Subsidy and sustainability in urban sanitation: The case of Quetta Katchi Abadis Environment Management Programme

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Rapid urbanization has increased the need for an adequate sanitation system in Quetta, Pakistan's 12th largest city. However, inadequate institutional capacities have hindered its development. Between 1997 and 2003, the Netherlands Government funded a local environmental management programme which involved a partnership between city governments, community and non-governmental organizations. This paper offers more details about the programme, specifically its institutional framework, technology options, implementation, hygiene promotion and cost and tenure issues.

A survey conducted after the project had finished details the outcomes of the programme. Across the range of indicators adopted the outcomes are generally positive. This document also outlines factors in the success of the programme as well as some of the constraints faced, challenges that need to be confronted and issues for future scaling up.

Keywords: urban sanitation, small-bore sewerage, Pakistan, health impact, community-based organization

QUETTA KATCHI ABADIS Environment Management Programme (QKAEMP) was based on the principles of self-help environmental management by communities. Residents of low-income settlements were mobilized by a number of support organizations that shared a common methodology for lane sanitation. They worked independently in 47 different *katchi abadis* (informal settlements) across Quetta city.

Purpose and approach of evaluation

Four years later, were the sanitation and health benefits being sustained?

The monitoring and evaluation unit of the Pakistan Institute for Environment-Development Action Research (PIEDAR) designed and supervised the second post-project evaluation of QKAEMP, four years after its completion. The primary objective was to find out whether the sanitation and health benefits of the project were being sustained

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on a household and community scale. Another was to investigate what other effects could be attributed to the programme.

To evaluate the programme, a sample survey was undertaken. It comprised interviews of randomly selected beneficiary households. Physical observations in the intervention areas were also made.

Background

Quetta, the capital of Balochistan Province, is the 12th most populous city of Pakistan (according to the 1998 census, it had a population of 639,000). Owing to rapid population growth and inadequate institutional capacities to plan and provide services, nearly half the city's inhabitants live in informal settlements, locally known as *katchi abadis* (KAs). The settlements have grown organically, making the provision of infrastructure a challenge for local government and communities.

Most of the KAs have been officially incorporated within the jurisdiction of City District Government (CDG) Quetta, and many now have piped water. However CDG has not been able to provide sanitation infrastructure to these KAs. Because of the increase in population and the use of water per capita, effluents have also increased without any provision for their disposal. This poses severe health hazards from faecal- and water-borne diseases.

Governance in Quetta, especially with regard to law and order, was unsatisfactory at the start and became more adverse over the duration of the project. In 1994, the Netherlands Government abandoned a previous water supply and sanitation project because of corruption in the government agency it was working with.

Quetta was and remains a frontier city in the international war on terror. An elected local government with enhanced responsibilities emerged as a result of Local Government Ordinance in 2001. But it lacked experience and capacity for enabling community-based development.

The minister for local government was strongly opposed to the involvement of women in civic life

A coalition provincial government, formed in alliance with religious parties, came into power in 2002, the penultimate year of the project. The minister for local government was strongly opposed to the involvement of women in civic life or in any activity beyond their own homes.

Implementation

Key actors

The Royal Netherlands Embassy in Islamabad executed the Quetta Katchi Abadis Environmental Management Programme (QKAEMP) from November 1997 to December 2003. It had two contracts with

PIEDAR, which acted as a technical adviser, and M/s Ferguson Associates (Pvt) Limited, the fund manager.

Subsidiary memorandums of understanding established the working arrangements between technical adviser, fund manager, City District Government Quetta, and six Quetta-based NGOs as implementing partners (IPs). Community participation agreements (CPA) between the IPs and communities living in *katchi abadis* governed the on-ground construction and management.

Approach

A document entitled *Quetta Katchi Abadis Environmental Management Programme* (QKAEMP, May 1997) was put together after two years of consultations in Quetta and orientation and exposure of local stakeholders to best practices for community-based sanitation across the country. It envisaged that management of the intervention would be at a community level, mobilized by a number of catalytic organizations who would share a common programme approach.

A pure self-help approach would be too great a departure from the institutional climate in Balochistan

A system of matching grants was adopted to support the effort. The IPs felt that a pure self-help approach would be too great a departure from the institutional climate in Balochistan, where government and NGOs had been heavily subsidizing capital and running costs.

After processing and approval of the document, QKAEMP was launched on 20 November 1997 with the following development objectives:

- To contribute towards a process of sustainable urbanization in Quetta by creating an enabling institutional framework for promoting local organizations in low-income areas to undertake internal development.

The partnership was between local government, local NGOs, CBOs and lane organizations

- To institutionalize a partnership between local government, local NGOs, CBOs and lane organizations for better environmental management by promoting technical capacities and democratic decision-making among stakeholders for carrying out development work.

This systematic approach was adopted to implement QKAEMP. A four-tier governance system was set up:

1. Annual stakeholders' conventions were open forums for critique, suggestions and feedback from all stakeholders.
2. The Implementing Partners' Forum served as a platform for the sharing of information, mutual support and coordination in Quetta.

3. The Project Management Committee in Quetta acted as a supervisory body for making major operational decisions as well as monitoring and reviewing physical progress.
4. A Policy Steering Committee in Islamabad worked, during the initial years, on policy and strategic decision-making. Some of the functions were later devolved to the policy management committee, while others, such as management of external monitoring, reverted to the Royal Netherlands Embassy.

Social mobilization

Social mobilization played a key role in the programme. Guidelines were developed to streamline the process. A manual that became known as the *Seven Steps for Social Mobilization* was shared with all IPs and their staff members, who were often reminded of its contents.

Social organizers mobilized communities around hygiene and environmental issues

Social organizers initially mobilized communities around hygiene and environmental issues and assessed the willingness of each community to undertake investment in common infrastructure. Following a positive response, a survey was undertaken jointly with lane residents.

Other key steps were:

- the formation of a lane organization (LO) and women's lane organization (WLO);
- the signing of CPA between IP and each LO;
- a technical survey to prepare the area and ground profiles;
- detailed designs and cost estimates;
- the opening of the LO's bank account.

The lane organization was asked to raise 50 per cent of the cost of the lane sewer

Based on estimates, the LO was asked to raise 50 per cent of the cost of the lane sewer. The cheque for the matching grant was released through the IP to the LO account. Six hardware items were given to each household for the construction of a pour-flush latrine. The household was entirely responsible for its superstructure. LOs executed the works with the technical assistance of the IP's engineer.

Hygiene promotion

The promotion of better hygiene was an integral part of the project. Indicators for widespread awareness of the germ theory of disease and of the best hygiene practices were included among the key measures of success. The project aimed to get 85 per cent of children aged five and over to wash their hands with soap after defecation.

Female social mobilizers demonstrated how to wash their hands with soap during visits to households in every community during the LO/WLO formation and fundraising stages.

Pro-poor provisions

City government provided an overall list of officially declared KAs. They are mostly located on private land, and comprise a range of habitation types and standards.

Indicators were developed to ensure that poor settlements were selected

The technical adviser developed indicators for categorizing the KAs. The IPs identified their working areas on the basis of past outreach experiences and/or community interest from within the KA list. The technical advisory team at Quetta checked the proposed working areas against the indicators to ensure that poor settlements (categories C and D) were selected along with a few that were marginally in Category B.

Five settlements in Category A that solicited project services were provided only with technical assistance and were required to pay the full cost of the sanitary infrastructure. Within the KAs, the poorest households contributed by providing labour for excavation and pipe laying.

QKAEMP modified its approach to working with 'bottom of the pyramid' poor, such as Christian and Hindu minority communities living in the slum of Shantinagar, Quetta. In this congested area, the project promoted locally managed boreholes for water supply and communal toilets. It also modified its work schedule to suit transient residents, who leave the city in winter months for livelihoods in the plains. However, after a negative initial response, QKAEMP did not persist with the attempt to promote sanitation and hygiene among the colonies of migrant tent dwellers at the fringes of the city.

Land tenure issues

Tenure did not emerge as a major issue in the social mobilization process for lane sanitation

Table 1 shows that more accommodation is rented in Quetta than the national urban average. However, tenure did not emerge as a major issue in the social mobilization process for lane sanitation in its informal settlements. Ethnicity and ethnic diversity were the key determinants. Social mobilization was relatively easy in progressive communities, such as the Hazara. It was difficult in KAs where conservative tribes, such as the Baloch, lived. It was most difficult in lanes where people from many ethnic groups lived together.

Project management

During QKAEMP, four annual stakeholders' conventions were held in the main auditorium and lawns of the City District Government,

Table 1. Housing tenure in urban Pakistan and urban Quetta

Type	*Urban Pakistan (%)*	*Urban Quetta (%)*
Owned	67.6	54.4
Rented	23.2	35.0
Rent free	9.2	10.6

Source: Population Census Organization (1998a, b)

Hundreds of men and women lane managers met each year to share their sanitation experiences with local government officers

traditionally in the second week of March before the start of the construction season. On each occasion, 150 to 400 men and women lane managers and committee members took part and shared their sanitation experiences with provincial health, local government and environment ministers.

The IP Forum met 22 times to make arrangements for common events, share ideas and experiences, and where possible, support each other's field activities in different KAs.

The policy management committee met 28 times to discuss technical and social issues facing the IPs in their work. It also became a forum for organizational and project policy issues. A designated IP recorded the minutes and progress was monitored at every subsequent meeting.

The policy steering committee met 16 times in Islamabad and Quetta to address policy and financial matters and issues arising from external monitoring, until it was wound up after August 2001.

Before the start of field activities, the technical adviser, fund manager and implementing partners jointly developed the plan of operation. It specified administrative arrangements, physical targets, and the schedule of activities. An annual work plan was prepared for each subsequent year in the same manner. The work plans were submitted to Royal Netherlands Embassy before 15 October, so that it could respond to the proposed plans and release allocated budgets.

Technology/technology choices

A small-bore sewer system was chosen in which solids are retained on site while the liquid is transported off-site

The choice of a sanitation system for a locality depends on cultural, social, economic and technical variables. At Quetta, a hard non-porous soil, relatively high population densities and availability of nearby ravines for disposal of the effluent, led, in most cases, to the selection of a system in which solids are retained on site while the liquid is transported off-site through a small-bore sewer. Low-cost sewerage technologies were first developed in Zambia and Brazil (Sanitation Connection, www.sanicon.net). QKAEMP learnt from and adapted the system developed by Orangi Pilot Project, Karachi, for implementation by communities (Khan, 1996).

A manual, *Seven Technical Steps,* was shared with each IP. It laid out the steps for planning, designing, estimating the costs of a sewerage scheme, and constructing and maintaining it. In this, a small diameter pipe is laid at shallow depth and low gradient. The system has the following components:

- connection from the house to *tee-hodi* (grit interceptor);
- interceptor tank or *tee-hodi* where floatable and settleable materials are temporarily stored while foul gases are emitted by a vent pipe installed at the entrance of the interceptor;
- a service line, normally a four-inch (10cm) diameter RCC or PVC pipe, connecting the interceptor to the manhole for the drainage of liquids;
- circular manholes provided at major junctions for maintenance. These are connected to a collector main – normally a 6 to 9 inch (15cm to 23cm) diameter RCC pipe – which takes the effluent, by gravity, to the nearest ravine, open drain or trunk sewer. The depth at which the main is laid varies as a function of external street loads and environmental conditions.

The system has worked largely as it was designed. When required, the *tee-hodis* are opened and their contents are stirred with a stick and flushed. Stones and plastic are removed physically. Flushing the *tee-hodi* with 4–5 buckets of water is enough to keep the service line open. Where the collector main gets constricted, the residents flush it with water from a tank (around 500 gallons) mounted on a tractor trolley. Khalifa Darvesh Street in Kharotabad was the only line that was blocked by sewage out of the 25 streets surveyed for this study. The area is chronically short of water, even for drinking. The residents used to flush the sewer every two months or so with water purchased from a tractor trolley operator. They have stopped doing so as the expense has gone up (according to Mr Mohammad Umar, shopkeeper, Kharotabad, interviewed on 23 April 2008). The effluent is disposed of to municipal sewers, open drains and natural ravines. There is no wastewater treatment facility in any locality of Quetta.

Only one line out of the 25 streets surveyed was blocked by sewage

The residents had a choice of technology. In Marriabad and Mominabad KAs, located on hillsides, they opted to cover their open drains with slabs. In congested Shantinagar, residents chose to install communal latrines.

Innovations

Communities were eager to know in advance exactly how much money they would need to spend on the scheme since they needed to spend their household savings on it. Accurate cost estimates became

Accurate cost estimates were important for poor households

important as households were generally suspicious of and resented a second round of fundraising.

A simple, user-friendly computer programme was developed by PIEDAR to optimize the design of lane sewers and generate quantities and costs in a transparent manner. It was tested and handed over to partner organizations for their use. Any computer-literate person can easily operate the software, based on a simple Excel spreadsheet. All the IPs used this software throughout the programme period (Afzal, 2002). It can also be used for designing more than one sewer line at a time. However, for optimizing sewerage networks, a design tool such as that developed by the University of Leeds may be preferred (Mara et al., 2001).

Women lane organizations were a major innovation for Quetta

Given that most women were excluded from decision-making outside their houses, women lane organizations were a major innovation for Quetta. The idea was introduced alongside health and hygiene training. Under QKAEMP, 181 WLOs were formed in 42 KAs. The WLOs played an effective role in raising money to pay for the scheme and in motivating the men to supervise the laying of lane sewers and installing of latrines.

QKAEMP succeeded because of its dedicated team of female social organizers, and because women worked at all levels in QKAEMP, some as team leaders, others as supervisors, trainers, finance managers, accountants or extension workers.

Costs (hardware, software, programme overheads)

The unit costs of the lane sewer and six hardware items (pan, p-trap, connecting pipe, vent pipe, t-joint and a bag of cement provided to each household for its latrine) during 1998 to 2003 are reproduced in Table 2. Not included are costs of the trunk sewers and the (eventual) treatment before end-disposal.

Households were required to contribute 50 per cent of the estimated cost of the lane sewer. In most cases, the LOs divided the burden equally among the dwelling units in the lane. They decided whether to make any exceptions for the poorest households, who provided

Table 2. Unit costs of sewers and pour-flush latrines

Items	*Unit of measure*	*Average cost (Pakistan rupees)*[1]	*Range (Pakistan rupees)*
Lane sewers (6–9")	Running feet	36	30–44
Pour-flush latrines	Six items provided per latrine	854	612–1,074

[1]Exchange rates ranged between PRs21.4 and 26.9 per NLG and between PRs43.2 and 58.7 per US$ during 1997–2003
Source: Economic Survey, Government of Pakistan, 2002-03, Table 8.14

The poorest households provided labour for the project instead of a cash contribution

labour for the project. The share ranged from Rs600 to Rs2,000 per household depending on how big the front of the 'housing lot' was and the length and depth of the sewer. Many women said that raising the required amount had been difficult.

In this context, it is interesting to document, after a period of 4 to 10 years, how much people can remember paying for the project. Table 3 provides the results. At least 8 per cent of respondents benefited from an internal community cross-subsidy. Some of them paid in the form of labour.

External support

The components of actual expenditure over the six years of the programme are displayed in Table 4.

The Royal Netherlands Government was the sole external supporter of the project, making an investment of NLG3.2 m. The Pakistan rupee declined from Rs21.4 per NLG to Rs26.9 per NLG over the duration of the project. To simplify the computation, the median year exchange rate has been used to compute the shares of Royal Netherlands Embassy, City District Government, Quetta and the ultimate beneficiaries.

Table 3. Recall of household share paid for the sewer (December 2007)

Rupees	*Frequency*	*%*
100 to 599	4	8
600 to 1,099	11	22
1,100 to 1,599	4	8
1,600 to 2,099	1	2
Paid, but can't remember the amount	27	54
No response	3	6
Total	50	100

Table 4. Financial highlights

Components	*Amount (PRs million)*	*%*	
Netherlands programme costs[1] @ Rs23.5/NLG	76.6		61.0
Technical adviser	13.3	10.6	
Fund manager	18.8	15.0	
Implementing partners (IPs)	33.1	26.3	
Direct assistance (subsidy) to lane organizations (transfer funds)	11.4	9.1	
Investments by beneficiaries	23.0		18.3
Investment by city government (on street pavements)[2]	26.0		20.7
Grand total	125.6		100.0

[1]Excludes payment to external monitor, WASTE Consult
[2]Excludes other investments by city government related to the programme

Most of the external support went into software costs

An important point to note is that most of the external support went into software costs. These included technical advisory services, such as the training of staff of the IPs, fund management, social mobilization by the IPs, supervision of procurement and construction by the LOs, and monitoring and evaluation of the programme. In fact, direct assistance to the communities amounted to only 9 per cent of the total investment by all parties (and 15 per cent of that by the Royal Netherlands Government).

Outcomes

The direct results of the project have been impressive. Over six years, 49 kilometres of lane sewers were laid in 315 streets located in 42 low-income wards and informal settlements across Quetta. This has helped create a more clean and healthy environment. A total of 5,273 households directly benefited from the project with an external input of around $1.4 m.

The project directly benefited 5,273 households

The average household size in urban Quetta is 8.3 people (Population Census Organization, 1998b) as a result of joint and extended families. It is around 10.5 people (various surveys, 1998–2007) in the city's KAs. QKAEMP records show that 54,593 people or around 8 per cent of the 1998 population of Quetta (or an estimated 16 per cent of that residing in KAs) benefited from its interventions.

If Quetta Water Supply and Environmental Improvement Programme (QWSEIP), the current implementer, succeeds in meeting its targets, almost all of the population in the informal settlements of Quetta could be covered by basic sanitary services. City government has paved many of the streets, and this is an additional benefit. Cost effectiveness and institutional synergy are other key elements in the success.

Access and usage of toilets by and within households

A post-project survey was conducted during 12 to 18 December 2007. The survey team visited 50 random households in 25 lanes, where sewers had been installed under QKAEMP (given the objectives of the survey, a target level of error in the estimates of +/-7.5 per cent was set, and sample size fixed accordingly). Staff associated with QKAEMP and others based in Quetta conducted the surveys. In addition, local government officials were interviewed and concerned staffs of partner NGOs were asked to recall and reflect on their experiences.

Almost all the inspected latrines were in use and clean

Three respondents said they had toilets from before the project, but 45 stated that their latrine had indeed been installed under the scheme (Table 5). Most agreed to show the team their latrine. Almost all the inspected latrines were in use, and 47 were found to be 'clean', (as opposed to 'filthy' or 'choked').

Table 5. Pour-flush latrine installed

	Frequency	*%*
Yes	45	90
No	3	6
No response	2	4
Total	50	100

Hygiene practice by and within households

A post-project evaluation survey conducted in May 2004 found that nearly half of mothers in the intervention areas said their children washed hands with soap after using the toilet. This was significantly higher than the situation in the comparison lanes. But claims do not necessarily reflect the actual level of practice and could be biased by training exposure.

The project did not achieve its target of getting 85 per cent of people to regularly wash their hands

The responses made it obvious that QKAEMP, at its closure, did not achieve its target of getting 85 per cent of people to regularly wash their hands at appropriate times.

It is rather surprising that 90 per cent of respondents in December 2007 claimed they regularly washed their hands with soap. This could be validated by probing respondents, observing their behaviour and looking at whether soap is actually available. The result may be attributed to subsequent health and hygiene promotion efforts of government, NGOs or soap companies in the private sector.

Open defecation-free status and its validation

The lanes were generally open-defecation free

Researchers studied 100 feet strips in the 25 randomly selected intervention lanes and found faeces there in only two instances. This is a most encouraging result. However, the survey was undertaken in December (2007), when open defecation is least likely in the bitter winter of Quetta.

User-reported benefits

Men and women lane managers and committee members reported nine major benefits of lane sanitation at the annual stakeholders conventions:

(1) sewage disposal;

(2) less smelly environment;

(3) improved pedestrian access especially in winter when the frozen slush becomes slippery;

(4) vehicle and goods access;

(5) easier to move sick people;

(6) creation of a space for social events;

(7) building foundations protected from seepage;

(8) protection of groundwater;

(9) increase in property and rental values.

Beyond toilets: Sustaining paving, sewers and solid waste management

An assessment of the current state of sanitary infrastructure installed under the project shows that 22 sewers (88 per cent) are running some 4–10 years after they were installed.

The ongoing lane paving programme indicates both the effective voice of organized citizens and local government responsiveness

At project closure in December 2003, local government had paved 140 streets, that is about 44 per cent of the 315 lanes, after sewers were laid there. Interestingly 88 per cent of the sampled lanes are now paved. The ongoing lane paving programme can be seen as an indication of both the effective voice of organized citizens and the sustained level of local government responsiveness.

On the other hand, it is a matter of concern that in a quarter or more of the streets, seven (28 per cent) manhole covers and six (24 per cent) grit interceptors are broken. Community rehabilitation has occurred (Box 1) but unless there is systematic maintenance and replacement, sewers could become blocked, especially in view of the poor solid waste management.

It is also disappointing to note that dustbins are in place and in use in only four of the sampled streets. So, it is not surprising that litter was found on 60 per cent of the streets.

Evidence of institutional and financial sustainability

The maintenance of the infrastructure is undertaken on a needs basis only

Institutional sustainability is the most challenging feature for any local development programme. In the case of QKAEMP too, 48 local women's lane organizations have become dormant and 24 bank accounts established for the project have closed. The maintenance of the installed infrastructure is undertaken on a needs basis according to one respondent or not at all in 13 instances (52 per cent of cases).

Box 1. Cases of community ownership

At STN Colony on Sabzal Road, residents have replaced half the manholes and *tee-hodis* that had broken or been displaced, and repaired the sewerage system with their own funds.

At Syed Talib Street in Marriabad and at Haji Bangul Street in Kharotabad, the residents are most happy with the process and results of QKAEMP and would like to see more community-based programmes in other sectors.

Evidence of impact (hygiene, health and gender)

In May 2004, PIEDAR conducted a survey of 158 mothers who had at least one child less than two years of age. Around 80 per cent of the mothers were from households in the QKAEMP intervention areas and were selected randomly, with strata for the IPs. A further 20 per cent of the mothers were from randomly selected households in control areas.

Mothers in the intervention areas were interviewed in their homes, as were the mothers in the unimproved KAs. Both sets of mothers took part in a common knowledge, attitude and practice survey. The survey was started and completed in May 2004 when temperatures were high and diarrhoea was widespread.

Incidence of diarrhoea was lower in the intervention areas

The difference was clear. Nearly 59 per cent of children in the control areas had suffered from diarrhoea in the previous three months compared with 32 per cent of children in the intervention areas. The difference is statistically significant with a chi-square value of 7.34, significant at the < 0.01 level.

Results showed that hand washing with soap reduced incidences of diarrhoea. When mothers regularly washed their hands with soap, diarrhoea dropped to 23 per cent (chi-square 11.01; significant <0.004), and to 24 per cent, when children regularly washed their hands with soap (chi-square 6.7; sig. <0.01).

The involvement of women in the sanitation implementation was a notable feature

The involvement of women of the KAs of Quetta in the process of sanitation implementation was a notable feature of QKAEMP. The WLO formed under QKAEMP provided a new social space for women to negotiate and make the programme more responsive to their needs.

Many WLOs played an effective role in raising savings and motivating the men of the community to supervise the laying of lane sewers and installation of pour-flush latrines. Women were also actively involved in the solid waste management (SWM) component of QKAEMP. They proudly spoke about their achievements at the annual stakeholder conventions.

Some of this success may be attributed to a gender-sensitive project design. Women worked at all levels in QKAEMP – as team leaders, supervisors, trainers, finance managers, accountants, and as extension workers. The project proactively sought women-led NGOs as IPs and women team leaders. It reserved posts for female social organizers and ensured their mobility. The selected entry point, sensitization and training in health and personal hygiene, enhanced the role of women and increased the acceptability of the intervention among men. It is regrettable that the overall situation of women's rights has not improved in Quetta. Rather, it regressed during the tenure of coalition provincial government that completed its term of office in December 2007.

The overall situation of women's rights has not improved in Quetta

Current scale and possibilities for increasing scale

Balochistan Water and Sanitation Authority (B-WASA) has replicated key elements of QKAEMP procedures in the design of Quetta Water Supply and Environmental Improvement Programme (QWSEIP). This aims to reach five times as many low-income households. PIEDAR has also demonstrated the approach to communities and NGOs in Punjab and North West Frontier Province.

A pool of trained engineers, social organizers, masons and skilled labourers is available in the Quetta city for providing assistance in self-help sanitation. Partner IPs retained around 30 per cent of staff after the project, but most have joined other organizations on better salaries.

Factors of success

A two-year period of preparation (1995–97) was crucial to the success of QKAEMP. Workshops in Quetta and visits to Orangi Pilot Project, Karachi, and other model sanitation interventions across the country enabled the transfer of basic knowledge and skills to city-based organizations. Their inputs into its design created a sense of ownership that was crucial.

The progressive transfer of responsibilities to IPs and communities was a key factor

The collaborative-competitive framework that was set up for QKAEMP's implementation enabled the six city-based IPs to learn from each other's good practice. It established benchmarks for the measurement of quality, unit costs and progress. None of the IPs had a monopoly on the project, but collectively, they could speak with a strong voice to the technical adviser, fund manager and Royal Netherlands Embassy. The progressive transfer of responsibilities to IPs and communities was another key factor for the success of the programme.

Under QKAEMP, residents of low-income wards and squatter settlements were mobilized to raise half the amount required for a common lane sewer. Communities made internal arrangements to subsidize the poorest households, who provided labour in place of monetary contributions. When the savings target was accomplished, the project directly transferred the balance to a community held and operated account. The process and results were intensively monitored by national and international assessors. This transparency is a key factor in the success of QKAEMP.

Main constraints faced

Before the World Summit on Sustainable Development in 2002, it was novel to have public, private and NGO sector partnerships. QKAEMP

was a partnership between local government, a chartered accountancy consulting firm, a number of NGOs and civil society in Quetta.

In the 1990s, it was an innovation for low-cost sanitation programmes anywhere in Pakistan to establish women lane organizations. These WLOs played a key role in raising savings for sanitation. In some places, they even negotiated deferred payment schedules for food items with the local grocery vendors in order for the financially weakest members to make their contribution to the sanitation programme. Owing to these and other novel features, the six-year experience of QKAEMP has provided many lessons to all stakeholders. Some of the most important lessons that have implications for policy and programme design are as follows:

The women's lane organizations played a key role in raising savings for sanitation

- QKAEMP was based on an input budgeting system. It focused attention on the quality of staff and other resources assembled by the IPs to undertake the activities to implement the programme. This was felt to be an intrusion by the IPs in their internal affairs. It also diverted attention from the real issues of quality in social mobilization and physical implementation. The programme should have been based on an output budgeting system. A focus on measurable social and physical achievements would have resulted in more cooperative partnerships. It is possible that an OBS may have facilitated supervisory arrangements that were lighter and more cost-effective.

The programme should have been based on an output budgeting system

- Direct assistance to target communities provides tangible results in a defined time frame. This leads many development support agencies to repeat a common error – a one-sided focus on project objectives. It means that not enough attention is given to the requirements of the implementing organizations and to their operational context. The risk of project results not being sustained is high (Kiggundu, 1989). QKAEMP largely avoided this common error, yet it could not entirely escape the dynamics of a physical programme. For some stakeholders, the achievements, in terms of running feet of sewers, became the leading indicator. The primary focus should have been on institutional development and organizational strengthening. This focuses more on building the capacities of involved organizations, on the relations between organizations, and the embedding of specific project activities within these organizations (Uphoff, 1986).

For some, the achievements in terms of running feet of sewers, became the leading indicator

- Intermediate organizations would have been the primary focus of an institutional development approach but this does not mean the target community would be distanced from the programme (Carroll, 1992). Rather this approach promotes a chain that builds replication capacities down to the grassroots. In the case

of QKAEMP, this implies that the IPs, for example, would have been required to share with local CBOs, not just skills for solid waste management, but also techniques for social mobilization and computer-based modelling for the design of lane sewers.

- The Government of Balochistan took two years (1997 to 1999) before allowing the local government in Quetta to participate in the programme. The Planning and Development Department claimed it had misplaced the 1995 to 1996 files relating to its own role and its permission to the Urban Basic Services Cell of City District Government Quetta to participate in the programme. With government, it is important to confirm every agreement whenever a key official moves on.

The project was an experiment with a public–private and civil society partnership for a pro-poor intervention. Among the various types of public–private partnership (PPP), it fell in the category of management contract, where the whole service is contracted out to a company and a NGO on fixed prices.

There are other types of PPP, such as concession, joint venture and build-operate-transfer, where the profits and risks are shared in different, perhaps more equitable and/or efficiency-enhancing ways (Lovei and Gentry, 2002; Weizsacker et al., 2006). If the needs of the 40 million plus poor people in Pakistan are to be addressed effectively and efficiently, these other models should be tested and their successes disseminated.

Challenges that could not be addressed

Heterogeneity of population and interests. Three sewers (out of the sample of 25 surveyed) are blocked: one by undigested sewage (discussed earlier) and two by solid waste dumped into manholes with broken covers. There is a problem of downstream disposal in a fourth sewer. These indicate challenges that could not be properly addressed. Masjid e Kausar Lane on Kirrani Road is ethnically very diverse. Kawish Welfare Society in Essa Nagri is a multi-religious community. The lack of proper negotiations with the downstream landowner is hindering disposal from the sewer at Lashari Street in Karimabad. More effective negotiations and consensus building among neighbours is needed in situations of such diversity of interests and values.

More effective negotiations among neighbours are needed in situations of such diversity of interests

Reliable water supply. QKAEMP avoided addressing the crucial issue of water supply in Quetta except at a pilot scale in a minority community. The provision of water was felt to be a human right and a responsibility that government could not delegate. The success with the pilot project in the slum at Shantinagar indicates that a more

assertive approach could have yielded positive results for more low-income communities in Quetta.

Total sanitation. Research by various agencies including the Water Supply and Sanitation Collaborative Council based in Geneva, International Science Federation for Home Hygiene and London School of Hygiene and Tropical Medicine, has established the relative benefits of investments in safe water, improved sanitation and better home hygiene practices. The results were not available to QKAEMP proponents in 1997. It is now known that hygienic cleaning at home can most effectively reduce the incidence of infectious diseases.

Future projects should promote the total sanitation and home hygiene concepts. They should focus on mothers and children to best communicate behaviour change in sanitation and hygiene.

At present the sewage is disposed of in dry ravines

Safe end-disposal of sewage. At present the sewage is disposed of in dry ravines and drains at a considerable distance from human settlement. Quetta has a dry climate with strong sunlight, which mitigates the health and environmental impacts of sewage discharged away from populated areas. However, long-term, safe and environmentally sustainable end-disposal is an objective and a challenge.

Challenges for scaling up the approach

The project failed to convince the City District Government that it was time to reduce the direct subsidy

Policy issues. Despite repeated advocacy over its closing years, QKAEMP failed to convince the leadership at City District Government that substantial improvements had been achieved and that it was the appropriate time to reduce and perhaps even eliminate the direct subsidy. The City District *Nazim* (mayor), in fact, continued to argue that the subsidy should be increased from 50 to 75 per cent. The massive federally funded QWSEIP has strengthened his line of argument.

Section 6b of the National Sanitation Policy (NSP) that was approved by the Federal Cabinet in 2006 stipulates a component sharing model for urban areas. It envisages communities installing 'internal' sanitation infrastructure, while government is responsible for 'external' or trunk infrastructure. QWSEIP being a government project that was formulated before the launch of NSP in Balochistan is exempt from applying it fully. QWSEIP remains a cost-sharing programme (interview with Ms Naheed Khan, Project Coordinator, PMU, Planning and Development Department, Government of Balochistan, 23 April 2008). Until clarity and consistency is achieved in federal and provincial policies on sanitation, the sector will continue to need improvement in Pakistan. The issues of procedural clarity, system-wide responsibility and of equity are particularly important to resolve, as noted below.

Issues of procedural clarity, system-wide responsibility and equity are important to resolve

Procedural complexity. QWSEIP has adopted the institutional arrangements of QKAEMP, with NESPAK (a large national engineering

firm) as technical adviser, Office of Accountant General as fund manager; Urban Basic Services Cell and five city-based NGOs as IPs.

QWSEIP has also adopted its social mobilization procedures, forming LOs and WLOs, and its technology for shallow small bore sewers. However, subsidy has been increased to 80 per cent of the cost of the lane sewer. IPs are reimbursed the costs of accomplished sanitation infrastructure. A deduction of up to 25 per cent is made for sub-standard works.

Progress has been slow so far because of the cumbersome procedure of drawing money from the AG Office (interview with Mr Ghulam Qadir Lehri, Coordinator, Urban Basic Services Cell, City District Government Quetta, 26 December 2007).

Socio-economic equity. QWSEIP also installs deep, large diameter sewers along the main roads of the city under departmental and contractor modes without any direct charge for the residents along the main road. Many people living in the side lanes perceive the requirement for any contributions for condominium sewers as inequitable and unfair (interview with Mr Safi Wasiuddin, CEO, Society for Environmental Awareness, an IP of QKAEMP and QWSEIP, 27 December 2007).

Conclusion

It is often stated that subsidies are a dead-end, not a shortcut to development. We have deconstructed this generalization into infrastructure and institutional dimensions in the case of basic sanitation in the informal settlements of Quetta city. Under QKAEMP, a matching grant for community investment in a common asset has led to health, convenience and other social and economic benefits that have lasted for a decade. The sanitary infrastructure continues to function as designed. Local institutional arrangements have largely settled into a reactive mode, but so far these seem adequate for system maintenance. The idea of public sector–community partnerships for urban sanitation has been accepted and mainstreamed in Quetta. It could be a key innovation for sustainable development of the city. The case study provides another example of the risk of programme transformation from targeted, moderate, performance-responsive subsidy to high levels of subsidy. That, however, we argue, is a matter of conscious political choice.

The idea of public sector–community partnerships for urban sanitation has been mainstreamed in Quetta

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