply Khanpur to Islamabad	67.56	1995
Bulk Water Supply Islamabad Phase-II	13.82	1955
Karachi Water Supply Improvement	39.03	1996
Exploitation of Groundwater	4.29	1995
<b>IDA</b>		
Public Health Engg. and Rural Development Project,	15.08	1999
Karachi Water Supply and Sanitation Phase-II	47.95	1995
Punjab Private Sector Ground Water	21.25	1997
NWFP Community Infrastructure Project	10.76	1997
Sindh Special Development Program	5.54	1997
Punjab Urban Development Project	12.71	1995
<b>UK</b>		
Karachi Water Supply and Sanitation	13.66	1995
Lahore Water and Sewerage project	2.25	1996
Rural Water Supply and Sanitation, NWFP	1.53	2002
<b>IDB</b>		
Greater Hyderabad Sewerage 2109-PAK	1.00	1996
Greater Hyderabad Sewerage Equipment	1.64	2001
<b>Netherlands</b>		
Quetta Sewerage Project	1.26	1995
Rural Water and Sanitation	1.45	1995
Water Supply through Hand Pump	1.44	2000
Rural Water Supply and Sanitation-II	1.09	1998
<b>UNDP</b>		
Federal Rural Water Supply and Sanitation	4.31	1995
Rural Community Development	0.50	1996
Area Development Program	2.84	1999
<b>Germany</b>		
Ground Water Financial Project	3.80	1995
Drinking Water and Sanitation	0.55	1998
Supply of Drinking Water & Sanitation Chitral	3.61	1999
<b>UNFDAC</b>		
Dir Area Development Project	2.40	1996

<b>Description</b>	<b>Amount (\$ million)</b>	<b>Approval Date</b>
<b>IFAD</b>		
Northern Area Development Project	2.44	2001
<b>USAID</b>		
Mohmand Area Development Project	2.25	1997
<b>France</b>		
Sewerage Treatment Plant	7.47	1999
<b>Kuwait</b>		
Quetta Water Supply Project	0.55	1999
<b>EEC</b>		
Dir Kohistan Development Project	1.67	2002
<b>Switzerland</b>		
Community Infrastructure Project	0.53	2002
<b>Total</b>	<b>563.03</b>	

ADB = Asian Development Bank; EEC = European Economic Community; IDA = International Development Association; IDB = Inter-American Development Bank; IFAD = International Fund for Agriculture Development; NWFP = Northwest Frontier Province; UK = United Kingdom; UNDP = United Nations Development Program; UNFDAC = United Nations Fund for Drug Abuse Control; UNICEF = United Nations Children's Fund; USAID = United States Agency for International Development.

## Appendix 4 Lessons Learned from Previous Projects

During preparation of the Project, key lessons from related studies were analyzed:

(i) ADB-financed water supply and sanitation projects in Pakistan, particularly the Punjab Rural Water Supply and Sanitation Sector Project, and previous urban water supply and sanitation projects; (ii) regional experiences; and (iii) non-government organizations (NGOs) projects.

Appropriate measures are incorporated in the Project as follows:

<b>Lessons Learned</b>	<b>Measures Adopted</b>
<p>To ensure sustainability of community-based projects, it is essential that (i) both male and female community groups are involved in planning, design, implementation, and operation and maintenance (O&amp;M); (ii) community-based organizations (CBOs) have enough capacity to assume their functions; and (iii) CBOs should be trained in the early stage of project implementation.</p>	<p>The Project will involve male and female CBOs in all stages, from subproject identification to implementation and O&amp;M. Training of CBOs has been made mandatory in both the early stage of subproject implementation and before the handing over of subproject to community. O&amp;M manual in the local language was prepared during the phase I project. The Government has agreed that, prior to handing over the subprojects, communities will be provided training in technical and financial operations.</p>
<p>Subproject selection criteria should be widely disseminated for making them transparent, avoiding misinterpretation, and benefiting majority of communities. Communities should apply for funding only when they have met subproject selection criteria and, in particular, collected the cash contribution to the subproject cost.</p>	<p>The subproject selection criteria have been widely disseminated due to successful implementation of the phase I project and also during the preparation of the Project through stakeholders workshops, so as to make them transparent and facilitate compliance. All tehsil governments have agreed that applications for subprojects will be invited from the villages after the subproject selection criteria is disseminated through newspapers, union councils, and religious institutions (mosques). As part of the memorandum of understanding (MOU), communities will deposit their cash contribution in the joint bank account with the project management unit (PMU) to have their subprojects considered under the Project.</p>

<p>Community willingness to pay for services is often much higher than expected. Degree of sustainability depends on the extent of ownership and community's stakes in the subproject.</p>	<p>In view of the high willingness-to-pay (WTP), and in order to introduce more stakes and community ownership of the proposed Project, capital cost sharing has been included. This is based on the extensive field survey carried out during project preparation and positive feedback from the communities. The Government has agreed to make it part of the uniform policy for the rural water supply and sanitation (WSS) sector. With this, it is expected that the sustainability of subprojects is further ensured and communities will select cost-effective options of subproject designs. As already practiced in the phase I project, no subsidy will be involved during O&amp;M of the Project.</p>
<p>For small rural WSS schemes, the local private sector usually responds well and is generally efficient and cost-effective. Construction activities should be properly packaged to capture economies of scale. Use of locally available spare parts is a key element in sustainability of schemes that involve pumps.</p>	<p>In view of the small contracts and simple technology, the Project will procure goods and services locally. To attract large and efficient contractors, packaging of small contracts has been allowed. Use of locally manufactured pumps and machinery, as adopted in the phase I project, will be encouraged in the Project.</p>
<p>More attention must be given to gender considerations, and sanitation and hygiene education components so as to achieve lasting results. Women have a greater role in decision making and are better empowered to facilitate community action.</p>	<p>Female CBOs will be formed in all the subprojects to work with their male counterparts and participate in all the stages of the Project including O&amp;M, and tariff setting and collection. Social uplift and poverty eradication program (SUPER) has been included in the Project to provide women with opportunities to use the time saved for fetching water in livelihood activities. Female CBOs and the female union council (UC) councilors will be involved in decision making in SUPER and conducting the hygiene education program.</p>

<p>Start-up implementation delays should be avoided by taking advance actions including securing Planning Commission Proforma-I (PC-I) approval, establishing PMU and appointing the project director and PMU staff, recruiting consultants, and prequalifying contractors.</p>	<p>The Government has appointed the project director and agreed to (i) retain the PMU of phase I project for the proposed Project, (ii) retain the community development unit (CDU) staff to continue undertaking advance community development activities, (iii) approve PC-I preferably before loan negotiation but not later than loan approval, (iv) shortlist consultants and prequalify contractors before loan approval, and (v) use the ADB-approved retroactive financing of \$100,000 for undertaking technical surveys of already identified 70 subprojects and identifying further subprojects before the actual commencement of the Project. With all these advance actions, the Project is expected to avoid start-up delays.</p>
<p>To ensure the quality of construction and timely completion, consultants' involvement and responsibilities should be enhanced and payment to contractors should be linked with consultants' verification of the quality of field-work.</p>	<p>Consultants' role has been enhanced in construction supervision and reporting, measurement and verification of contractors' work, recommending payments based on qualitative progress or remedial actions in case of poor performance.</p>
<p>To avoid high turnover of CDU staff due to the meager salaries offered, which hampers smooth project implementation, the staff should be offered a competitive salary package so that experienced staff could be retained for an effective and continued input for the community development works.</p>	<p>The Government agreed to delink the salary structure of CDU staff from the low Government grades and offer a market-based competitive salary package.</p>
<p>To avoid delays in the electrification of tubewells, advance actions are required during subproject implementation in applying for electric connections, and timely payment to and intensive follow-up with the Water and Power Development Authority (WAPDA).</p>	<p>Application for electrical connection will be submitted to WAPDA, together with the required dues, soon after subproject implementation starts. To further ensure timely action by WAPDA and for regular follow-up, the project steering committee will include WAPDA as a member of the committee.</p>

**Table 1: Summary of Project Cost Estimates**  
(\$ million)

<b>Project Component</b>	<b>Foreign Exchange</b>	<b>Local Currency</b>	<b>Total Cost</b>
<b>A. Base Cost<sup>a</sup></b>			
1. Water Supply and Sanitation			
a. Civil Works	8.5	46.0	54.5
b. Equipment and Material	2.9	2.9	5.8
Subtotal (1)	<b>11.4</b>	<b>48.9</b>	<b>60.3</b>
2. Hygiene Education Program		0.5	0.5
3. Capacity Building	1.1	7.8	8.9
4. Social Uplift and Poverty Eradication Program		0.6	0.6
<b>Subtotal (A)</b>	<b>12.5</b>	<b>57.8</b>	<b>70.3</b>
<b>B. Interest Charge</b>	1.1		1.1
<b>Total</b>	13.6	57.8	71.4
<b>Percentage Share</b>	19.0	81.0	100.0

October 2002 prices.

TABLE 2: PROJECT FRAMEWORK

Design Summary	Performance Indicators/Targets	Monitoring Mechanisms	Assumptions and Risks
<p><b>Goal</b> Reduce poverty and improve the living conditions and quality of life of the communities in rural settlements of water scarcity and brackish groundwater areas of Punjab province</p>	<p>Elimination of hardship of rural women, and time spent in fetching water devoted to income-generating activities Improved environmental sanitation and health of rural communities Strengthened local government institutions</p>	<p>Project performance management system (PPMS), third-party evaluation at midterm and at Project completion  Government statistics and reports  Reports of multilateral and bilateral agencies</p>	<p>Long-term commitment and sense of ownership by a provincial-level executing agency  Successful community management of water supply schemes, capacity of local government institutions</p>
<p><b>Purpose</b> Construct and have the community manage water supply and drainage schemes in rural settlements  Construct household latrines  Promote hygiene  Strengthen local government institutions  Implement a poverty reduction program involving microcredit schemes</p>	<p>Schemes constructed on the basis of community-need assessment surveys and taken over by the communities for operation and maintenance (O&amp;M)  Community-based organizations (CBOs) in place, trained, and functioning  Local government institutions with the capacity to implement similar schemes on their own in the future  Microcredit mechanisms in place, poverty reduction fund established and functional</p>	<p>Project management unit (PMU) monthly progress reports, and 6-monthly PPMS reports  Midterm and project completion reports by independent consultants  Asian Development Bank (ADB) review missions  Monitoring by subproject review committees (SPRCs) and project steering committee</p>	<p>The Punjab government (PG) provides timely counterpart funding  Advance actions regarding PMU strengthening, selecting consultants and prequalifying contractors are completed on time  Local government institutions, particularly tehsil municipal administrations (TMAs) demonstrate project ownership  Consultants are competent and discharge their responsibilities through a participatory process  Union council (UC)-level Social Uplift and Poverty Eradication Program (SUPER) committee will be formed and strengthened to handle the poverty reduction fund</p>
<p><b>Outputs</b> Component 1: Water Supply and Sanitation Schemes: Construct about 500 new and rehabilitate 250 need-based inoperative water supply and</p>	<p>About 125 new and 60 rehabilitation schemes to be constructed and handed over to village CBOs every year  Support to CBOs post</p>	<p>PMU progress reports  ADB review missions  SPRC reports</p>	<p>PMU, consultants and contractors are target-oriented and work in close coordination  Contract packages are large enough to attract well-</p>

Design Summary	Performance Indicators/Targets	Monitoring Mechanisms	Assumptions and Risks
<p>sanitation schemes and hand them over for O&amp;M to village CBOs in accordance with the project implementation schedule</p> <p>Component 2: Institutional Strengthening and Capacity Building: Strengthen and build the capacity of TMAs in all 122 tehsils of Punjab</p> <p>Component 3: Hygiene Education and Latrine Construction Program</p> <p>Mandate provision of safe drinking water supply and latrines in government schools in all project villages Promote household latrine construction and hygiene education</p> <p>Component 4: Social Uplift &amp; Poverty Eradication (SUPER) Program: SUPER consisting of implementation of micro-credit schemes and additional classrooms constructed in government schools in project villages</p>	<p>handing over provided to avoid reversals</p> <p>Revenue resources mobilized, systems and procedures streamlined, appropriately qualified personnel in place and trained. Management information system (MIS) in place and operational</p> <p>Schools are connected with the village water supply and drainage networks. Low-cost latrines constructed in each school and households properly maintained, and hygiene education conducted in each village</p> <p>Poverty reduction funds established at UC level, disbursed in a transparent manner and put to a revolving mode for microcredit schemes</p> <p>Microcredit schemes implemented initially in phase I project villages and later scaled up to cover all project villages</p> <p>Additional classrooms constructed and put to use</p>	<p>PMU progress reports and project performance monitoring system (PPMS)</p> <p>ADB review missions</p> <p>TPRC reports</p> <p>PMU progress reports and PPMS</p> <p>ADB review missions</p> <p>SRPC reports</p> <p>PMU progress reports and PPMS</p> <p>ADB review missions</p>	<p>staffed, well-equipped, and experienced contractors</p> <p>TMAs are interested and cooperative</p> <p>Tehsils with no WSS component may lack enthusiasm</p> <p>Close liaison is maintained with all stakeholders, including the village CBOs, community development unit (CDU) staff, local government and rural development (LG&amp;RD) departments and United Nations International Children's Emergency Fund (UNICEF)</p> <p>Citizen Community Board (CCBs) are representative and members understand inter-village differences in microcredit needs</p> <p>Role of the village CBOs and the UC-level CCBs may become redundant following the formation of elected village councils</p> <p>The size, repayment schedules, and eligibility criteria respond to the needs of the village communities, particularly women</p>

**Table 3: WSS-Related Functions on Different Tiers of Government**

Provincial Government	For schemes exceeding PRs20 million, technical sanction has to be obtained from the chief engineer of PHED at provincial level.
PHED Monitoring and Evaluation Units	Under the devolution plan, the administrative divisions have been abolished. Hence superintendent engineers at (ex) divisional level ceased to exist. At four locations in the province, however, establishment of PHED monitoring and evaluation units has been approved. Each unit will be headed by a superintendent engineer (monitoring and evaluation), with powers to sanction schemes between PRs5million to 20 million. The approved locations for monitoring and evaluation (M&E) units are Multan, Rawalpindi, Faisalabad, and Lahore.
District Government	Under the devolved local government setup, district government does not have a role in the WSS sector. However in the tehsil district headquarters (i.e., the tehsil in which district administration is located), the tehsil officer (infrastructure & services) is normally in Grade 18 as against Grade 17 technical officers, Infrastructure and Services (TOs I&S) in other tehsils of the same district. The TO (I&S) in TMA of tehsil district headquarters plays a surrogate role of the (ex) Executive Engineer (XEN) of PHED at district level.
Tehsil Government	The TO (I&S) at district tehsil headquarters can sanction schemes up to PRs5 million. The WSS-related responsibilities of TO (I&S) of a tehsil include <ul style="list-style-type: none"> <li>• water supply</li> <li>• control and development of water resources, other than systems maintained by the union and village councils</li> <li>• sewage and sewage treatment and disposal</li> <li>• storm water drainage</li> <li>• sanitation and solid waste collection and sanitary disposal of solid, liquid, industrial and hospital wastes</li> </ul>
Union Councils	Provide and maintain public sources of drinking water including <ul style="list-style-type: none"> <li>• wells, water pumps, tanks, ponds</li> <li>• other works for the supply of water</li> </ul>

**Table 4: Subprojects**

Sr. No	District	Subprojects (No.)	Household <sup>a</sup> Connections (No.)	Population (Persons)
1	Rawalpindi	34	11,073	113,032
2	Attock	29	6,169	80,441
3	Chakwal	46	12,335	123,220
4	Jhelum	15	5,715	48,188
5	Khushab	25	7,747	80,750
6	Mianwali	30	5,383	103,890
7	Sargodha	53	8,827	199,281
8	Gujranwala	4	781	16,086
9	Gujrat	26	7,189	91,765
10	Mandi Baha-ud-Din	6	1,185	30,370
11	Narowal	11	2,976	44,827
12	Sheikhupura	3	409	13,927
13	Sialkot	28	6,419	127,309
14	Kasur	53	12,387	258,452
15	Lahore	1	467	12,650
16	Okara	5	887	16,640
17	Faisalabad	41	9,651	165,249
18	Toba Tek Singh	42	13,524	167,636
19	Vehari	10	1,823	32,730
20	Sahiwal	11	2,051	43,062
21	Pak Pattan	7	462	31,933
22	Multan	9	1,681	32,710
23	Khanewal	9	1,455	35,187
24	Dera Ghazi Khan	82	8,790	276,979
25	Muzaffargarh	2	400	4,829
26	Rajanpur	7	CR	23,440
27	Bahawalpur	34	6,209	93,796
28	Lodhran	54	9,882	124,765
29	Bahawalnagar	66	9,850	136,612
30	Rahim Yar Khan	38	5,405	91,436
			<b>161,132</b>	<b>2,621,192</b>

CR = community reservoir with taps

<sup>a</sup> Number of houses connected with water supply by the time of PCR mission

Table 5: Assessment of overall project performance

Criterion	Assessment	Rating (0-3)	Weight (%)	Weighted Average
Relevance	Highly Relevant	3	20	0.6
Effectiveness	Highly Effective	3	30	0.9
Efficiency	Highly Efficient	3	30	0.9
Sustainability	Most Likely	3	20	0.6
<b>Overall Rating</b>	<b>Successful</b>		<b>100</b>	<b>3.0</b>

Highly Successful (HS): Overall weighted average is greater than 2.7.

Successful (S): Overall weighted average is between 1.6 and less than 2.7.

Partly Successful (PS): Overall weighted average is between 0.8 and less than 1.6.

Unsuccessful (U): Overall weighted average is less than 0.8.

