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Sanitation Programmes Revisited

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Acronyms and Abbreviations

Ghana

CDR	Committee for the Defence of the Revolution
Cedi	Unit of Ghanian currency: 1999 – 1US Dollar = 2538 Cedi, 1994 – 1US Dollar = 950 Cedi, 1990 – 1US Dollar = 360 Cedi
DFID	Department for International Development
EHO	Environmental Health Officer
HEU	Health Education Unit
KMA	Kumasi Metropolitan Assembly
KSP	Kumasi Sanitation Project
KUST	Kumasi University for Science and Technology
KVIP	Kumasi Ventilated Improved Pit Latrine
RWSG-WA	Regional Water and Sanitation Group – West Africa
SSP	Strategic Sanitation Plan
TNC	Training Network Centre
TREND	Training Research and Networking for Development Group
UNDP	United Nations Development Programme
VIP	Ventilated Improved Pit Latrine
WC	Water Closet
WB	World Bank
WMD	Waste Management Department

Mozambique

CBO	Community Based Organization
CMU	Core Management Unit
DANIDA	Danish International Development Agency
DAS	Department of Water and Sanitation
DHA	Department of Environmental Hygiene
DNA	National Directorate of Water
ESA	External Support Agency
GAPVU	Office for Support to the Vulnerable Population
GOM	Government of Mozambique
GPNSBC	Office for the National Programme for Low Cost Sanitation
IMF	International Monetary Fund
INAS	National Institute of Social Work
INDER	National Institute of Rural Development
INPF	National Institute of Physical Planning
MT	Metical (Mozambique unit of currency)
MISAU	Ministry of Health
MPF	Ministry of Planning and Finance
NCP	Nucleus for Planning and Co-ordination
NCPP	Provincial Planning Co-ordination Nucleus
NGO	Non-Governmental Organization
PHAST	Participatory Hygiene and Sanitation Transformation
PLM	Projecto de Latrinas Melhoradas (Improved latrine project)
PNSBC	National Low Cost Sanitation Programme
PRONAR	National Rural Water Programme
PU	Production Units
SEAS	State Secretariat for Social Action
SAH	Schweizeriches Arbeiterhilfwerk
SPPF	Provincial Services of Physical Planning
UNICEF	United Nations Children's Fund
WTP	Willingness to Pay

Local terms

Bairro	Informal settlement
Casotas	Superstructure
Latrinas melhoradas	Improved latrines
Tchova	Handcart

Executive Summary

Background

This document reports findings from WELL Task 161 'Sanitation Programmes Revisited', which involved the study of two notable sanitation programmes (the Strategic Sanitation Plan, Kumasi, Ghana and the National Low Cost Sanitation Programme, Mozambique) with a view to identifying where and why they have failed or succeeded some years after implementation. This report aims to provide:

1. An historical analysis of each programme (investigating how, when and why the programmes developed in the way they did);
2. An understanding of critical issues common to each programme, including demand assessment, sanitation promotion, community participation, responsibility for service provision, finance and cost recovery and the health aspects of promotion;
3. A comparative analysis of the two programmes with a view to drawing out common and contrasting approaches and lessons learnt.

A mixture of quantitative and qualitative approaches was used in the completion of this task. These included a desk based literature review prior to in-country fieldwork, and fieldwork focusing on interviews with key informants and limited household visits, where possible.

Ghana

The Kumasi Strategic Sanitation Project (KSP) (January 1989 and March 1994) was funded by the United Nations Development Programme and in part by the Government of Ghana. It comprised the development of a Strategic Sanitation Plan (SSP) for Kumasi, including three types of pilot project that classified sanitation technology by housing type. The impetus for the project is reported to have come about in the late 1980s when the then chief executive of the KMA wrote an article in the Ghanaian Times about the deaths of conservancy workers (who manually empty toilets) in Kumasi. The resident UNDP representative in Accra was aware of the media coverage and became involved in discussions as to what action could be taken. Scoping studies were undertaken and it became obvious that the city needed to develop a sanitation strategy.

- The Kumasi Sanitation Project aimed to develop a strategic sanitation plan for the city. As part of that process, it aimed to design and develop pilot sanitation projects and to ensure follow up for these and future projects by preparing an investment programme. It also aimed to disseminate experiences through a network centre at the Kumasi University for Science and Technology (KUST). Its longer-term objectives were to strengthen local capacity to plan, design and implement urban sanitation and to promote formulation of sector programmes.

  The financing of the KSP came primarily from the UNDP ($700,000), DFID ($300,000), the IBRD ($40,000) and the Government of Ghana and the KMA (150 mill Cedis).

  Pilot projects were run alongside the development of the Strategic Sanitation Plan (SSP), which aimed to test the technical, institutional, financial and demand-related factors within the SSP. Three pilot areas were selected for Kumasi Ventilated Improved Pit home latrines (KVIPs), in the Central Business District public toilets were refurbished and new ones built, and in Asafo, a high-density tenement area, a simplified sewerage system was constructed.

- Contingent valuation surveys were undertaken on a large scale in the city as a way of **determining demand**. Demand was assessed in terms of willingness to pay (and not necessarily effective purchasing power), and households were not effectively given a choice of technology so that the specific disadvantages of KVIPs and advantages of

other sanitation technology types were not adequately explained. The underlying issue of housing policy in the city impacted on expressed levels of demand for sanitation, since housing was an important issue affecting whether people invest in sanitation improvement.

- **Sanitation promotion** activities began with identification of local leaders in the pilot areas (including chiefs and assemblymen). Discussions were held with these individuals and steering committees were then formed. Committee members were trained in house-to-house education techniques to enable them to promote the project and the advantages of KVIPs to people in their area.

  The overall mix for sanitation promotion was perceived to be biased towards technology promotion. To many interviewees who had worked on the KSP this approach was felt to be too technical and a more participatory approach with a stronger emphasis on health promotion and hygiene behaviour would have had a more beneficial effect on the subsequent use of latrines.

- **Incentives for participation** were part of the key lessons of the KSP. Staff at KMA felt that sanitation users did not have sufficient financial incentives to buy a KVIP. Interestingly, under the current Urban IV Programme, fifty per cent subsidies were offered as financial incentives to users. Potential KVIP buyers in pilot areas may have been encouraged to buy through the lenient treatment of loan defaulters.

- **Health education** was seen by many as a very necessary yet lacking component of the project. Health education personnel found that most people did not think it was important to wash their hands after going to the toilet if they were not about to eat. Furthermore, most people thought that children's faeces were not at all harmful to health. In the majority of cases in Ayigya and Moshie Zongo, latrines were not functioning properly because of over use. In cases where KVIPs were used by the right number of people and properly maintained, they worked well. Examples of this were found in South Suntreso where far fewer people used each KVIP.

- Three months after KVIP construction was completed, households became responsible for latrine maintenance. The Waste Management Department (WMD) of the KMA was established after the KSP and has managed the privatisation of many aspects of solid waste management; the WMD has responsibility for collecting waste and constructing new facilities. When KVIPs need emptying or require other maintenance work, owners have to inform the WMD and private contractors are engaged for this purpose. Those operating public toilets needed to have their own de-sludging trucks to empty latrines. The lack of KMA funds has meant that construction of new facilities was dependent on external project funding. The Environmental Health Department of the KMA retains its responsibility for cleaning streets and drains.

  Key lessons learnt have been the need for improved links between sanitation and health promotion and service provision and that private contractors, operating day to day in sanitation and solid waste management do not appear to be very accountable either to the WMD or the service users.

- With regard to **finance and cost recovery**, community steering committees were set up to oversee the collection of repayments. These comprised self-selected individuals and were intended to advise the KSP team on the eligibility of individuals for loans. A small payment to cover the costs of their time on such an activity was planned, but infrequently given.

  A twenty per cent down payment (in either cash or kind) was required for a KVIP. Monthly repayments were then made over the following two or three year period. The cost of paying for a latrine was prohibitive for many, although credit facilities have

widened access. Many people had problems with their monthly repayments. Indeed, ten years later, many loans have outstanding repayments. Estimates on the overall cost recovery rate range from between 50 to 70 per cent. Much time was spent trying to improve the system of repayment.

The difficulties in managing community funds experienced within the KSP have led to a very different arrangement under the Urban IV Programme. The KMA no longer directly handles money from households. Small-scale contractors, who build the latrines, collect all the money themselves. The KMA and the World Bank together provide a 50 per cent subsidy for each KVIP. Households pay the remaining fifty percent of the costs up front. This is preferably paid in kind (materials rather than in cash) to the small scale contractors.

- The Kumasi Metropolitan Assembly produced a Strategic Sanitation Plan (SSP) for the period from 1990 to the year 2000. This has now been reviewed and the current SSP is for 1996 to 2005. The four components of the KSP - schools education, public toilets, home latrines and simplified sewerage - were developed as investment packages. The home latrine component has been taken forward through the National Community Water and Sanitation Programme formed as part of World Bank activities in 1994 and later under the Urban IV Programme. The updated 1996 KSP was discussed in the preparation for Urban IV. It was estimated that 12,000 home latrines were needed. 1,700 are planned to be built under Urban IV. The ethos behind the Kumasi SSP is that needs and priorities will change over time and the SSP should be flexible and updated over time accordingly.

Mozambique

The National Programme for Low Cost Sanitation (PNSBC) has received acknowledgement both in Mozambique and internationally as a successful programme. Operating through a centralized management system, with well-established production units in all provinces in the country, the PNSBC has provided poor, peri-urban communities with access to low cost improved latrines.

The PNSBC is a national sanitation programme which has defined its overall development objectives as to contribute to improved living conditions and poverty alleviation by:

1. Promoting and implementing an expanded low cost sanitation programme in order to reduce the morbidity and mortality deriving from unhygienic living conditions;
2. Creating local employment opportunities and management capacities, with particular attention to the needs of vulnerable groups, by promoting the establishment of production and sales units.

The motivation for PNSBC was the urgent and continuing need to establish preventative public health measures to arrest high mortality and morbidity rates associated with diarrhoeal disease, the leading cause of infant and adult mortality in Mozambique. In peri-urban areas, the PNSBC uses the basic technology developed during the original pilot research project of 1979, namely unreinforced domed concrete slabs, typically of 1.5 metre diameter. This is widely referred to as the Mozambican improved latrine. In rural areas, small, square slabs (0.6 or 0.8m^2) are produced by individual builders to upgrade traditional latrines.

- **Sanitation promotion** was only formally introduced into the Programme in 1994, when a series of 'animators' were recruited and trained specifically for the task. Prior to that date, no formal, nor informal promotion activities had been developed. Instead, potential clients of PNSBC learnt about the Programme in an ad hoc manner, typically by passing a production unit in a bairro, or through word-of-mouth from other users. Sanitation animators now number 80 in total. The rationale behind introducing animators was that promotion activities would be more effective if animators were individuals who were familiar to the wider bairro community, who understood the particular problems, structure, ethnic background and cultural constraints that the community faced. The

principal activities of animators were divided into two streams (a) promoting the Programme itself (a marketing role) and (b) promoting health education at community level.

A mix of media were used in promotion. In parallel to the mass communication campaigns was a strategy to ensure adoption of local languages wherever possible, and the recognition of target audiences who were largely illiterate.

- For much of PNSBC's history, it has been a strongly production oriented and target driven Programme. In such a supply driven context, consultation with users regarding needs and demands was considered impractical. **Demand assessment** activities were limited to the initial phase of technology development, and to recent technological introductions by the Programme (the 1.2m slab and pour-flush design were a response to affordability and demand respectively, in particular the pour-flush design was a response to demand from coastal regions).

- **Community participation** is relatively poorly developed and typically limited to digging pits, constructing superstructures, organizing informal groups of users to arrange for bulk delivery of slabs and participation of women as animators, administrators and production workers in the Programme. There is little evidence to suggest strong CBO or pro-active user engagement in the Programme.

- PNSBC has for most of its history been a strongly supply driven Programme, with **responsibility for service provision** resting with government agencies (i.e., the Core Management Unit (CMU) and its regional structures), with support from donor agencies. In Mozambique the framework governing the institutional division of responsibilities in the sector is highly fragmented and one of the sector's most pressing needs is for adequate institutional co-ordination.

- PNSBC has traditionally received **funding** through three main sources: donors, central government, and user communities. Donor support has tended to focus on personnel (technical assistance), equipment, production costs (primarily procuring cement) and some O&M/recurrent costs; government funding has been to provide a direct subsidy for part of the production costs (excluding cement), a contribution to staffing and to a proportion of other costs; and users pay a percentage of production costs through the purchase of improved latrines. There is no credit facility available to users through the Programme, nor is there an established, formal mechanism for access to credit at community level. Anecdotal evidence suggests informal, frequently family based pooling of resources so that individual households can purchase improved latrines. Given the context in which users pay the cost of the latrine in full at the point of purchase, no mechanism for subsequent loan recovery has been needed, nor developed.

- **Incentives for participation** operate at many different levels. Users decide to invest in sanitation primarily for the socio-cultural benefits which they perceive latrines offer. Health related factors, although mentioned as a motivating factor, tend to be of secondary importance. Personnel employed by the Programme benefit from strong incentive structures, primarily through the acquisition of skills of marketable value, cash value of food rations (production workers) and lucrative terms and conditions (CMU staff). The participation of the private sector is still in its infancy, but shows signs of potential both for public sanitation provision and through the privatization of production units.

- Between 1996-1998 there were increasing donor concerns about the sustainability of the PNSBC. UNDP, as the principal donor agency, realized that their support needed to be withdrawn in order to bring about greater sustainability. In 1998, following protracted delays dating back to 1996, the PNSBC autonomous status was ended and the Programme was formally transferred to the National Directorate of Water. In January

1999, the Government of Mozambique and selected donor agencies began to develop the Low Cost Rural and Peri-Urban Sanitation Strategy, 1999-2003, which aims to achieve three major objectives: (i) decentralize operations to a series of sector partners, (ii) Government to withdraw from implementing role, shifting activity to the creation of an enabling environment, (iii) involve the private sector and NGOs in implementation. There are critical challenges ahead for PNSBC, particularly relating to its reintegration into governmental circles, securing of continued donor agency support and its relationship with the newly commissioned World Bank Strategic Sanitation Approach project.

Discussion

The scale and outputs of the two programmes differed by orders of magnitude. Under the KSP, which ran for five years, 256 latrine units were built for 185 homes in three pilot areas of Kumasi. The PNSBC, on the other hand, has produced over 230,000 improved latrines since the early 1980s, serving 38 per cent of the total urban population of Mozambique.

The key points to emerge from the discussion include:

- In terms of *how* and *when* both Programmes developed, external forces such as the introduction of stringent IMF conditions to Mozambique in 1988 led to significant shifts in Programme fortunes.
- Demand assessment techniques were a point of divergence between the Programmes. The KSP employed formal assessment methodologies (Contingent Valuation Method) while the PNSBC has conducted no formal user consultation exercise since an ad hoc survey in the early 1980s.
- Sanitation promotion was poorly developed (initially) in both Programmes, either emphasising technology in isolation from hygiene and health, or failing to be considered as an element of the Programme. When comparing the two, it is clear that the PNSBC has developed a more comprehensive and progressive sanitation promotion strategy.
- Incentives for participation were identified as being central to the process of designing, planning and managing sanitation in urban areas.
- Responsibilities for service provision were highly fragmented in both cases, which led to lack of co-ordination and a dilution of Programme effort. There is a need for measures to improve co-ordination and a commitment to engage in a meaningful dialogue between secondary stakeholders to bring about more effective Programme delivery.
- Experiences with finance and cost recovery indicate that the management inputs to loan repayment schemes may outweigh the actual amount of money collected. Subsidies continue to be a controversial issue for discussion. Better targeting to reduce perverse outcomes, and a judicious withdrawal (if required) are key recommendations.

1. Introduction

1.1 Background and purpose of work

During the 1980s, major efforts were launched by a number of agencies to increase coverage in urban sanitation. In both urban upgrading and water and sanitation projects, a variety of approaches and technologies were employed in an effort to find appropriate and affordable solutions to the problems of urban sanitation. Many of these projects were 'pilot' or 'demonstration' projects, which were intended to sow the seed of innovation: upon successful completion, it was hoped that others would take up and replicate the appropriate technique/approach.

Documentation of the success, failure, or lessons to be learned from these experiments is haphazard. Naturally, there is an inclination for those involved in the innovation (either through its implementation or its funding) to claim success for it. There is however, little comparative documentation of what worked and what did not on a programmatic basis, to determine whether or not the projects were in fact replicated, or creatively adapted, for expansion. By revisiting these sanitation programmes through this project, and identifying where and why they have failed or succeeded, much can be learnt.

This report focuses on two notable African sanitation programmes, the Strategic Sanitation Plan, Kumasi, Ghana and the National Low Cost Sanitation Programme, Mozambique. Each programme has adopted new approaches in the provision of sanitation to low income urban communities; each has overcome a range of constraints and difficulties to deliver these services. This report aims to provide:

- An historical analysis of each programme (investigating how, when and why the programmes developed in the way they did).
- An understanding of critical issues common to each programme, including demand assessment, sanitation promotion, community participation, responsibility for service provision, finance and cost recovery and the health aspects of promotion.
- A comparative analysis of the two programmes with a view to drawing out common and contrasting approaches and lessons learnt.

The report should be of broad value to those responsible for planning sanitation interventions in urban areas with particular relevance at practitioner and policy making levels.

1.2 Methodology

A range of methodological tools were employed in the completion of this task. These included:

- Desk based literature review prior to in-country fieldwork (including published and grey documentation);
- Fieldwork in-country focusing on (i) key informant interviews (using semi-structured interview checklists) and (ii) limited household visits, where possible.

Quality assurance was provided by Dr. Sandy Cairncross. Drafts of the sections on KSSP were reviewed by Mr. Ato Brown, UNDP-World Bank Regional Water and Sanitation Group - East Africa.

2. Kumasi Strategic Sanitation Project

This report presents the findings of fieldwork undertaken in Ghana in March 1999, focusing on the Kumasi Strategic Sanitation Project (KSP) (January 1989 and March 1994). The project was funded by the United Nations Development Programme and in part by the Government of Ghana. It comprised the development of a Strategic Sanitation Plan (SSP) for Kumasi. Alongside the plan's development, ran three types of pilot project that classified sanitation technology by housing type. The KSP also included one of the largest contingent valuation surveys of willingness to pay undertaken at the time in a developing country. This report attempts to identify some of the lessons learnt from the project, ten years after its inception. In doing so, elements are drawn from the ongoing World Bank Urban IV Programme that has furthered some components of the Strategic Sanitation Plan and also learnt from the lessons of the KSP. The report focuses in most detail on the home latrine component of the KSP. The report draws on publications and project reports as well as interviews in the field.

2.1 Background

The impetus for the project is reported to have come about in the late 1980s when the then chief executive of the KMA wrote an article in the Ghanaian Times about the deaths of conservancy workers (who manually empty toilets) in Kumasi (which averaged two a month). The resident UNDP representative in Accra was aware of the media coverage and became involved in discussions as to what action could be taken.

In response, eight VIPs latrines were built as demonstration models. The UNDP then consulted the World Bank seeking their support. Scoping studies were undertaken and it became obvious that the city needed to develop a sanitation strategy. At the time, many of the old existing public toilets were run down and not functioning. The few de-sludging trucks on the road were largely engaged in emptying septic tanks, so that waste from the existing bucket latrines and public toilets had to be transported manually, and was mostly disposed of in rivers.

The Training Network Centre (TNC) had been established at the Kumasi University of Science and Technology and under the Kumasi Sanitation Project (KSP) it carried out a study of conservancy workers and public toilets. At the time approximately forty per cent of the population of Kumasi were using public toilets. Conservancy workers, who emptied bucket latrines, were mainly from the North of Ghana and Liberia. They were found to be dying at young ages which was thought to be strongly related to their work. Many were laid off as part of structural adjustment and continued working privately.

World Bank staff visited Kumasi to meet conservancy workers. The impact of one visit on the Bank staff was reported to be strong, as one conservancy worker was found emptying a latrine with excrement all over his hands and up his arms.

Institutionally, effective responsibility for sanitation often fell in the gaps between three different departments of Kumasi Metropolitan Assembly (KMA). The Metropolitan Medical Officer from the Health Department was responsible for the labour force. The Mechanical Engineering Department was responsible mainly for the vehicles used in refuse, nightsoil and landfill management. The Metropolitan Engineer's Department was responsible for the construction of facilities for waste management including VIPs and rehabilitating public toilets.

Public toilets were placed under the management of Committees for the Defence of the Revolution (CDRs) after the KMA had ceased being able to maintain them sufficiently. The CDRs had introduced a user fee for the first time. The main sewerage system (for the hospital and barracks) had broken down. So despite 25 - 30 per cent of the city's development budget being spent on solid waste and excreta management, services were fragmented and inadequate.

2.2 Aims and design of the Kumasi Sanitation Project

The Kumasi Sanitation Project aimed to develop a strategic sanitation plan for the city. As part of that process, it aimed to design and develop pilot sanitation projects and to ensure follow up for these and future projects by preparing an investment programme. It also aimed to disseminate experiences through a network centre at the Kumasi University for Science and Technology (KUST). Its longer-term objectives were to strengthen local capacity to plan, design and implement urban sanitation and to promote formulation of sector programmes.

The project partners were the KMA as the implementing agency, the UNDP-WB Regional Water & Sanitation Group for West Africa (RWSG-WA) for technical assistance and the KUST as the partner institute. The Training Network Centre (TNC) had been formed as a UNDP International Training Centre and later left the KUST to form an independent organisation called TREND.

The KSP project team comprised a manager from the RWSG-WA, and the following staff from the KMA: a co-ordinator, an urban planner, a sanitation engineer, a health education specialist, an accountant and a community development specialist.

In preparation the following studies were undertaken:

- Technical studies - for appropriate technologies, for example soil type.
- Financial and institutional studies - to identify roles and responsibilities and also cost recovery assessment.
- A contingent valuation survey of willingness-to-pay for sanitation.
- Social relations of communities – exploring existing relationships between actors and institutions, opposition groups and local conflicts, interests and objectives of partners.

A classification of sanitation needs primarily along the lines of housing type was developed as follows (Asare-Bediako, 1992):

1. Tenement Housing surrounding the town centre. Most residences were 2 / 3 storeys. Most tenements comprised 20-30 rooms shared by 10-20 families (40-400 people). Population densities were between 300 and 600 people per square hectare. 25 per cent of the population lived in this area. The sanitation type proposed was a simplified sewerage system.

2. Indigenous Housing on the periphery of the city. Most houses were single storey houses with 5-10 rooms shared between 4-10 families (20-50 people). Population density was between 80 and 250 people per square hectare. 53 per cent of people lived in this area. This type had the lowest water consumption with few connections. Those without connections paid neighbours for their supply. The sanitation type proposed was the Kumasi Ventilated Improved Pit latrine (KVIP).

3. New Government Housing of rows of single storey bungalows. Most had either one or two households per residence. Population density was 50 people per square hectare. 16 per cent of people lived in this area. Most households were connected to water supply. The predominant type of sanitation was WCs connected to septic tanks.

4. High-Cost Detached Housing. These comprised single-household structures on large plots. Population density was 10-15 people per square hectare. 6 per cent of the population lived in this area. All households were connected to water. The predominant type of sanitation was WCs connected to septic tanks.

Studies undertaken at the beginning of the KSP estimated that 90 per cent of the human waste produced in Kumasi remained in the city (Agbemabiese, 1992). At the time 40 per cent of the population of Kumasi were thought to rely on public toilets, the majority of which were over 30

years old. The majority of these were aqua privies that were built after the Second World War. A further 25 per cent were bucket latrines, introduced by the Kumasi Public Health Board in the 1920's (Kuma, 1992). Only 13 per cent of public toilets in residential neighbourhoods had a tap. One quarter of the population is thought to have had WCs (connected to septic tanks most of which overflowed into drains) while a further twenty five per cent had bucket latrines (which were emptied twice a week privately) and the remainder used either pit latrines or the bush.

The financing of the KSP came primarily from the UNDP ($700,000), DFID ($300,000), the IBRD ($40,000) and the Government of Ghana and the KMA (150 million Cedis) (Saidi-Sharouze, 1994).

Box 1: Kumasi Ventilated Improved Pit latrines (KVIPs)

The KVIP design was developed by Albert Wright at the Kumasi UST in the 1970s. The ten-seater was developed in response to the high degree of dependence on public toilets in the city over recent decades. The one, two and three-seater KVIPs were later developed to meet the needs of on-plot sanitation. The KVIP is designed with alternating pits so that the contents of one pit are left to rest and decompose while the other(s) remain in use. The on-plot design has several advantages in that it suits single storey housing, it does not require water, it can accommodate any kind of anal cleansing materials and only requires minimal maintenance.

Under the KSP it was estimated that the cost of converting a bucket latrine to a KVIP was 60 per cent of the cost of a new KVIP. It was assumed that eight households would share one KVIP.

A historyline detailing the key developmental milestones for the KSP is presented below in figure 1:

Figure 1: Historyline for the KSP

	Year	
	1957	Independence from British rule Reliance on public toilets (mainly aqua privies) and home bucket latrine system. Between 1951 and 1974, several different sanitation plans developed for Kumasi but none implemented (because of lack of finance).
KVIP developed at Kumasi University of Science and Technology under research on low-cost sanitation systems	**1975**	
	1985	The Committee for the Defence of the Revolution took over responsibility for the management of public toilets from the Kumasi Metropolitan Assembly. User charges for public latrines introduced. The construction of one hundred public KVIP latrines is initiated by the then Kumasi City Council.
The Kumasi Metropolitan Assembly ceased responsibility for emptying bucket latrines, laying off more than 400 conservancy workers.	**1986**	
	1988	General status of sanitation in Kumasi very poor. Sewerage transport, treatment and disposal systems not functional. Ghana's Decentralisation Policy introduced.
UNDP - World Bank Regional Water and Sanitation Group for West Africa and the Government of Ghana initiated the Kumasi Strategic Sanitation Programme in January. Household survey to collect information about existing sanitation practices and willingness to pay for improved sanitation was carried out with 1 224 respondents. Three pilot areas selected for on-plot sanitation (Moshie Zongo, Ayigya and South Suntreso). The Kumasi Ventilated Improved Pit Latrine (KVIP) was the chosen technology to be piloted.	**1989**	
	1990	Work in pilot areas took place largely between (1989) / 1990 and 1992, sixty KVIPs were built in Moshie Zongo, 22 in Ayigya and 18 in South Suntreso
First version of the Kumasi Strategic Sanitation Plan completed as a flexible document to be later updated over time. Health Education Unit established (outside the Kumasi Strategic Sanitation Programme) with the support of the then British Overseas Development Administration	**1991**	
	1992	Waste Management Department of the Kumasi Metropolitan Assembly established under the Kumasi Strategic Sanitation Project to be responsible for the management of collection and disposal of both human and solid wastes in Kumasi.
Government of Ghana and the World Bank's Urban Development Strategy Review began. Review led to the planning of the Urban IV Programme in Ghana.	**1993**	
	1994	Kumasi Strategic Sanitation Programme ended in March. In total 256 units of KVIPs were built for 185 homes. Three public latrine sites in the Central Business District were built and the Franchise Management approach was introduced for public latrines. A simplified sewerage system was constructed in Asafo to serve a potential population of 20,000. Home latrine component of the Kumasi Strategic Sanitation

		Programme was taken forward under the National Community Water and Sanitation Programme.
Ghanaian cities adopt five-year plans. The Kumasi Strategic Sanitation Plan used in discussions with the World Bank to plan the Urban IV Programme	**1996**	
	1999	Aspects of the Kumasi Strategic Sanitation Plan, including the home latrine and schools education implemented under the World Bank Urban IV Programme.

2.3 The pilot projects

Pilot projects were run alongside the development of the Strategic Sanitation Plan (SSP). They aimed to test the technical, institutional, financial and demand-related factors within the SSP. Three pilot areas were selected for Kumasi Ventilated Improved Pit home latrines (KVIPs), Moshie Zongo, Ayigya and south Suntreso. By the end of the project, 160 KVIPs had been built in the three pilot areas.

In the Central Business District, public toilets were refurbished and also new ones built. In Asafo, a high-density tenement area, a simplified sewerage system was constructed. The advantages of the design were reduced water requirement, reduced length of pipework needed (as only short connections are needed), reduced excavation costs (as pipes are laid at shallow depths) and reduced material costs (as small diameter pipes are used).

In terms of the choice of home latrine pilot areas, Moshie Zongo and Ayigya were selected as two of the worst areas in the city in terms of sanitation coverage. South Suntreso is reported to have become a pilot area through the local assemblyman's political influence. South Suntreso is a middle income area. The majority of housing was built as retirement homes for government workers and the predominant sanitation type was bucket latrines requiring regular emptying. In the other two pilot areas, residents made use of existing public toilets, bucket latrines and open ground.

Many of the compound houses in Moshie Zongo and Ayigya were planned and built with one room designated for a latrine. These rooms are often rented out to maximise income for the landlord. Environmental Health Officers (EHOs) report occasionally fining landlords who do so (between 20,000 and 50,000 Cedis).

2.4 Demand assessment and orientation

A large-scale contingent valuation survey was undertaken in the city under the supervision of Dale Whittington, consultant to the World Bank. Staff involved included students and those on national service. The survey was undertaken at a household level and questions related to current satisfaction with existing services, knowledge of various types of technology, familiarity with technologies and willingness to pay for other types of technology. An engineering consultancy was used to make the final decisions regarding types of appropriate technology. When the piloting began households were again consulted about their interest in KVIPs.

The willingness-to-pay questionnaire was completed for 1224 randomly selected households in the city. Information was collected on demographic status, existing service coverage, willingness to pay and socio-economic status. The survey found that in total, households spend $75,000 per month on sanitation of which 70 per cent is on public toilets. Most of the people with access to private sanitation reported being satisfied with it. Public toilets were seen as the least satisfactory sanitation type. Bucket latrine users did not perceive problems with them. This may be because latrines were regularly emptied and there was little concern as to where the contents were put.

In terms of knowledge of improved technologies, 88 per cent of respondents were familiar with WCs, 33 per cent were familiar with KVIPs (probably through publicity via direct message and demonstration projects) and 12 per cent knew what a sewerage system was. At that time, less than 1 per cent of Kumasi's population owned a KVIP. When asked if they would pay the same

amount for a WC connected to a sewer or a KVIP, 45 per cent chose a KVIP and 54 per cent a WC.

The relative monthly usage costs per household for different types of sanitation were assessed as US$ 1.40 for public toilets, US$ 0.49 for bucket latrines and US$ 0.06 for private WCs (Agbemabiese, 1992). Lower income households (who have to rely on public toilets) therefore have to pay twenty three times more per month for sanitation usage. The average cost to a household of installing a KVIP increased over the project period. In 1989 it was 4,673 Cedis (approximately 13 US Dollars), in 1991 it was 5 372 Cedis (approximately 9 US Dollars) (Kuma, 1992).

It was estimated that with a subsidy of US$ 100, every household with a bucket latrine could afford a KVIP. For a subsidy of US$ 200, every household without a WC could afford a KVIP. With a subsidy of US$ 150, a KVIP was affordable to 65 per cent of households without a WC. Conventional sewerage was too expensive for most households in Kumasi (Agbemabiese, 1992).

Multi-variate analysis was undertaken with the willingness-to-pay data and associations were found between sanitation choices and the following:

- household income
- home ownership
- existing expenditure on sanitation
- existing satisfaction with sanitation
- access to private water connection in home
- residence in multi-storey building

Lessons

- The contingent valuation survey was household based. The nature of housing in the pilot studies areas meant however, that sanitation was provided at a higher level, that of the building. In retrospect, future studies might be more useful if undertaken at the level of the entire building / holding (which houses a number of individual households whose sanitation needs are in effect addressed together).
- Several commentators stressed the need to consider the underlying issues of housing policy in the city. Housing was, and still is, seen as an important issue affecting whether people invest in sanitation improvements. Despite the fact that uncertain land title did not appear to hinder progress of the pilot in Moshie Zongo (Kuma, 1992) there were concerns of gentrification because of landlords increasing rent. One commentator (Agbemabiese) suggested that subsidies for sanitation may not be needed if rent controls were introduced in the city.
- Demand was assessed in terms of willingness to pay (and not necessarily effective purchasing power). Furthermore, households did not effectively have a choice of technology and therefore the specific disadvantages of KVIPs and advantages of other sanitation technology types were not explained.

2.5 Sanitation promotion

Promotion activities began with identification of local leaders in the pilot areas. Chiefs, assemblymen and other influential individuals were identified. Discussions were held with these individuals and steering committees were then formed. In Moshie Zongo the committee of around ten people included a chief, a representative from the 31st December Women's Movement, a teacher and a woman's group representative. These groups were then trained in house-to-house education techniques to enable them to promote the project and the advantages of KVIPs to people in their area. They were also given the role of organising the collection of loan repayments for KVIP sales.

KVIPs have previously been promoted through design of the ten-seater KVIP public toilet. Promotion in the KSP initially focused on the choice of sanitation technology. KVIPs were promoted as being superior to existing forms of sanitation (mainly bucket and pit latrines). The team of people promoting the sanitation comprised community development workers, students and health promotion staff.

Mass community meetings were held to introduce the KSP and raise interest. In some areas, through the promotion of the KSP team, the chief became interested and had a KVIP built. A film was shown, 'Prescription for Health'. This was a health education film that showed among other things, a dirty environment, poor personal hygiene (emphasising a lack of hand washing), a man defecating in a stream, and a dirty cooker and kitchen. It then went on to show a more positive environment, with hand-washing, a home being cleaned, good food hygiene and the construction of more toilets to reduce open defecation. The film began some discussions about people's environmental concerns. Many people reported the amount of rubbish lying around as the greatest problem. After the public meeting, teams of KSP motivators went from house to house to try and interest people in buying a KVIP. In doing so the advantages of KVIPs over other types of sanitation were emphasised and used as the selling points. Women were especially targeted at this stage.

Between September 1989 and January 1992, 60 KVIPs were built in Moshie Zongo. Between October 1990 and January 1992, 22 KVIPs were built in Ayigya and 18 KVIPs were built in South Suntreso. Forty-five of the total 150 KVIPs built at that time were conversions from existing bucket latrines. By the end of the project, 160 KVIPs were built (Saidi-Sharouze, 1994). As a mixture of one, two and three seaters, these represented a total of 240 individual units (pits). It was estimated at the end of the project that these KVIPs served a total population of 4000 in the pilot areas (Mensah, 1992). KVIP sales were felt to be most successful in Moshie Zongo, perhaps as a result of the greater amount of time spent by the KSP team in the area.

The overall mix of promotion was therefore biased towards technology choice rather than health or hygiene promotion. According to one health promotion worker, these methods of promotion were too technical. He felt methods were not participatory enough and as a result he thought some local enthusiasm was lost. Furthermore, hygiene promotion did not form a significant part of the work. For instance, the promotion of hand-washing only arose at the end of the KSP at the final workshop. Participatory techniques were later introduced to provide a more consolidated approach to community management.

Another health promotion worker noted the need to include children in promotion activities. He said in theory they were a target group in the KSP but in practice they were not. He also raised the importance of an integrated approach, combining water and sanitation together in a programme. He felt that generally engineers planning sanitation programmes do not consider water for hand-washing, this being left instead to the hygiene promotion workers to come in and see what hand-washing is possible and / or practical.

A component of health education was later initiated through the Health Education Unit and the following messages were promoted:

- Wash hands with soap (stressing the need to hand-wash always after using the toilet regardless of whether food is about to be prepared or consumed).
- Wash off any urine on the surfaces of the latrine.
- Check the vent to see that it is not damaged (if it is, it needs mending or replacing).
- Put used papers in the latrine (do not store them in a basket).
- Do not put materials that will not decompose into the toilet.
- Children should use potties and these should be emptied immediately into the KVIP and the potty should be cleaned and left either upside-down or covered.
- Sweep and clean the toilet regularly.

Everyone was targeted, but with an emphasis on getting messages across to women (as the ones who clean the toilets).

At the time of the KSP (January 1989 to March 1994), promotion activities and construction of latrines in Moshie Zongo were reported to have had an impact on levels of hygiene and health awareness. Some people who did not have latrines who worked in the centre of Kumasi made use of public toilets in the centre before coming home at night. However, when the KSP ended in 1994, levels of awareness are believed by some to have diminished. For instance, when the Health Education Unit was formed under a separate initiative, staff worked in the pilot areas after the KSP finished. They were involved in health and hygiene promotion activities and mobilised for clean ups including lobbying for waste trucks to clean away the rubbish. In their work in the pilot areas, little or no increased awareness of hygiene and sanitation was reported to have been observed. The HEU went on to use participatory techniques and worked especially through schools. The HEU now operates as the National Health Learning Material Centre and offers courses for all health workers in different aspects of Health Education including water, waste management and food hygiene. This includes running training courses for EHOs, in an attempt to realign their role from law enforcers to health promoters.

In terms of the merits of sanitation promotion which focuses on a single choice of technology, several commentators, such as EHOs (who deal with the daily problems of latrines) and the small scale contractors (who build them and maintain them for a short period), have suggested that it may have been preferable to have given households a greater choice of sanitation technologies. In doing so households could have been informed about the pros and cons of different types of sanitation and chosen accordingly.

Lessons

- Overall the mix of promotion was perceived to be biased towards technology promotion. To many interviewees who had worked on the KSP this approach was felt to be too technical and a more participatory approach with a stronger emphasis on health promotion and hygiene behaviour would have had a more beneficial effect on the subsequent use of latrines.
- In terms of the marketing and sale of latrines in the pilot areas, the KSP was generally held as successful, and especially so in Moshie Zongo. A third of sales were conversions from existing bucket latrines.
- Under the World Bank Urban IV Programme Trend run two-week training courses for small-scale contractors (who build KVIPs) to train them in social marketing techniques. The selling points promoted are prestige; (chiefs have their own latrines and don't use public toilets), convenience (the time saved from not having to queue for public toilets), cleanliness (avoiding the need to wash after using a public latrine) and the cost benefits (asking people to assess how much income they would lose due to ill health associated with inadequate sanitation).

2.6 Incentives for participation

To some of the KMA staff involved in the KSP, incentives were part of the key lessons of the project. They felt that sanitation users did not have sufficient financial incentives to buy a KVIP. In contrast, under the Urban IV Programme, fifty per cent subsidies are offered as financial incentives to users. Potential KVIP buyers in pilot areas may have been encouraged to buy through the lenient treatment of loan defaulters.

It also appears that the proposed system of community management of loan repayments, through the local steering committees, broke down as the committee members themselves were not provided with adequate incentives to undertake what would probably prove a rather difficult role in their own neighbourhoods.

The small-scale contractors appeared to have adequate rewards to become involved initially in the KSP and subsequently to work also within the Urban IV Programme. It may be that they and other private contractors working in the sector require more effective regulation to ensure their

responsiveness to requests for routine maintenance work as well as the overall quality of their work.

The staff of the KMA appeared overall to have benefited from the experience of being a part of the KSP. The careers of several individuals have been promoted through the KSP and now Urban IV, and staff have moved between departments to enable their continued involvement in externally funded projects.

2.7 Health aspects of promotion

Previously in the pilot areas, households either used public, bucket, pit latrines or open ground. Children were reported to be encouraged to use the new latrines, however observation and discussions suggested that that was not always the case. Within compound houses in Moshie Zongo and Ayigya, many more people than anticipated use the KVIPs. This has led to all pits being used at one time, leaving none of them to rest as intended by the design. In other cases, households left one pit to rest for a while, until the level dropped to some degree then began using it again so that no one pit had long enough resting to decompose sufficiently. As a result private conservancy workers had to come and dig out the pits in their full but un-decomposed state. In doing so, many slabs get broken which causes problems of insects and water in the pits and in some cases pit contents later seeping out.

In Moshie Zongo, a ten-seater KVIP was built and was used by too many people causing all of the pits to become full within one year. According to health workers, open defecation was common in the area. People made use of the surrounding bush and the rubbish dump. For those who bought or rented a KVIP, this practice was reportedly stopped because they used their KVIP instead.

In theory the community steering committee should have run the public latrine, but in fact the local assemblyman ran it. Most households reportedly did not want children to use household KVIPs. In addition, children could not use the public latrine because they could not pay. Eventually the assemblyman intervened and children were allowed to use the KVIP public toilet for free. Many people queue each morning to use the public latrine.

In Ayigya there are four public toilets; two aqua privies, one bucket latrine and one KVIP. The bucket latrine is serviced by ex-KMA conservancy workers who now work privately. Children use an open area near the public toilets to defecate (this is said to be done so it is easier for the conservancy worker to clean it up). Today the KVIP public toilet is locked for most of the day. This is because the pits will become too full otherwise. It is open from 3.00 to 9.00 a.m. and 4.00 to 10.00 p.m. The charge for each type is 50 Cedis. The KVIP was locked but there was no odour and apparently it is kept clean. The aqua privy was in a poor state with flies and smell, having excrement and used paper lying around the hole. One assemblyman runs all four latrines.

The situation was different in South Suntreso where much lower numbers of people used KVIPs. In some cases they were shared by just one family. In contrast, in Ayigya and Moshie Zongo, KVIPs were shared by up to ten or more families. One KVIP visited in South Suntreso had been finally paid for one year ago. Until the final payment was made, the owner, a retired government officer, would not let anyone in his family (including himself) use the KVIP as he did not feel it was yet their property to use.

Our ad hoc survey of households who bought or used KVIPs provided information about problems:

- The most common complaints were about cockroaches, flies, maggots and odour.
- Some people were unhappy with the cost (45,000 Cedis) and time taken for contractors to come and de-sludge their KVIPs. In addition, they said that workers had to be provided with drinks and cigarettes when they arrived. Others noted the further cost of

having to replace broken slabs over the pit (as the mortar used between the slabs was usually too hard to break).
- Some tenants complained that they have problems with the KVIPs (such as pits remaining full and unusable for a long time, and cockroaches in the KVIP) and that landlords did not respond to their complaints.

Discussions with small-scale contractors (who build KVIPs) and EHOs provided further information about the problems with functioning and use of the KVIPs:

- KVIPs were not designed for the large numbers of occupants of some compound housing in Moshie Zongo and Ayigya. A one-seater KVIP was designed for 25 people, a two-seater for between 25 and 50 and a three-seater for 50 to 75 people respectively. However, it was reported that up to double those numbers were using KVIPs in some cases. This was partly explained by the number of visitors that households in both Ayigya and Moshie Zongo receive as part of their work in trading (with traders as well as family members travelling down from the north of Ghana). KVIPs were not left to rest when full. Instead, pits were left for a while until the level dropped and then they were used again. This way no pit was left long enough to decompose. Contractors had to de-sludge pits but this was often difficult as the contents were too hard at the bottom of the pit to remove easily. In these instances, workers had to empty the pits manually. Three and a half years after the KSP began, some pits were successfully emptied in Ayigya and Moshie Zongo and the contents used on the land. However, ten years after the KSP began, an estimated 60 per cent of KVIPs in Moshie Zongo are not working properly because of over use. Similarly in Ayigya about half of the KVIPs are not working well and have to be emptied by suction trucks.
- Some vent chimneys became blocked (believed to be due to construction problems) creating a greater problem of flies and odour.
- Other reported problems concerning what was put in the pits. When starting, users should put 3 or 4 buckets of water in the pit and then use the right kind of cleaner. According to one small scale contractor involved in the KSP, some people used the wrong type of cleaner and put other materials in the pit.

Discussions with environmental health assistants and health education workers provided further information about the use of latrines:

- The paper used for anal cleansing is left on the slabs or in a basket on the slabs (and only emptied when full). This creates problems of odour, and insects and maggots come up from the pit.
- Water used in anal cleansing is splashed around the slab creating a mess. Defecation is sometimes around the hole and not in it. Many health education personnel noted the need for greater education in Ayigya and Moshie Zongo.
- Latrines are not being cleaned regularly. Landlords sometimes try and organise this on a rota basis with tenants but this system often does not work.

Additional problems were reported with other types of sanitation:

- Some people reported having to remove shirts before using public toilets so as not to come out with the smell on their clothes. Others talked about having to wash themselves after using public toilets.
- Existing self-built pit latrines were often located very close to neighbouring houses and associated problems of smell and insects were reported.
- One form of sanitation for those without access to home latrines or public toilets was the use of plastic bags to defecate in. These are then disposed of on rubbish heaps or elsewhere.

The two pilot areas of Ayigya and Moshie Zongo are still some of the worst parts of the city for cholera according to staff at the HEU.

Lessons

- Health education was seen by many as a very necessary yet lacking component of the project. Health education personnel found that most people did not think it was important to wash their hands after going to the toilet if they were not about to eat. Furthermore, most people thought that children's faeces were not at all harmful to health.
- In the majority of cases in Ayigya and Moshie Zongo, latrines were not functioning properly because of over use. In cases where KVIPs were used by the right number of people and properly maintained they worked well. Examples of this were found in South Suntreso where far fewer people used each KVIP.

2.8 Responsibility for service provision

Three months after KVIP construction was complete, households were responsible for their maintenance. The Waste Management Department (WMD) of the KMA was set up after the KSP. It has managed the privatisation of many aspects of solid waste management. When KVIPs need emptying or require other maintenance work, owners have to inform the WMD and private contractors are sent out after some time. As mentioned above, in order to have their KVIPs emptied, households have to pay 40,000 Cedis in advance for contractors to come to the site. They also report having to provide extra incentives such as drinks and cigarettes to the workers to ensure the work is done.

When the Overseas Development Administration (now DFID) supported the setting up of the WMD, its staff included engineers and also health inspectors and community development officers. The WMD has responsibility for collecting waste and constructing new facilities. A large proportion of solid waste management has been privatised. Haulage trucks for example have been privatised. Albert Joseph was one of the first companies to be contracted. Those operating public toilets needed to have their own de-sludging trucks to empty latrines. The lack of KMA funds has meant that construction of new facilities had been dependent on external project funding. The Environmental Health Department of the KMA retains its responsibility for street cleaning and clearing drains.

Today, there appears to be a lack of coordination between promotion and provision. The HEU responds to invitations from community groups, churches, assemblymen and others to go to areas and mobilise interest in environmental clean ups. In doing this the HEU reports its concerns to the WMD but often with little reported effect. As one member of staff said, you can encourage people to keep their environment cleaner, but if they have no bins, or the bins are not emptied then promotion becomes very difficult.

Lessons

- Improved links are needed between sanitation and health promotion and service provision.
- Private contractors operating day to day in sanitation and solid waste management do not appear to be very accountable either to the WMD or the service users.

Figure 2 overleaf illustrates the model of sanitation management for the KSSP. The key element from this organizational chart is the central role of government institutions.

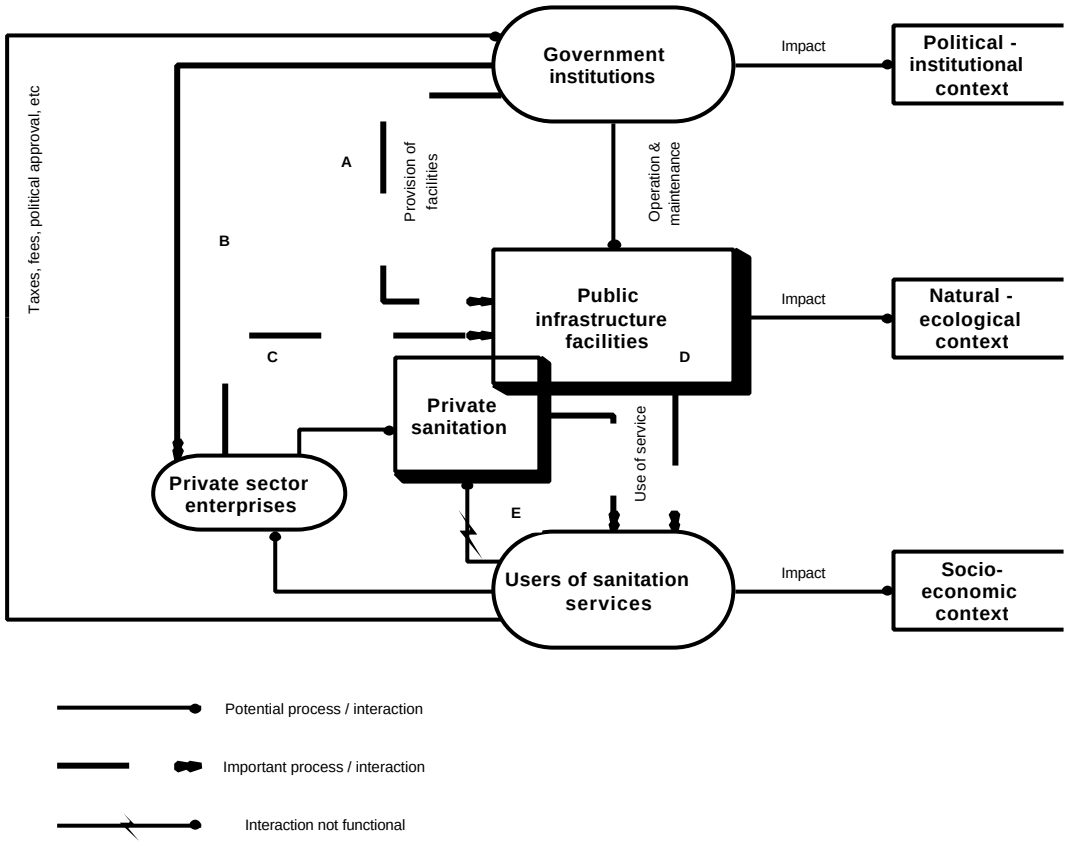
2.9 Finance and cost recovery

Community steering committees were set up to oversee the collection of repayments. These comprised self-selected individuals. Each group was intended to have at least two female members. These groups were intended to receive a small amount of money for their time but in the event often did not do so. The groups were also meant to advise the KSP team on the eligibility of individuals for loans.

A twenty per cent down payment (in either cash or kind) was required for a KVIP. Monthly repayments were then made over the following two or three year period. The cost of paying for a latrine is thought to have been prohibitive for many. However, the provision of credit is

thought to have helped. Furthermore, there were no prosecutions for defaulting during the KSP. This may have also encouraged demand but in retrospect has not helped to increase cost recovery.

Figure 2: Model of sanitation management, Kumasi Strategic Sanitation Project



A: Conventional mode of public sector infrastructure development and operation
B: Decentralised functions to local and private sector actors
C: New relationships were required to manage private enterprises
D: Franchises facilitate the co-ordination between public and private facilities
E: Mechanisms for increasing the participation of users were poorly developed

Source: Schubeler, P. (1996) Urban Sanitation Management in developing countries: Three conceptual tools. SKAT

For some tenants there was a problem of overcharging whereby landlords charged more from their tenants than they owed. An assistant on the project who worked on aspects of cost recovery noted the importance of speaking to the head of the household (usually male) about repayments. KSP staff then began to visit the pilot areas at the end of the working day when they had a greater chance of meeting the head of household.

Lessons

- The difficulties in managing community funds experienced within the KSP have led to a very different arrangement under the Urban IV Programme. The KMA no longer directly handles money from households. Small-scale contractors, who build the latrines, collect all the money themselves. The KMA and the World Bank together provide a 50 per cent subsidy for each KVIP. Households pay the remaining fifty percent of the costs up front. This is preferably paid in kind (materials rather than in cash) to the small-scale contractors.

The following box describes how Urban IV differs in other ways to the KSP.

Box 2. Arrangements under the World Bank Urban IV Programme

The Urban IV Programme is part of the World Bank's Country Assistance Strategy. This was a product of the Urban Development Strategy Review held by the Government of Ghana and the World Bank in 1993 and 1994. Urban IV covers Ghana's five main cities, Accra, Kumasi, Sekondi-Takoradi, Tema and Tamale. In Kumasi the programme takes the form of storm drainage, sanitation, privatisation of solid waste management and landfills, community infrastructure upgrading and institutional strengthening.

The programme aims to (Salifu, 1998):

- improve the productivity and living standards in Kumasi, and especially for low income groups, through improving sanitation, drainage and solid waste management.
- promote the establishment of better institutional and financial mechanisms and frameworks to support improvements to be sustained.
- build the capacity of different KMA departments to management sanitation.
- encourage private sector participation in solid waste and sanitation services.

Under the Urban IV Programme, management responsibility is comparatively more external than it was during KSP. Intermediate managers have been employed independently. In addition, more programme staff are from the World Bank including the co-ordinator, manager, treasurer and the secretary.

Under Urban IV, the KVIPs are exactly the same design without modification. Small-scale contractors market the latrines. Staff from the WMD visit areas, organise meetings and introduce the benefits of KVIPs over other types of latrines (including the lack of odour from two months onwards). Then the contractors are introduced to the residents of the area. Contractors have official badges (with the signature of the chief engineer). This ensures that no one else can claim to be the official contractor (as had happened before). Money goes directly from households to the small-scale contractors. It now takes much longer for the small-scale contractors to build. They have to make many visits to the households and often have arguments over the amount to be paid and the profits they make. The contractors therefore lose time and money (from travelling and talking to people) and both sides report losing some degree of interest in the process. Contracts with the KMA are now hoped to include some compensation for this lost time and travel expenses. Under the KSP about one third of latrines were conversions from bucket latrines to KVIPs. In Urban IV about half are conversions from bucket latrines.

Many more people want KVIPs but can not afford them. People ask the small-scale contractor for simple pit latrines instead, as they are cheaper.

The process is delayed further because of the slow release of funds. The Government cannot afford to provide its 10 per cent of costs and the World Bank will not release funds until this is secured. The programme is under the management of intermediaries. They each supervise 10 contracts and manage the bank accounts. In the KSP, 5 to 10 latrines could be built in two months, under Urban IV it can take up to three months to build just one because of the delays. Demand is felt to have been stronger in KSP because of the promotion work that had already been done before the small-scale contractor arrived. For the small-scale contractor work is therefore much slower.

Urban IV does not operate in the old KSP pilot areas. According to an assistant at the KMA Engineering Department this is because of sensitivity about the differences in funding between the two projects.

Progress on the role and state of public toilets in the city has been varied over the last decade. The following box provides a brief overview.

Box 3. Public toilets in Kumasi

When in the 1980s the management of Kumasi's public toilets was placed in the hands of the Committees for the Defence of the Revolution (CDRs), the user charges provided an important source of revenue to these neighbourhood institutions. With the advent to Ghana of multiparty democracy, the CDRs became a party political organisation, and awareness grew that they had no legal right to manage the public toilets. They did not build them nor own them. Under the KSP when the task of management was transferred to private contractors, the CDRs were compensated with between 10 and 20 per cent of the private contractors' tax surcharge which was paid to the KMA. This system of franchising worked well in its first year and was extended to rest of city. This arrangement worked well for several years. Then, as assemblymen came near to the end of their terms, many set up companies and took over these franchises.

Subsequently, as the next set of assemblymen came in they forcibly took over the facilities in many cases. This drove away the genuine contractors and the original assemblymen. Legal action was then taken and the ruling went in favour of the contractors. Facilities were then meant to be handed back to the contractors. However, many of the contracts were running out and the assembly passed a resolution not to renew any contracts.

In September 1998, the chief executive of the KMA announced that all public toilets should be managed by the WMD. In December 1998, a resolution was passed that all latrines should be returned to the assemblymen (who should then pay a 40 per cent surtax to the WMD). Subin, the Sub-Metropolitan area which includes the Central Business District, had 12 facilities and was in a different situation. Subin appealed to the Regional Minister and had the facilities passed back to the Sub-metro to run. Facilities in other areas of the city are still being run by assemblymen.

2.10 Progress of the Strategic Sanitation Plan (SSP)

The Kumasi Metropolitan Assembly produced a Strategic Sanitation Plan (SSP) for the period of 1990 to the year 2000. This has now been reviewed and the current SSP is for 1996 to 2005 (Salifu,1998) The SSP that was developed for Kumasi has been used as a blue-print in subsequent sanitation planning in Kumasi after the KSP finished. The four components of the KSP of schools education, public toilets, home latrines and simplified sewerage were developed as investment packages. The home latrine component has been taken forward through the National Community Water and Sanitation Programme formed as part of World Bank activities in 1994 and later under the Urban IV Programme. The updated 1996 KSP was discussed in the preparation for Urban IV. It was estimated that 12,000 home latrines were needed. 1 700 are planned to be built under Urban IV, or 14 per cent of the total requirement. The ethos behind the Kumasi SSP is that needs and priorities will change over time, and the SSP should be flexible and updated over time accordingly. Key issues built into the SSP are those of identifying effective and proven technology, recognising resource constraints and working with users' willingness and ability to pay.

In 1996 Ghanaian cities adopted five-year plans. Within these the KSP was modified to fit in with a wider, more integrated planning approach. Unfortunately it is reported that most of these plans are not being implemented. The approach of more integrated planning is thought to be more in line with the direction of the World Bank, especially with its preference for community upgrading, taking a more comprehensive approach to improvements in low income settlements.

2.11 Overall lessons

- Sanitation promotion solely along the lines of technology choice does not appear to be sufficient to ensure entirely beneficial use of sanitation (and therefore the potential for improving health).
- Aspects of sanitation promotion and provision need to be more integrated. The nature of incremental institutional development and bursts of activity and finance associated with individual projects have not helped to develop a coherent, integrated sector.
- Community financial management needs to be discussed and developed with the community and rewards need to be provided along with effective rules and referees.
- Technology choice and replication should be a more consultative process. Many households may have chosen differently had a choice been provided. Understanding households' needs would hopefully have led to a more suitable choice of sanitation, for instance, for large compound housing. Similarly the ten-seater KVIP has been replicated throughout the city in many situations (and especially in schools) without consideration of the actual needs of the users. This has led in many cases to either under or over use.
- The lack of consultation in the simplified sewerage system within the KSP meant only a 60 per cent coverage rate could be achieved. The infrastructure was built before consulting households on who would want to connect.

- Despite such problems, the KSP has generally been viewed positively as a planning approach. It did achieve success in terms of rapid environmental improvement such as that reported in Moshie Zongo. Furthermore, the wealth of studies undertaken was perceived as very useful for more broad ranging planning in the city.

3. Mozambique Low Cost Sanitation Programme

The National Programme for Low Cost Sanitation (PNSBC) has received acknowledgement both in Mozambique and internationally as a successful programme. Operating through a centralized management system, with well-established production units in all provinces in the country, the PNSBC has given poor, peri-urban communities access to low-cost improved latrines ('latrinas melhoradas'). The history and development of the low cost sanitation programme in Mozambique illustrates the process of problem identification, analysis, and action followed by review leading to the initiation of a new project cycle.

3.1 Background

Objectives

The PNSBC is a national sanitation programme which has defined its overall development objectives as to contribute to improved living conditions and poverty alleviation by:

- Promoting and implementing an expanded low cost sanitation programme in order to reduce the morbidity and mortality deriving from unhygienic living conditions;
- Creating local employment opportunities and management capacities, with particular attention to the needs of vulnerable groups, by promoting the establishment of production and sales units.

Within the broad historyline for the Programme, a series of phases have been led by donor funded projects. Each of these projects endorsed the general development objectives, and focused on specific objectives and activities appropriate at the time. For example, the current strategy document governing the development of PNSBC between 1999-2003 lays emphasis on decentralization, privatization and the withdrawal of government institutions from latrine production.

Conceptual impetus

The motivation for PNSBC was the urgent and continuing need to establish preventative public health measures to arrest high mortality and morbidity rates associated with diarrhoeal disease, the leading cause of infant and adult mortality in Mozambique. For example, according to UNDP and UNICEF statistics (1997; 1998) the infant mortality rate was 134 per 1000 live births, with the under-five infant mortality rate at 199 per 1000 live births, both significantly higher than the Sub-Saharan averages of 97 and 174 per 1000 live births respectively.

Epidemiological data reinforces the need for this conceptual impetus, especially in relation to high rates of faecal-oral transmitted disease (DNA, 1998). In 1997, the two reportable diseases leading to most deaths were diarrhoea and cholera. Almost 75 per cent of those dying from diarrhoeal infections were children under five. During the first six months of 1998, diarrhoea was the sixth most common case of death for patients taken to hospital.

Compounding the public health problems are those associated with rapid urbanization. Linvat and Matsinhe (1998) report that the peri-urban population in Mozambique accounts for 86 per cent of the total urban population. This proportion is set to increase, as although the general population growth rate is 2.9 per cent per annum, in peri-urban settlements the rate is 4.0 per cent per annum. As a result, priority provision of improved sanitary facilities has traditionally focused on the peri-urban environments, where overcrowding and the lack of basic infrastructure posed the most significant health hazards.

Technology choice

In peri-urban areas, the PNSBC uses the basic technology developed during the original pilot research project of 1979, namely unreinforced domed concrete slabs, typically of 1.5 metre diameter. This is widely referred to as the Mozambican improved latrine. The slab has a tight fitting concrete lid which controls the movement of disease vectors and reduces odour problems. Construction techniques are simple, construction materials are readily available, and the technology uses a minimum of cement (0.75 bag of cement for one slab, while an additional

2.25 bags are used for blocks and lining of a 'complete' latrine). Three basic latrine types are in production: S1 - a simple slab of 1.5m diameter: S2 - slab and blocks to line pits in unstable soil conditions; S3 - slab and blocks but pit lining is partly raised above ground level, suitable for areas of high groundwater levels (see Annex 3 for diagrams). More recently, the range of technical options has increased to include a 1.2m diameter slab, and a pour-flush option.

Slabs are produced using a simple construction procedure by trained workers in an open air setting or yard. Latrine pits are typically dug by the user. Pit linings, required when soils are unstable, consist of thin (7 inch thick) cement blocks of solid or fenestrate design that, excluding the two uppermost rows, are laid without mortaring.

As with any typical pit latrine, excreta decomposes within the pit and liquid material percolates through the porous pit walls and bottom. When pits are filled to their capacity, a new pit will be dug within the household plot and the slab transferred to its new location. There is no developed practice (nor pressing need given the typical plot size) of pit emptying.

Householders are responsible for building superstructures ('casotas') for the latrines. Natural materials, such as reeds, wood, and adobe are most commonly used, especially by poorer households, whereas permanent materials (cement blocks, corrugated iron sheeting) are preferred by those who can afford them. Depending on design, size and materials the costs for the superstructure can vary considerably, frequently costing more than the latrine itself.

In rural areas, small, square slabs (0.6 or 0.8m^2) or SanPlats are produced by individual builders to upgrade traditional latrines.

Operating structure
The PNSBC's operating structure is defined by a Core Management Unit (CMU) based in Maputo with field extensions in the provinces (PLMs). Locating the CMU in the capital offered the advantage of allowing the Programme to access the limited pool of qualified management and technical personnel found in Mozambique. The poor transport infrastructure and the necessity to reach peri-urban communities throughout Mozambique led to a wide geographic distribution of production units in cities and district towns across the country's provinces.

The implementation strategy for PNSBC is focused on the establishment of a relatively large number of production units in peri-urban settlements for the construction of low cost, technically simple and easy to maintain improved pit latrines, while simultaneously promoting the use of better hygiene and sanitation practices.

Impact
The impacts produced by the Programme have been well documented. Linvat and Matsinhe (1998) provide an excellent synthesis on this issue:

- Between 1985-1998, the Programme sold and installed 230,646 improved latrines, benefiting an estimated 1,383,876 users. By 1997, PNSBC operated through 38 production units, active in all provincial capitals and in nine of the large District towns. Average latrine slab production capacity had grown to roughly 25,000 per annum;
- The average coverage of these improved latrines is estimated at 38 per cent of the peri-urban households in the major cities (see Table 1), although there is considerable variation depending on location;
- Significant proportions of users are amongst the poorest income population, and many are female headed households. Silva (1997), reporting a study based on Maputo and Nampula, indicates that 65 per cent of the families headed by women are of GAPVU eligible status;
- The Programme has helped to strengthen capacity in the field of low cost sanitation provision. Approximately 260 workers (roughly 20 per cent of which are women) are employed by the Programme, and personnel assume a wide range of skilled positions. Many of these skills are marketable and of value in the employment marketplace outside

the Programme, if required. Of the total staff complement, a large proportion (73 per cent) are based in the provinces outside Maputo, which helps to diffuse skills and expertise throughout Mozambique;

- Other stakeholders to benefit from the Programme include: (i) Office for Support to the Vulnerable Population (GAPVU) employed individuals ('permanentes') who have responsibility for identifying those eligible for improved latrines, (ii) skilled masons trained by the Programme who have since contracted their services privately both in rural and peri-urban settlements, (iii) actors' groups that perform as part of the sanitation programme, and (iv) Provincial Services of Physical Planning (SPPF) officials who, with their intimate knowledge of PNSBC, are likely to benefit from the privatization of production units.

Table 1: Coverage of improved latrines, Mozambique (% peri-urban population), 1998

City	Coverage (% population)
Pemba	60
Chimoio	59
Maputo	55
Xai-Xai	48
Inhambane	47
Quelimane	30
Tete	26
Lichinga	24
Nampula	19
Beira	17
Nacala	14
Average	**38**

Source: GOM/UNDP (1998) Towards a Rural and Peri-urban Sanitation Strategy, 1999-2003: Final Report

3.2 Brief programme history

(Refer to Figure 1: Historyline for PNSBC for a more detailed overview of the historical development of the Programme).

Prior to **Independence** from Portugal in 1975, typical sanitation provision in peri-urban areas of Mozambique's cities relied on either a bucket system of excreta collection or traditional, unimproved latrines. Following Independence in **1976**, the newly established government focused on environmental sanitation and public health as key development priorities, initiating a national mobilization campaign to motivate families to construct their own improved latrines. This campaign quickly led to coverage in some parts of the country as high as 43 per cent. However, construction relied on traditional methods, and these latrines proved susceptible to collapse and even became hazardous to health.

Meanwhile the government abolished the forced labour system on which the colonial administration had relied to empty the bucket latrines, particularly in Maputo. The capital city's sanitation problems became acute.

In **1979** the Ministry of Public Works and Housing and the Ministry of Health instituted a pilot research project designed to develop a suitable technology that would be applicable throughout most of the country, affordable to the majority of peri-urban households while meeting minimum technical specifications. This pilot project led to the development of the unreinforced domed concrete slab.

Initially the researchers attempted to introduce several designs of latrine built in other countries and a number of demonstration models were produced. However, the cost of these was far

beyond the reach of most peri-urban families, so a new approach was tried. Visits to many existing peri-urban latrines showed that:

- Most households could dig a pit, typically 1.1 metres in diameter
- Most were satisfied with a privacy fence and no roof
- Their greatest problem was covering the pit

Hence arose the idea of a large round prefabricated slab. A dozen or so households asked if they would pay US $20 for one responded enthusiastically.

By 1981 the 1.5 m diameter domed slab design with a production system suitable for small local workshops had been developed, and slabs were being test-marketed in Maxaquene, a peri-urban area of Maputo. Care was taken at this stage not to promote them energetically, as the test-marketing aimed to assess demand under easily replicable conditions. Promotion involving expatriate officials of two national ministries would hardly be replicable.

After a period of test-marketing, a questionnaire survey of some 100 households without latrines was carried out in the area to identify the constraints to demand. This confirmed that practically every household was interested in the slabs at the (unsubsidised) price at which they were being sold. Some households did not know what the slabs were for, others had only limited cash, and others were waiting for their old latrine to fill up before purchasing a slab for the new one.

In 1982 the Maputo Municipal Council adopted the Maxaquene model and began to replicate it in other peri-urban areas of the city. The Maxaquene workshop remained as a training centre.

In **1985** the government recognised the need to formalize the dissemination of the improved technology to all parts of the country, thereby transforming the pilot project into the national programme for low cost sanitation, or PNSBC. This was located institutionally within the National Institute of Physical Planning (INPF), but maintained strong links to the Environmental Hygiene Department at the Ministry of Health and the National Directorate of Water (DNA).

Since 1985, the PNSBC had gained an international reputation in low cost sanitation provision to peri-urban communities. A series of UNDP-World Bank supported projects (MOZ/78/004; MOZ/81/031; MOZ/86/012; MOZ/91/014; MOZ/95/005) helped to further consolidate and develop PNSBC activities. By **1993**, an estimated 115,594 improved latrines had been constructed since the Programme's inception, benefiting an estimated 693,000 users.

By **1997**, the PNSBC had established 38 production units nationally, was active in all the provincial capitals and in nine of the largest District towns. Production capacity had grown to 25,000 slabs per year, and average coverage was estimated at 38 per cent of peri-urban communities in major cities. In **1998**, the PNSBC autonomous status was ended and the Programme was formally transferred to DNA.

In January **1999**, the GOM and donor agencies began to develop the Low Cost Rural and Peri-Urban Sanitation Strategy, 1999-2003, which aims to achieve three major objectives: (i) decentralize operations to a series of partners, (ii) government to withdraw from implementing role, shifting activity to creation of an enabling environment, (iii) involve the private sector and NGOs in implementation

Figure 3: Historyline for PNSBC

	Year	
	1975	Independence from Portuguese rule Reliance on bucket latrine system or traditional latrines in peri-urban areas
Ministry of Health launches national campaign of environmental sanitation. Hundreds of thousands of latrines built by households unaided. Construction relied on traditional methods, many latrines susceptible to collapse, were difficult to clean and were hazardous to health	**1976**	
	1979	Difficulties with programme led to pilot project for development of a technology and strategy for implementation of peri-urban sanitation programme. GOM implementing, with support from UNDP/HABITAT, and IDRC Led to development of unreinforced domed latrine slab technology
UNDP Project MOZ/81/031 started	**1981**	
	1984	Beira PLM opened
GOM formalized the dissemination of the technology to all parts of Mozambique by transforming the project into a national programme: National Low Cost Sanitation Programme (PNSBC). Institutionally located at INPF (Institute of Physical Planning) Success of the programme attracted a growing number of donors. Initial focus on promoting the adoption of improved latrines in peri-urban areas Nacala ; Pemba PLMs opened	**1985**	
	1986	UNDP Project MOZ/86/012 started
Quelimane PLM opened	**1987**	
	1988	Economic Rehabilitation Programme introduced by IMF; serious currency devaluations; dramatic increase in price of cement Nampula PLM opened
Cholera epidemic Expansion of activities to rural areas - via PRONAR (National Rural Water Programme) Xai-Xai ; Inhambane PLM opened	**1989**	
	1990	GOM introduced two fiscal measures to counter slump in latrine sales. Subsidizing real cost of latrine slab and waiving the 10 percent sales tax. Reduced slab price to $4.5 from $22
Recognised that Ministry of Health lacked the capacity for Programme execution Tete ; Lichinga PLMs opened	**1991**	
	1992	Cholera epidemic Rome Peace Accord, end of civil war UNDP Project MOZ/91/14 started: Ministry of Health's role limited to hygiene and health education. INPF designated to lead the Programme (formal responsibility). Responsibility quickly shifted to INDER First health education workshop organized

		Section for Basic Services (SSB) established within DAS within DNA in preparation for transfer of PNSBC from INDER to MOPH GOM subsidies increased
Evaluation of PRONAR rural sanitation programme - PRONAR not considered appropriate agency for implementation. PNSBC selected as implementing agency.	**1993**	
	1994	Sanitation animators began work in three cities (Maputo, Chimoio and Nampula)
Transfer of resources and responsibilities from PRONAR to PNSBC re: rural sanitation programme UNDP Project MOZ/95/005 started Introduction of PHAST participatory techniques Government subsidies reduced	**1996**	
	1997	PNSBC had established 38 production units; active in all provincial capitals, and nine of the largest District towns Production capacity of 25,000 latrines per annum Production capacity in this year adversely affected by flooding in many parts of Mozambique
December 1998 PNSBC formally transferred to DNA	**1998**	
	1999	New strategy for GPNSBC in place. Emphasis on decentralization; facilitating role; greater integration of private sector and NGOs

Figure 4 charts the growth of latrine sales under the Programme since 1980, and as such indicates many of the significant fluctuations in PNSBC fortunes. Three key points from Figure 4 require further explanation:

- **1984 - significant increase in latrine sales**: introduction of the first regional PLM in Beira, formalization of the PNSBC within government departments, attraction of a growing number of donors to the programme;
- **1988 - downturn in latrine sales**: a result of the IMF's Economic Rehabilitation Programme which led to serious currency devaluation and subsequent increases in price of core goods, such as cement. Between 1988-1990, there had been a drop in sales of over 4,500 latrines. At this point, the GOM introduced two measures to counter the slump in latrine sales, most notably subsidizing the real cost of slab construction and waiving sales tax. Slab costs dropped by 80 per cent to US$4.5;
- **1992 - increase in latrine sales:** the dramatic increases between 1992-1993 and 1994-1995 are attributed to a second increase in subsidy levels by the GOM (1992) and the further increase in PLM's coupled to the introduction of sanitation animators in three cities.

3.3 Sanitation promotion

Sanitation promotion was only formally introduced into the Programme in 1994, when a series of 'animators' were recruited and trained specifically for the task. Prior to that date, no formal, nor informal promotion activities had been developed. Instead, potential clients of PNSBC learnt about the Programme in an ad hoc manner, typically by passing a production unit in a neighbourhood, or through word-of-mouth from other users. The main weakness with this approach was that awareness was strongly location-specific, and localized to those immediate households surrounding production units; those living some distance from the site of the production unit or in settlements without units were effectively isolated from the Programme.

Sanitation animators were recruited from the communities in which PNSBC had a specific work programme, and currently number 80 in total. The rationale underpinning this approach was that promotion activities would be more effective if animators were individuals who were familiar to the wider neighbourhood community, who understood the particular problems, structure, ethnic background and cultural constraints that the community faced. The trust and confidence that communities had in the animators were key aspects in raising the effectiveness of promotional activities. The principal activities of animators was divided into two streams (a) promoting the Programme itself (a marketing role) and (b) promoting health education at community level.

The main health and hygiene messages promoted in the peri-urban context focused on three strands, (a) water collection and treatment, (b) rubbish disposal, and (c) operation, maintenance and use of the latrine. Handwashing was integrated throughout the promotional campaign. Particular hygiene behaviour related messages tended to vary according to the bairro in question, as the animators undertook a problem identification procedure using participatory methodologies before beginning the campaign in each district. This identified particular sanitation and health education problems, which would require the adaptation and individual orientation of promotional messages.

In addition to the deployment of sanitation animators, complementary activities designed to promote sanitation were developed, and included:

- Design, printing and distribution of promotional posters in Portuguese and four local languages;
- Production and broadcast of radio programmes in Chimoio, Maputo, Quelimane, Lichinga and Nampula;
- Employment of street theatre by an actors group, delivered in local languages (see box 4);
- Music, dance, puppet and traditional song shows;
- Door-to-door household visits - integrated with preventive health campaigns in some cities;
- School age children's drawing competitions, including 1400 children in Maputo, Beira and three other provincial cities;
- Educational sessions in churches.

Underlying the mass communication campaigns was a strategy to ensure adoption of local languages wherever possible, and the recognition of target audiences who were largely illiterate. Although sanitation animators had a continual presence in the communities to which they were attached, the Programme attempted to target promotional efforts on communities where either the acceptance of improved latrines had proven unsatisfactory or where PLM's had recently been established.

Box 4 Theatre performances, Mozambique

PNSBC employs a dedicated group of actors to visit target neighbourhoods and perform plays on the theme of hygiene promotion, behaviour and education. Indirectly, these theatre performances help to enhance awareness of the Programme and its activities in the peri-urban settlements.

Using minimal equipment and simple stage settings, the actors entertain audiences for between 1-2 hours. Scheduled primarily at the weekends to attract a larger proportion of adult males, the arrival of the theatre troupe is heralded by an impromptu invitation through mobile megaphones and typically attracts hundreds of spectators, mainly but not exclusively children and women.

Shows will typically depict scenes from daily life, addressing issues such as excreta disposal, garbage disposal, handwashing, causes of diarrhoeal diseases and the need to visit health clinics when sick.

The actors' troupe is paid approximately 400,000 - 600,000 MT per performance (equivalent to the real cost of two 'complete' latrines in Maputo).

In 1997 the work of peri-urban sanitation animators was evaluated. The findings indicated that the community had become more aware and involved in health education, and that there had been an increase in latrine coverage in various cities under PNSBC, which could be attributable to the work of the animators. As an indicator of the success of the work of the animators, the GOM has requested their assistance in a community-based education programme to mitigate the incidence of cholera outbreaks. The animators are also currently working with the Ministry of Health, Ministry of Environment, Ministry of Education and city municipalities to develop a training strategy for each department.

The rural sanitation programme began in 1996, and consolidated efforts in those locations where PRONAR had previously been operating (Tete, Cabo Delgado). The roles of rural animators are significantly different from their peri-urban counterparts, the former having full responsibility for the management of their project, recruiting and training activists in addition to casting latrine components. Given the informal economy in many rural provinces, the Programme in these areas works largely on a non-monetary, bartering basis. Message positioning and methods of promotion are distinct between rural and urban contexts. In rural areas, social relations tend to be more interconnected, with each household in a village knowing each other. Additionally, there is normally an established village power structure. Both these points have implications for the methodology employed in sanitation promotion (the former focusing on the need for personalized, participatory means, the latter requiring endorsement from the existing power structure). By contrast, in peri-urban settlements, a wider and more varied mix of methods is employed (see above); including participatory tools (i.e., PHAST), drama, theatre, meetings, and household visits.

Lessons

- Passive sanitation promotion led to strongly location-specific awareness which failed to reach out to the wider peri-urban community
- Animators were individuals known to local communities, who understood local cultural norms and constraints faced by the target groups in question
- A wide variety of promotion pathways were employed, ranging from mass media to indigenous media
- As promotion activities developed, the Programme directed efforts to communities where latrine acceptance had proven unsatisfactory or where production units had been recently established

3.4 Demand assessment and orientation

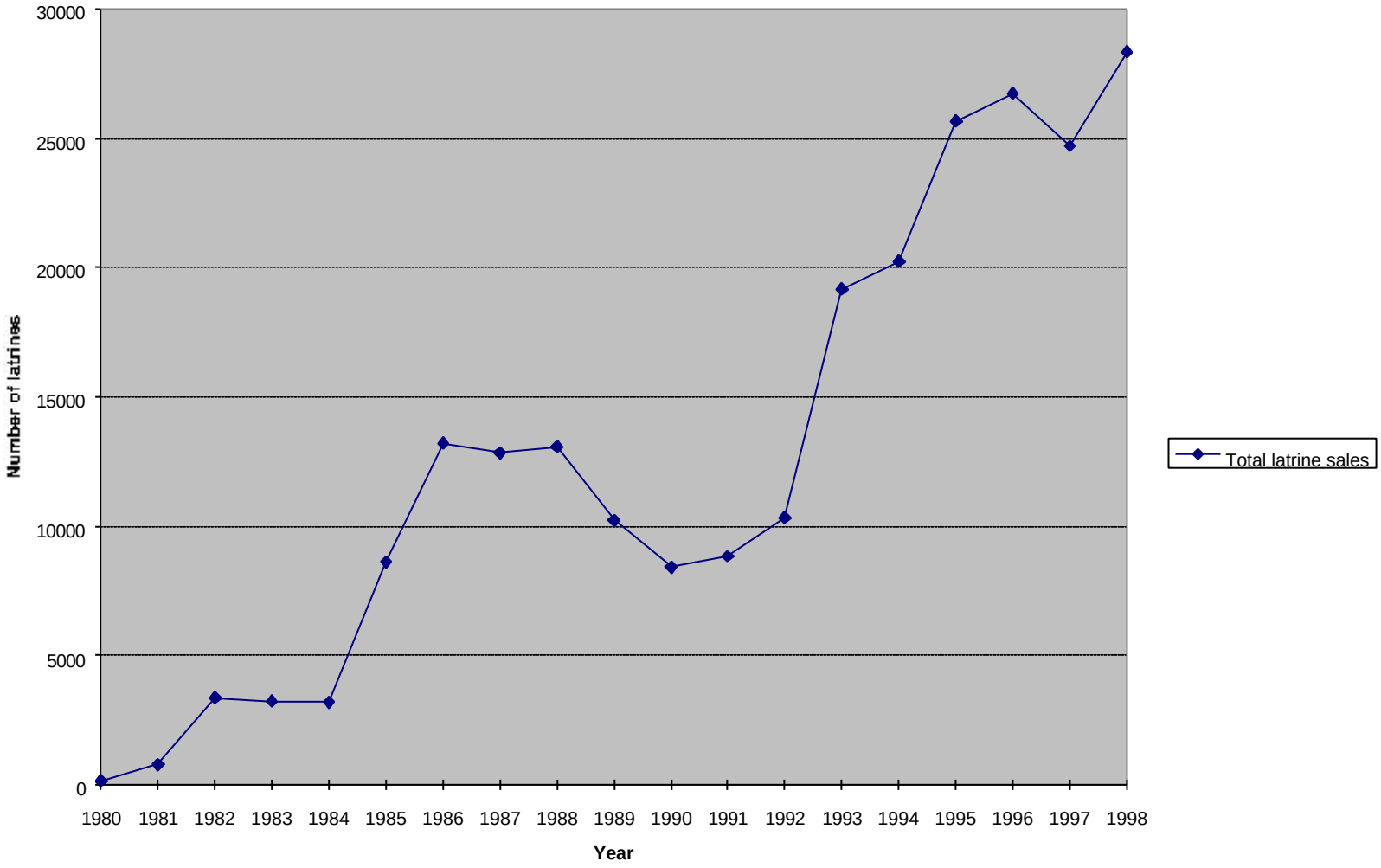
Although PNSBC has a clear social development objective (improvements to quality of life for poor peri-urban households and creating potential income generating opportunities through production units) for much of PNSBC's history, it has been a strongly production-oriented and target-driven programme. In such a supply driven context, consultation with users regarding needs and demands was considered impractical. Demand assessment activities were limited to the very beginnings, and to recent technological introductions by the Programme (the 1.2m slab and pour-flush design were a response to affordability and demand respectively, in particular the pour-flush design was a response to demand from coastal regions).

Instead the project documents for the Programme identify and define its users as vulnerable groups found in the Programme's target locations. Subject to eligibility criteria, the distribution of free latrines is arranged by relevant GOM departments via a mechanism devised by GAPVU. These criteria were reviewed in 1996 to define multiple groups, such as the elderly, handicapped, malnourished pregnant women, mothers with malnourished infants, and single parent, female headed households with children. A division was also established between those individuals who can, and who are incapable of work. The impetus for revision was to ensure

that within the confines of Mozambique's informal economy the criteria remain relevant, thereby leading to more equitable distribution of latrines to the most vulnerable sections of society.

The (assumed) needs of women were addressed indirectly in two ways: (i) by recognizing that women were the single most important user group for the Programme, (ii) by recognizing that the Programme should proactively promote equal employment opportunities for women in the production units as well as in associated health promotion campaigns.

Figure 4. Total annual latrine sales for PNSBC, 1980-1998



More recent attempts to assess community needs have come with the reorganization of GAPVU into the National Institute for Social Work which has a mandate to assess needs in an integrated fashion (i.e., including nutrition, housing, sanitation, etc.)

It should be noted that there is some divergence between the donor agencies' perspective on demand assessment and that of the GOM. The former advocate a strongly demand-driven approach to the provision of water and sanitation services, viewing users as 'clients', whereas PRONAR's and to some extent PNSBC representatives argue that the 'beneficiaries' of the Programme do not yet have the capacity to pay in full for services provided, thereby advocating a more supply-driven strategy.

Lessons

- Although it was strongly supply driven as a Programme, such methods were appropriate in the context of Mozambique's transition from war to peace and from emergency provision to longer term development
- Demand may have been present in the communities, but remained latent or unexpressed

3.5 Community participation

In keeping with the supply driven strategy which has characterized the PNSBC's approach to sanitation provision, user / community participation is relatively poorly developed. Where it is identifiable, participation typically takes one of several forms:

- Users will dig their own latrine pit, construct their own superstructures or assist neighbours with construction of specific elements of their latrine. Where users dig pits, this can lead to reductions in slab prices;
- When distances between production units and plots are too far to accommodate transport of the slab by a handcart ('tchova'), informal groups of users will often arrange to have latrines delivered in bulk to a convenient point for secondary distribution;
- Women participate through their primary responsibility as Programme animators, administrators and to some extent production workers. They also comprise the largest adult audience group attending sanitation promotion events.

There is little evidence to suggest strong CBO or pro-active user engagement in the Programme, a fact which can be attributed to several factors:

- The strong ethnic mix of populations found in the barrios in which the Programme operates;
- Mozambique's recent history, one which has been characterised by civil war and emergency measures, has not fostered a culture whereby users can demand services. Rather, the context is one in which households have become familiar with government or ESAs acting to supply basic services in a top-down manner;
- Escalating costs of materials and means of transport brought about by rapid depreciation of the national currency

3.6 Responsibility for service provision

PNSBC has for most of its history been a strongly supply driven Programme, with responsibility for service provision resting with government agencies (i.e., the CMU and its regional structures) with support from donor agencies. In recent years, the private sector has become more involved in provision of private and public facilities, a point which is described in more detail later in this section.

At its inception, PNSBC was institutionally located within the National Institute of Physical Planning (INPF), which formed part of the Ministry of Planning and Finance (MPF). However, PNSBC retained close links to the Department of Environmental Hygiene and

Environment in the Ministry of Health (MISAU) and the Department of Water and Sanitation (DAS).

In early 1992, PNSBC was transferred to the newly created Institute for Rural Development (INDER), but otherwise retained existing institutional links. The division of activities and responsibilities between these institutional players was (theoretically) reasonably well defined: MISAU was to provide health education to accompany latrine production, DAS was responsible for water supply and sanitation on the national level in urban centres, and PNSBC was responsible for peri-urban and rural sanitation.

At the provincial level, PNSBC was represented by the Provincial Physical Planning Units (SPPF's) under INDER management. SPPF's were responsible for supervising the production units and creating the links to the Provincial Planning and Financial Directorate (PPFD) through which the local funds for Programme implementation could be disbursed. Locating PNSBC within INDER was a response to practical reasons - to ensure the continuity of services under what was essentially an emergency situation. At the time, INDER was viewed as an appropriate institutional host given the effective network of Provincial Physical Planning Units (SPPFs). Responsibilities were split between the agencies such that MPF retained the fiscal capacity of transferring funds to the Programme and INDER was charged with implementation and policy.

The following table (adapted from Hammar and Junior, 1994 in consultation with PNSBC staff) summarizes the relevant responsibilities of the key actors in the sector and indicates the framework within which GPNSBC operates. In particular, it highlights the difficulties involved in co-ordinating the various inputs to the Programme from a series of relevant actors.

By the mid-1990s it had become clear that institutional reorganization for the sector was a priority. Several key problems had emerged:

- A water sector policy vacuum had been created through a history of poor interagency coordination and sector programming;
- In practice, there was no consensus within the water and sanitation sector regarding institutional division of responsibilities, and no clearly defined responsibility for leadership and co-ordination within the sector;
- The informal nature of the peri-urban environment placed low cost sanitation provision outside the formal urban service provision framework. It then became difficult to make operational links with provision of other urban services, such as water, housing, roads and electricity;

Table 2: Institutional division of responsibilities related to low cost sanitation, 1999

Institution	Areas of responsibility linked to low cost sanitation
National Programme for Low Cost Sanitation	• Planning and implementation of peri-urban and rural low cost sanitation • Operational policies, strategies and guidelines for low cost sanitation • Technology research and development • Coordination and resource mobilization
Ministry of Health *Department of Environmental Hygiene (DHA)*	• Policy and monitoring of environmental health • Definition and promotion of health education • Technical assistance on environmental health to implementing agencies and local authorities • Preventative health activities • Establishment and piloting of Centres for Environmental Health and Medical Examination (CHAEM) in several provinces • Training and supervision of animators
Ministry of Construction: *National Directorate of Water (DNA)*	• Development of new strategy document for sector • Overall policy, planning and coordination for urban, peri-urban and rural water and sanitation partly through the Basic Services Section (BSS) • Development of Sector Master Plan • Provision of rural water supplies through PRONAR/Agua Rural • Support to City Water Enterprises
Ministry of Planning & Finance (MPF)	• Transfer and management of PNSBC subsidies, through Provincial Finance Directorate • Financing of some recurrent costs of PNSBC
State Secretariat for Social Action (SEAS)	• Identification and monitoring of vulnerable groups (through GAPVU) • Ensuring provision of free latrines to vulnerable groups
Municipalities	• Management of pilot projects • Urban planning, land management and environmental control • Local level coordination, provision and maintenance of urban infrastructure and services
Private contractors	• Construction of complete latrines / slabs (planned) • Construction and management of public facilities (planned)
NGOs (national)	• Dedicated implementer for rural sanitation
Donors	• Provision of funds for sector development and implementation • Provision of technical assistance • Support for policy development • Support for research and development

Source: Adapted from Hammar and Junior (1994)

- The institutional location of the PNSBC within INDER (Institute for Rural Development) was brought about due to circumstance and operational convenience, and has led to some confusion about lines of responsibility. Its location had weakened linkages with the urban sector and created certain institutional weaknesses through which responsibility for peri-urban sanitation had fallen. Institutional links with water and health sector agencies existed, but these were informal and ad hoc, making it difficult to develop long term plans and commitments;
- The institutional environment in which PNSBC operated was dominated by technical personnel, whereas the problems of institutional definition and

sustainability often required a more process-oriented approach with closer attention to policy, planning, management and capacity.

The lack of effective coordination between the Programme and its associated GOM agencies was a significant constraint, and led to periodic difficulties with effective planning and implementation of the Programme. In particular, two examples are noted - in relation to MISAU and the execution of hygiene education campaigns and to INAS/GAPVU concerning the installation of latrines for vulnerable population groups.

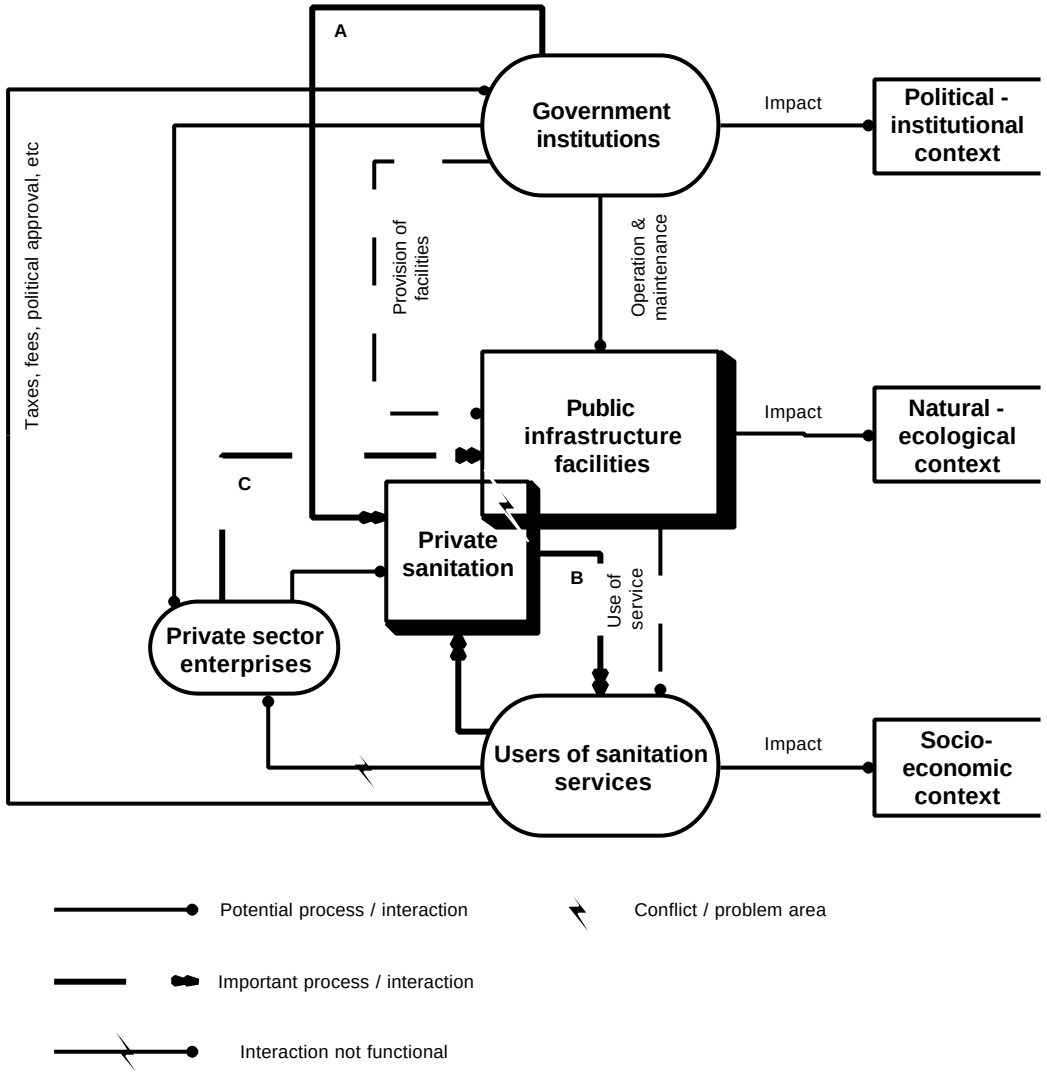
Several strategic actions were taken in an attempt to resolve these institutional difficulties:

- The Nucleus for Planning and Coordination (NCP) was created at national level to facilitate a multi-sectoral approach to low cost sanitation and at provincial level, Provincial Planning Coordination Nucleus, counterpart co-ordinating units, were established (NCPPs).
- With regard to the need for setting clear policy for sanitation, PNSBC defined in 1996 the national policy for low cost sanitation, which was subsequently approved by local and central government. The policy gives a clear mandate to the PNSBC to provide low cost sanitation to poor peri-urban communities, and also describes programme targets, institutional arrangements, development of human resources with the programme, anticipated types of community participation and private / informal sector participation in programme activities.
- In 1996, the first suggestions of an institutional re-location of PNSBC to the National Directorate of Water were made. Following several protracted delays, this was finally achieved in December 1998, when a low-cost sanitation office was established within DNA (the Programme's acronym has since changed to GPNSBC to reflect this new status).

Under the proposed strategy for implementing the GOM's low cost sanitation programme between 1999-2003 (GOM/UNDP, 1998), there are three key activities planned: decentralization of activities, engagement of the private sector, and withdrawal of government from latrine construction. The future direction of the PNSBC in relation to this strategy is described in greater detail in section 3.10.

Figure 5 represents the key relationships between different actors in the Mozambican water supply and sanitation sector with regard to service provision for low income urban communities.

Figure 5: Model of peri-urban sanitation management, Mozambique



A: Government institutions, facilitate PNSBC via donor agencies and the CMU, PLM, PU operating structure
B: Users of sanitation purchase latrines from barrio based PU's
C: An increasingly important role will be taken by private sector operators (for instance through public latrine provision)

Source: Adapted from Schubeler, P. (1996) Urban Sanitation Management in developing countries: Three conceptual tools. SKAT

Lessons

- A key factor in achieving and sustaining programme success is the creation of a clear institutional structure with a lead agency to take overall control of the intervention
- Identifying a lead agency does not mean that an intersectoral approach cannot be pursued
- Establishing effective dialogue and cooperation between sector agencies remains a critical issue. All participating agencies must have a clear commitment and incentive to work together

3.7 Finance and cost recovery

PNSBC has traditionally received funding through three main sources: donors, central government, and user communities. A breakdown of these sources indicates:

- Donor support has tended to focus on personnel (technical assistance), equipment, production costs (primarily procuring cement) and some O&M/recurrent costs. The main donors involved with PNSBC include UNDP, UNICEF, SAH, DANIDA, Molisv and Help Age.

- The main purpose of government funding has been to provide a direct subsidy for part of the production costs (excluding cement), a contribution to staffing and to a proportion of other costs. GOM is indirectly supporting the PNSBC through parallel funding of related programmes and activities by other government ministries.

- Communities pay a percentage of production costs through sales of improved latrines. The cost to the consumer has been kept at an 'affordable' level by the policy of subsidy which is applied to the Programme. However, when the full costs of construction are taken into account, including the costs of building even the simplest of superstructures around the latrine, the comparative contribution from the user rises dramatically (see Table 3).

Table 3: Percentage contributions of donors, government and community to PNSBC (1992-94). Based on exclusion or inclusion of cost of superstructure

Source of funds	% contribution excluding superstructure	% contribution including superstructure	% difference
Donors	83	53	- 30
Government	13	9	- 4
Users	4	38	+ 34

Comparing government and donor funding levels, it is clear that the latter is significantly higher than the former. Of the total three year funding figure for 1992-94 (excluding consumer contributions) government funding amounted to 14 per cent, with donor funding financing the remainder (86 per cent). More recent figures (GOM/UNDP, 1998) reinforce this point, with donated funds covering 57 per cent of Programme costs, families' cash contributions accounting for 33 per cent and government funding of 10 per cent.

There is no credit facility available to users through the Programme, nor is there an established, formal mechanism for access to credit at community level. Anecdotal evidence suggests informal, frequently family based pooling of resources so that individual households can purchase improved latrines. Given the context in which users pay the cost of the latrine in full before at the point of purchase, no mechanism for loan recovery has been needed, nor developed.

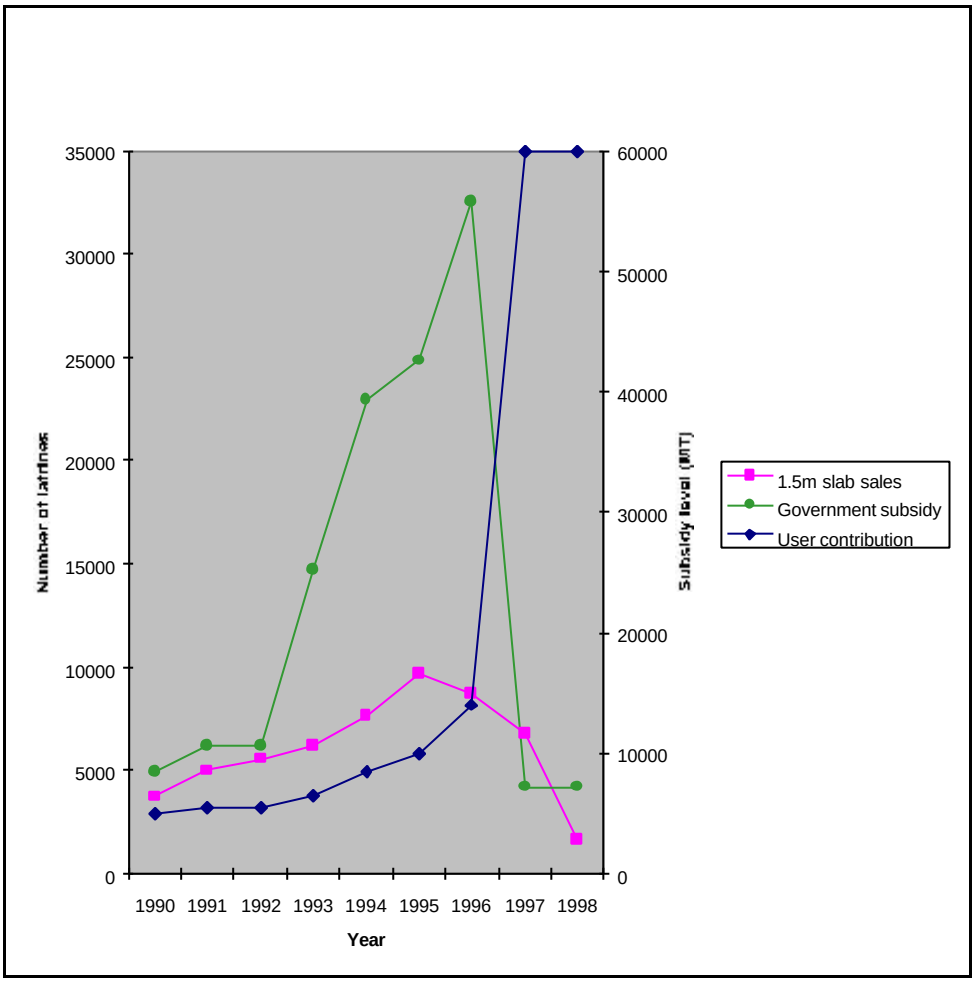
The issue of subsidy levels and subsidy provision/removal remains complex and controversial. In a report on affordability, Silva (1997) examined the subsidy issue. The main conclusions, based on survey work in Maputo and Nampula were that:

- A large proportion of the peri-urban population is destitute and requires full subsidy to purchase an improved latrine;
- Among the relatively better-off population, willingness to pay (WTP) is much lower than the currently subsidized levels;

- For the non-GAPVU sector, a significant proportion of users is capable of paying at least five times the average WTP.

Additionally, PNSBC's own data records the impact of subsidy revision on sales of latrines. Between 1996-97, the subsidy available for a 1.5m slab dropped from MT 32,572 to MT 4,195, with the shortfall being made by a significant increase in user contribution (from MT14,000 to MT60,000). It is not unsurprising then to see the sales of 1.5m slab latrines (in Maputo) fall by 81 per cent over the following two year period (see figure 5 below).

Figure 6: Sales of 1.5m latrine slabs and subsidy levels, Maputo, 1990-1998



In the light of Silva's report, many Programme staff have expressed concern about the anticipated drive towards privatization (implied in the latest strategy document) and the implications for users with regard to paying the real cost of latrines. At the same time, there is recognition that the existing subsidy system needs reform, as there are several well-documented problems associated with the current system (see box 5).

Box 5 Perverse impact of latrine subsidy system

"A negative effect has been noted with respect to the misuse of the subsidized system by well-to-do population elements. In the course of the evaluation team's visit to Chimoio, several individuals were encountered that own small, successful businesses. They had all purchased several improved latrines, one for their own family, and an additional two - for use by their customers. This observation adds impetus to donor claims that the subsidy system should be redirected from project support to supporting needy population elements"

(Linvat and Matsinhe, 1998:49)

Lessons

- If subsidies are to change, they must do so judiciously, targeting vulnerable population elements
- Privatize, but be sensitive to pace, and monitor the impact on demand
- Deepen support to vulnerable groups and assign NGOs to distribute improved latrines to those peri-urban communities lacking a production unit

3.8 Incentives for participation

Householders' decisions to invest in sanitation, and thereby to participate in the Programme, are determined primarily by socio-cultural rather than health-related factors. Factors such as comfort and convenience and privacy account for the majority of reasons given why householders constructed latrines on-plot. Health related factors, although mentioned, tend to be of secondary importance. This finding has been well documented in literature on peri-urban communities in Mozambique (Cotton and Saywell, 1998; Proudfoot and Nare, 1996; Linvat and Masinhe, 1998) and was reinforced through a short survey of households (n=10) undertaken as part of the fieldwork for this mission.

Personnel employed by the Programme have one of the strongest incentive structures for participation. For the majority of personnel, this structure is focused around the capacity strengthening activities of the PNSBC, which has led to many employees acquiring useful and marketable skills that provide them with potential alternative sources of income outside the Programme if circumstances require. Production workers are particularly well rewarded, since the cash value of the food rations supplied boosts their base salary by 75 per cent. In addition, they benefit from periodic allocation of work outfits.

Senior management employed at the CMU, because of the programme's autonomous status within INDER, were hired on lucrative personal contracts that exceeded the norms even of the private sector. Combined with the potential for professional growth through retraining and attendance at professional symposia, the Programme has benefited from a committed, well qualified and stable turnover of staff. It is true to say that this last point has also led to problems (especially with regard to the process of re-integrating PNSBC into governmental norms), but in terms of incentives, such terms and conditions produce highly motivated work forces.

The participation of the private sector in low cost sanitation has traditionally been absent. However, in recent years efforts are being made to integrate private operators into sanitation provision. It is interesting to note that the new strategy document for low cost sanitation (GOM/UNDP, 1998) places great emphasis on the role of the private sector. An illustration of private sector participation is given in the following box.

Box 6 Private sector participation

There are a number of private sector operators working on peri-urban sanitation provision. Private owners are investing in latrine slab manufacturing workshops in several suburbs of Maputo. PNSBC is providing incentives through staff training, supplying moulds for casting and hygiene education programmes in the adjacent bairros. Typical private sector costs to the user for a 1.5m slab are US$13.

OMW, a private association, has invested in public sanitation and bathing blocks in several Maputo market places. PNSBC is providing support to this initiative in the form of 40 per cent seed capital for the construction of a further public block. The capital cost of a new block is approximately US$14,000 and provides a return on investment of between 17-24 per cent/year. Blocks are permanently staffed by workers who clean and maintain the facilities. Users are charged US$0.09 - 0.17 per visit depending on the service used.

Source: GOM/UNDP (1998) Towards a Rural and Peri-Urban Sanitation Strategy, 1999-2003. GOM/UNDP

3.9 The recent past and future of PNSBC

Between 1996-1998 there were increasing donor concerns about the sustainability of the PNSBC. UNDP, as the principal donor agency, realized that their support needed to be withdrawn in order to bring about greater sustainability. In 1998, following protracted delays dating back to 1996, the PNSBC autonomous status was ended and the Programme was formally transferred to DNA.

In January 1999, the GOM and selected donor agencies began to develop the Low Cost Rural and Peri-Urban Sanitation Strategy, 1999-2003, which aims to achieve three major objectives: (i) decentralize operations to a series of sector partners, (ii) government to withdraw from implementing role, shifting activity to creation of an enabling environment, (iii) involve the private sector and NGOs in implementation.

The new strategy for the PNSBC is strongly donor driven, and in the process of devising the way ahead, the need for adequate institutional coordination appears to have been overlooked. A pressing concern therefore is the need to bring about a wider sense of ownership of the Programme amongst key actors involved in its execution.

One possible future direction for PNSBC is to work in a more integrated manner with DNA, and also to act as a facilitator of the Strategic Sanitation Process which is being planned by the World Bank for five cities in Mozambique.

In conversation with selected key informants during this mission, concerns were raised about the future of PNSBC, which are summarised below:

- The new strategy document for PNSBC will be largely dependent on donor funding; there is little input from the GOM and therefore doubt about the sustainability of the programme. Currently, donors are committing themselves to fund the programme for one year only, in the expectation that the GOM will then manage the Programme. The budget for the first year is US$2million, but few of the donors have committed themselves to this figure. In the interim, UNICEF will provide what funding it can in 1999, but beyond that time, the future is unclear. One obvious outcome of this situation is the expectation that PNSBC will only be able to achieve much lower levels of inputs and outcomes;
- Donor agencies are now linking funding to specific conditions. The main Netherlands aid agency (NEDA) have linked programme funds to the condition that PNSBC find a new institutional host;
- The main challenge identified for PNSBC is to bring about the translation of the Programme to the private sector. Conceptually, the privatization process is not well understood at PNSBC (which considers the task to be the privatization of the

PU's) rather than the creation of a market and the encouragement of local artisans;

3.10 Overall lessons

- One of the main strengths of the Programme has been its ability to establish good grassroots connections with the communities it seeks to serve, primarily through its sanitation animators. In addition, the Programme had a reasonably high profile in the peri-urban, GOM, NGO and donor communities.

- Another key asset was the domed slab technology which was well known and simple to use and build. It had been developed by a process in which careful attention was paid to consumer demand.

- Although the Programme was subsequently very supply driven in its approach, these methods were appropriate in the context of Mozambique's transition from war to peace and from emergency provision to longer term development. The experience of large scale programmes such as PNSBC suggests that initially a supply driven approach may be necessary to establish a platform from which more demand responsive approaches can be implemented.

- The Programme suffered from loose institutional anchors and ineffective donor guidance. DNA failed to consider the longer term future of PNSBC, INPF was an institutional host only, rather than a functioning partner and the GOM was not prepared to shift PNSBC into a new working paradigm. Compounding these problems was that in the early to mid-1990s, donor agencies involved with the Programme became more interested in the production of ever greater numbers of latrines, rather than focusing on sustainability. For some commentators, this period represented a 'lost phase' in the development of PNSBC.

- The management approach of PNSBC led to the creation of particular operating problems. The Programme continued to recruit vigorously in the 1990's, attracting highly qualified and competent personnel to the CMU on high pay scales. As a result, the Programme developed a momentum and dynamism of its own. But the Programme then faced a dilemma of its own creation. There was an understanding that at some point in the future PNSBC would be transferred back into the existing GOM institutional setting, on GOM terms and conditions. Given that pay differentials for PNSBC were significantly higher than equivalent staff within GOM, there was very little incentive for PNSBC to bring about transition, since this would lead to, (i) possible loss of employment, and / or (ii) reduction in remuneration packages. As a result, 2-3 years may have been lost due to the failure to adapt to the change process.

- In the Programme's infancy, a simple, single technology type for promotion was a strength, but in recent years it became clear that this approach failed to meet the needs of users. There were few opportunities for upgrading existing facilities to different or more complex (higher aspirational) types of latrines; there was no or little consideration of public, multi-family latrines, or the introduction of pour-flush types, latrines with seats, without seats and so on.

- The Programme became very centralized in operation (admittedly in reaction to the emergency situation in which Mozambique operated during the 1980s). Since the Rome Peace Accord in 1992, and the subsequent shift from a centralized to decentralized operating structure, the impact of this centralization has been keenly felt, through a lack of technical capacity in the Provinces and the development of institutional weakness in the Programme.

- An important element in the decentralization process is the municipalities themselves. Some are changing; others are not. Beira has understood the need for change and is willing to respond. Other municipalities need to undergo a capacity strengthening exercise in order to cope with the process of decentralization.

4. Discussion

This section seeks to aggregate the lessons learnt and relate them to the objectives of this study, namely to investigate the development milestones of each programme, and to contrast and compare approaches to sanitation provision.

There are some critical differences between the programmes which are important to state before undertaking any further analysis:

- The scale of operation differs dramatically between the KSP and PNSBC. KSP is a single city based initiative (restricted to three pilot areas for on-plot sanitation), whilst the other has a national remit, operating throughout Mozambique's major cities.
- The context in which both Programmes were implemented also differed; from the relatively stable socio-economic and political background in Kumasi to one of civil war and emergency provision in Mozambique.
- PNSBC is currently in its fourteenth year of operation, whilst KSP ran in total for only five years based on five years of previous development.
- The outcomes from each Programme are of different orders of magnitude. In total 256 KVIP's were built for 185 homes under the KSP. Three public latrine sites were constructed in the Central Business District and other public latrines were franchised to private sector operators. A simplified sewerage scheme was constructed in Asafo to serve a potential population of 20,000 people. By contrast, between 1985-1998, PNSBC had constructed and installed 230,646 improved latrines, benefiting an estimated 1,383,876 users nation-wide. The Programme operated through 38 production units, active in all provincial capitals and in nine of the large District towns. Average latrine slab production capacity had grown to roughly 25,000 per annum. The average coverage of these improved latrines is estimated at 38 per cent of the peri-urban households in the major cities.

Despite such significant differences, an analysis of both Programmes offers the following key points:

- The historylines developed for this report indicate *how* and *when* the KSP and PNSBC Programmes developed. Although there are some obvious commonalities between the two (i.e., both responding to critically low morbidity and mortality rates of the urban poor) one notable point is the influence of external forces on programme development. This is clearly illustrated from the Mozambican case when the IMF introduced the Economic Rehabilitation Programme in 1988. The consequence of this action was to bring about dramatic increases in prices for key goods (such as cement), leading to a slump in sales, and the introduction of more generous GOM subsidies for improved latrines. In turn, this increased accessibility to the Programme by the urban poor, leading to sharp increases in latrine sales and coverage.

- One of the most obvious contrasts in approach can be seen in the demand assessment issue. With the KSP, contingent valuation methodology was applied to assess household demand for sanitation. Willingness to pay surveys were conducted and considerable analysis applied to the findings. In Mozambique, after an initial small survey in a single neighbourhood of Maputo, there was no formal user consultation with regard to willingness to pay, or assessing the needs of householders. In a strongly supply driven, target oriented context, user needs were largely assumed without reference to the urban poor. To some extent, this may have reduced the responsiveness of PNSBC, a particular example being the failure to develop pour-flush options or to introduce the 1.2m slab latrine earlier.

Demand is a multi-faceted concept, and it is important to recognise that there may be different levels of demand, including latent or unexpressed and partially informed demand. A range of sanitation options available for both Programmes may have facilitated greater demand responsiveness. However, a 'menu' approach should not be mandatory; rather, information relating to different technologies and the implications of those choices should be made available so that an appropriate choice can be made.

- Promoting sanitation was an activity which was (initially) poorly developed and understood by both programmes. In Mozambique, formal promotional activities only started in 1994, some nine years after the Programme had started. In Ghana, the KSP was unduly concerned with technology, with little appreciation of hygiene behaviour and education. Of the two, the PNSBC has a more progressive promotional campaign, relying as it does upon a mix of Programme promotion and hygiene behaviour change. The innovative aspect has been in the use of the range of promotion pathways, ranging from mass media to indigenous forms of communication. Additionally, the use of community based sanitation animators has helped to personalize the Programme for urban communities and heightened trust and confidence in the Programme's goals and objectives.

- The role of incentives for participation is crucial. An important feature of incentives is that they will operate at a number of different scales (from household to municipality) and on different stakeholders in different ways. What motivates the (potential) user of sanitation to participate in a Programme will vary from context to context, but a thorough understanding of these issues (in Mozambique it was an appreciation of the socio-cultural aspects of sanitation) can feed into sanitation promotion campaign strategies.

Two important points to note with incentives are that: (i) they tend to be context specific, and may be difficult to abstract between programmes, and (ii) to an extent, incentives are intuitive features of project design and management, which it may not be possible to formalize.

At municipal level, the right incentive structures are integral to achieving sustainability for sanitation interventions. Typically, municipal institutional working culture may conspire against effective management of urban sanitation projects and programmes.

- Responsibilities for provision of sanitation tend to be fragmented in both cases. At municipal level, one of the most pressing challenges is to bring about effective co-ordination between different governmental departments. By improving the linkages between several stakeholders involved in sanitation interventions, more coherent planning and management of Programmes may be achieved.

- Experiences with finance and cost recovery vary markedly. Whereas KSP relied on a loan recovery scheme, PNSBC did not offer such a measure. KSP experiences teach us that the real costs involved in recovering the relatively small sums of money involved with purchase of a KVIP may be greater than the amounts recovered. As a result, there tends to be little motivation for this type of activity within municipal government.

This should not therefore be taken as a justification of subsidies (of which perverse examples are well documented). A relatively neglected alternative is to explore the potential for micro-financing schemes to be implemented to help householders save the relatively small amounts of money required to invest in sanitation programmes.

It is interesting to note that in Mozambique's particular economic context, the presence or absence of subsidies had a profound effect on the success or otherwise of the Programme (see historyline analysis). It should be noted that the recent withdrawal of subsidies for the 1.5m latrine slab has led to a significant downturn in latrine sales. If subsidies are to change, they must do so judiciously, targeting vulnerable groups in the population.

Table 4. Comparison of key programme elements

Subject	KSP (Kumasi)	PNSBC (Mozambique)
Impetus	• Morbidity & mortality rates (especially conservancy workers)	• Morbidity and mortality rates of peri-urban communities
Demand assessment & orientation	• Formal contingent valuation method applied	• No formal user consultation since the early 1980s • Strongly production, target oriented • Needs assumed and defined by PNSBC
Sanitation promotion	• Focused on local leaders, elites • Combined mass community meetings / videos / demonstration latrines • Biased towards technology, not health and hygiene • Not participatory in approach • Health education focused on hand-washing, O&M of latrine and targeted to all, especially women. • Limited initial impact of health education	• Active promotion applied recently (since 1994) • Based on community sanitation animators • Promotion of programme and health education • Strong mix of promotion pathways (mass and indigenous media) • Positive impact from sanitation promotion in terms of latrine sales • With time focused promotion efforts in difficult communities
Incentives for participation	• Users lack adequate financial incentives to buy KVIP • KMA staff benefit through career progression and training	• Users respond to socio-cultural rather than health factors • PNSBC staff benefit from association with Programme - training, skills development, food rations, lucrative contracts (CMU) • Private sector encouraged to participate
Responsibility for service provision	• Improved links required between sanitation and health promotion and service provision • Private contractors do not appear to be accountable • Central role given to government institutions	• Strongly supply driven, responsibility with government agencies • PNSBC as main executing agency, little integration of private sector or NGOs • Highly fragmented institutional framework • Lack of effective sector policy (later resolved)
Finance and cost recovery	• Culture of repayment and cost recovery in place • Many problems with management of community funds - led to changes in establishment of Urban IV	• Funding from three main sources: Programme is strongly donor driven • No credit facilities available to urban poor • Subsidy essential to achieve core objectives

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Others

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Annex 3 Technology types used in Mozambique