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**Programme for the Improvement of
Low-Cost Sanitation
In
Balochistan Townships**

**Local Government and Rural Development
Province of Balochistan**

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Low Cost Sanitation in Balochistan Townships

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Abbreviations and Acronyms

ADP	Annual Development Programme
AJK	Azad Jammu & Kashmir
BIAD	Balochistan Integrated Area Development
bisti	a method of collecting money used by women of rural Balochistan
BWASA	Balochistan Water and Sewerage Authority
CBO	community-based organization
CIDA	Canadian International Development Agency
DC	District Council
HE	hygiene education
LGRDD	Local Government and Rural Development Department
LHV	lady health visitor
mohalla	a community within the township
NGO	non-governmental organization
NWFP	North-West Frontier Province
O&M	operation & maintenance
ODA	Overseas Development Administration, UK
P&D	Planning and Development Department
PHED	Public Health Engineering Department
RDA	Rural Development Academy
SAZDA	Sindh Arid Zone Development Authority
SDP	Special Development Program
tanzeems	community-based organizations
TBA	traditional birth attendant (<i>dai</i>)
UC	Union Council
UNICEF	United Nations Children's Fund
VBO	village-based organization
VIP	ventilated improved pit (latrine)
WAPDA	Water and Power Development Authority

Executive Summary

This document describes the sanitation (human wastes disposal) project associated with the water supply improvements in the larger communities (townships) of Balochistan. The Local Government and Rural Development Department (LGRDD) will facilitate the installation of over 10,000 double pit pour flush latrines through the private sector in four townships and nearby communities over a period of seven years.

A major element of institutional strengthening through technical assistance will support the LGRDD in developing implementation methodology and supporting the private sector. In the long term the private sector (in the form of mistries or masons) will be the prime movers behind sanitation in Balochistan. This project will establish delivery mechanisms, market sanitation, and train mistries. The objective then is to strengthen the private sector... not replace it.

The townships for this project have been purposefully selected to represent the full spectrum of conditions and peoples of Balochistan. This will enable LGRDD to acquire the needed breadth of experience on which it can expand its program into other townships in the future. The townships/communities are Kuchlak, Mastung, Kharan and Jiwani/Ganz/Pishukan.

LGRDD will use a development firm under contract to develop field methodology and then initiate its program in the four townships. Reference centres in each locality will work with local tanzeems (community based organizations) to train mistries, distribute materials, market sanitation, provide hygiene education, maintain control over quality of construction, and operate revolving funds providing financing to individual households. The tanzeems will be responsible for interaction with the households and in particular ensure repayment of loans for latrines.

The costs of the project supported through IDA credit would be Rs 71.9 million (US\$ 3.2 million constant dollars including contingencies). Direct costs to government would be Rs 7.5 million, and to the households Rs 18 million for purchasing the toilets.

The benefits accruing to the families owning latrines and receiving hygiene education come in terms of health and environmental improvements, convenience and privacy. The latter two are particularly important in Balochistan's townships where women are faced with either using the outside fields at dawn or dusk or rudimentary and often-times offensive surface or pit latrines in their compounds. As a component of the overall water and sanitation programme in these townships, sanitation and hygiene education will provide the necessary infrastructure and behavioral changes required to achieve full benefits to health.

The main thrust of this project is strengthening LGRDD through in-service training to enable it to expand its sanitation programme into other townships. The investment then goes well beyond the first 10,000 latrines to underpin sanitation development and improvements in the health and quality of life in at least twelve other townships in the future.

Low Cost Sanitation in Balochistan Townships

1 Introduction

1.1 Background

The Government of Balochistan, with the assistance of the World Bank and the Canadian International Development Agency, has recently prepared a Strategic Investment Plan for the Rural Water Supply, Sanitation and Health Sector as part of its long term programme for improving water supply, drainage, human waste disposal and hygiene conditions in the rural areas of the province, including some of the larger communities (townships). An assessment of the current situation was made to identify constraints to achievement of desired targets for coverage with acceptable water supply and waste disposal facilities. Strategies to overcome constraints were developed which would involve modifications in procedures for implementation of water supply and sanitation (human waste disposal) and hygiene education schemes, institutional strengthening through human resources development and enhancement of planning, training, technical capability, and increased community involvement in the management of rural water supply and sanitation schemes.

The Public Health Engineering Department (PHED) is the lead department in the provision of urban and rural water supply (excluding Quetta). The PHED has a programme of design and construction of water supply schemes which is funded under the provincial Annual Development Programme. The Local Government and Rural Development Department (LGRDD) is responsible for the smaller rural community schemes through local councils. It is also responsible for sanitation both in the rural and medium sized townships of Balochistan. These communities tend to have densely populated centres surrounded by contiguous residential areas which are also heavily populated. There, the households have no or only perfunctory sanitation facilities. Use of the surrounding agricultural lands for defecation is common. This is particularly difficult for the women who, needing privacy and security of darkness, can only defecate in the fields at dawn or dusk.

Sanitation has long been recognised as being an essential component of the water supply, sanitation and hygiene education integrated package. It must be included if full benefits to health are to be realized. This is particularly true in the denser townships. To a limited extent, government has introduced low cost sanitation in the rural areas and is now intending to broach the sanitation problems of sixteen townships. Four have been selected (Kuchlak, Kharan, Mastung and Jiwani/Ganz/Pishukan) for an initial programme of introducing low cost sanitation. This project comprises institutional strengthening, definition of cost-effective field methodology, training and the establishment of sanitation reference centres in these four communities from which the sanitation programme can be implemented.

1.2 The Project

The overall water supply, sanitation and health project, of which this consultancy (relating specifically to township sanitation) is part, is described in project preparation documentation prepared for the Government of Balochistan by consultants contracted by the World Bank with funding by the Canadian International Development Agency. The government of Pakistan has requested an IDA credit of about US \$ 112 million for integrated rural water supply, sanitation and hygiene education projects in Sindh, Balochistan and AJK. Part of the proceeds of this credit would be applied to eligible works of Balochistan and this component of the project is estimated at approximately US \$ 45 million. The project components in Balochistan include procurement of equipment, office construction, consulting services, district database development, water supply scheme rehabilitation, water resource monitoring, drainage works and sanitation. This document pertains specifically to the sanitation component which is to be implemented in the larger communities (townships) of the overall project in Balochistan.

2 Background

2.1 Sanitation Sector Institutions

The Balochistan Integrated Area Development program (BIAD) operated under UNICEF's direction for several years. BIAD pour flush latrines have been introduced in several locations of the rural areas of Balochistan. In many places BIAD latrines did not succeed due to lack of water supply. Where BIAD first provided water supplies, the pour flush units are being used. A good example of such a project was examined in Ganz, where around 50 units had been installed. The community ran out of water due to lack of rainfall, but latrines continued to be used just the same. Instead of fresh water, brackish water from open wells was used for flushing the latrines. Ganz was visited in December 12, 1989 (just after a major rainfall) and all latrines inspected were found in good order and functioning well, although none had yet reached the stage of its first pit having to be emptied.

The Balochistan Water and Sewerage Authority (BWASA) has initiated a major programme introducing on-site pour flush latrines into the Mohalla's of Quetta city. It is based on BWASA reference centres located in the mohallas which are used to distribute technical assistance and materials to the community based organizations (CBO's or tanzeems). Reference centre staff train CBO staff and mistries who carry the programme forward to the household level. BWASA's programme is operating in two Mohalla's and expanding into a third. Cost recovery is a central theme in the project. The township sanitation project proposed here uses similar methodology but is somewhat simplified and reduced in cost.

UNICEF is planning to promote low cost sanitation in Quetta city as part of its Urban Basic Services Programme. Negotiations between BWASA and UNICEF have resulted in agreement that UNICEF will use BWASA methodology and reference centres.

The private sector has always been involved in building latrines. In the larger towns of Balochistan, masons and mistries are available who have some knowledge of pour flush latrines. However, the technology used by these mistries is sub-standard. Proper training would enable these mistries to improve their skills and take over new marketing methodology. The private sector is the largest resource available in the area of sanitation. This project proposes to make the fullest possible use of it.

2.2 Sanitation Practices in Balochistan Townships

Due to low levels of education, hygiene and sanitation practices are poor in all parts of the province. Generally, women control hygiene and sanitation in the households. Poor sanitation conditions are seldom connected to health, so much so that sanitation is given very low priority. Use of surface and dry pit latrines in a corner of the household compound is common practice all over Balochistan.

Surface latrines are simple enclosures in which bricks are placed as feet pads for use during defecation. After drying, the faeces are scooped up by the household females or sweepers and taken to the neighbourhood rubbish pile. Pit latrines are basic and unvented. The floor slab is commonly made of mud and wood although, concrete is becoming more popular. The problem with these pit latrines are that they smell, breed insects, and fill up over short period of time. In the rainy season, collapse of pit covers and walls is not uncommon.

Small children use any place in the courtyard for defecation purposes. Their excreta is not considered dangerous, and often handled manually by their mothers.

The existing sanitation practice/technologies in the target towns are as follows:

Towns	Latrine Technology Used					
	Flush T	Pour Flush Toilet Single P	Toilet Double P	Dry P	Dry L	No L
Kuchlak	- (0%)	- (0%)	- (0%)	- (40%)	- (20%)	- (40%)
Mastung	0%* (2%)	18.7% (0%)	0% (0%)	21.9% (70%)	27.1% (30%)	32.3% (8%)
Jiwani	- (0%)	- (0.1%)	- (0%)	- (0%)	- (80%)	- (20%)
Kharan	3.4% (1%)	19.3% (0%)	0% (0%)	10.2% (15%)	52.3% (30%)	14.8% (64%)

* from NESPAK socioeconomic survey of townships.

() figures in brackets are percentages provided in discussions with municipal officials in the communities.

T= toilet, P=pit, and L=latrines.

Drainage

There are no proper drainage systems in any of the proposed towns of this project. Usually wastewater is disposed of into the streets through kachha (earth) drains. These become potential sources of disease. Drainage is considered separately in the project formulation documents by NESPAK related to township water supply.

Solid Waste Disposal

Solid waste disposal is also a women's responsibility. They gather garbage inside the households, and simply throw it into the street or open field. At the community level, the town's municipal committee or union council is responsible for the disposal of garbage from the streets. Periodically, town committee sweepers go around with tractors and gather the garbage and dump it outside the town. However, their efficiency is very low, large piles of rubbish are evident in all townships. Solid waste disposal is outside the scope of this project preparation activity.

2.3 Hygiene Education

No formal hygiene education exists in the towns. Generally, women are the prime hygiene educators at household level. Children are usually toilet trained at the age of 3 to 4 years by their mothers. Use of water for ablution after the defecation, and hand washing is not properly emphasized and seldom practised.

3 The Project

3.1 Objectives

Goal:

- to improve the health and productivity of residents of the medium sized townships of Balochistan by introducing double pit pour flush latrines and their proper use through hygiene education.

Purposes:

- to develop marketing, financing, and delivery methodologies for low cost sanitation in Balochistan townships through demonstration and self-help programmes by community based organizations and the private sector.
- to install over 10,000 latrines in four townships/communities of Balochistan to improve health, convenience and privacy.
- to strengthen the private sector (mistris) through training, marketing and organizational support so that it can continue to expand sanitation coverage to 90% by the year 2000.
- to carry out a hygiene education programme, which will include a limited number of simple messages on water use and the importance and use of latrines to decrease infectious diseases.

3.2 Project Components

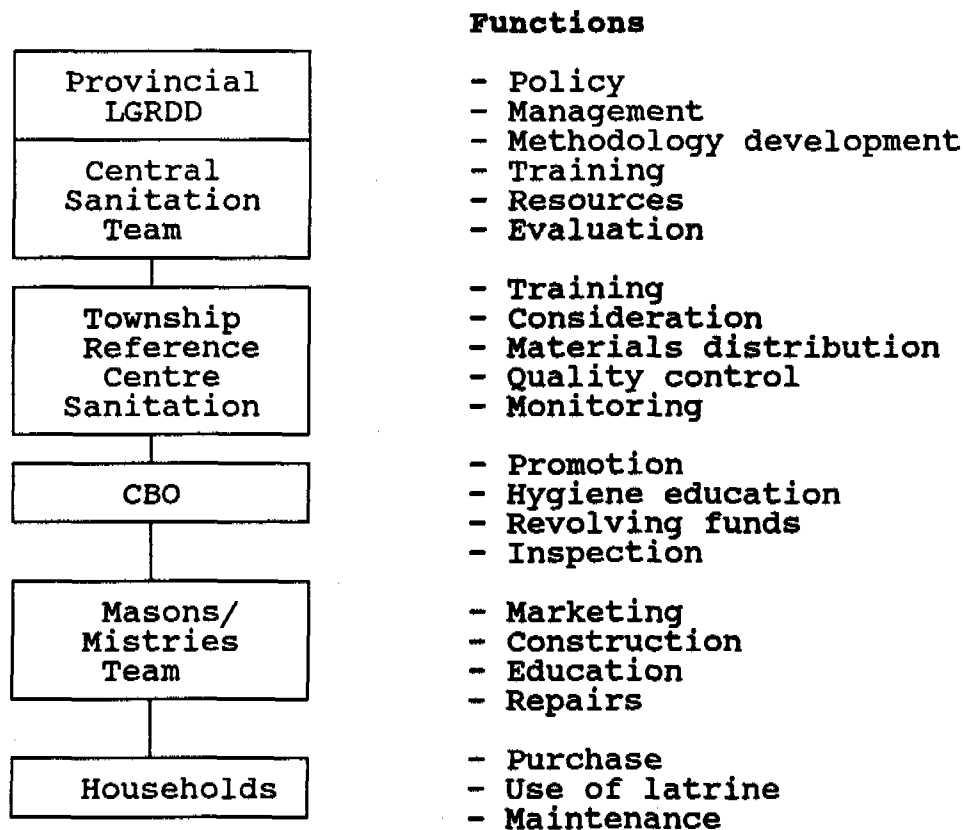
The main principles behind implementation of this human waste disposal project are:

1. the programme will be primarily implemented through the private sector (masons). In order to support the private sector, the government and other organizations (development firm and CBOs) will provide help in the areas of training, finance, consumer subsidy, demonstration and marketing of sanitation. In long run the private sector will completely take over these responsibilities.
2. full cost recovery will be achieved through outright purchase of the latrines whenever possible. No interest loans will be provided to those needing to spread up to 2/3 of the capital cost of a latrine over time. Only in extreme cases will latrine be given without cost to users. These should be limited to the poorest and be used for demonstration.
3. the focus of this project is to improve health and the environment as well as convenience, therefore human waste disposal within the household compound will be backed by hygiene education.

4. support from external sources should be strong but limited in time (maximum 4 years). External support is designed to enable government to limit its role to management and monitoring.
5. short term strengthening of the private sector will require demonstration at the township/community level. The short term nature of the input will permit a private sector approach to be taken whereby a development firm can install and manage these inputs enabling the programme to be as effective and flexible as possible, yet within the control of the government.
6. implementation methods should be as uncomplicated as possible. In order to succeed, it should focus only on sanitation and hygiene education. Too many components would make the programme complex and difficult to implement.

3.2.1 Human Waste Disposal

Human waste disposal will be promoted in the form of on-site disposal by double pit pour flush latrines. The latrines will be treated as household commodities. Project inputs will be in the form of institutional development, small incentive subsidies, assistance in financing and support to the private sector. The levels of implementation organization are illustrated in the diagram each having its specific functions.



Organization for Implementation

Reference centres will be set up in the communities Kuchlak, Mastung, Kharan and Jiwani, the latter also covering Ganz, Pishukan and the three neighbouring communities. Further detail on these townships/communities is given in Appendix A. The reference centres will be administered by township sanitation coordination teams. During the first year of the project, the first reference center will be set up in Kuchlak where the implementation methodology will be pilot tested and refined. This initial phase will also provide a chance to demonstrate technology, identify marketing techniques and set up cost recovery methods along with staff training at the reference centres.

The reference center sanitation team will be responsible for setting up revolving funds to be taken over later by the CBOs (tanzeems). It is estimated that about 30% of the households in these communities will be able to pay the cost of a latrine outright. About 10% will require substantial subsidy. However, the majority (about 60%) will pay labour (mason/mistry charges), but will need loans, which will be provided through the revolving fund. Operation and maintenance of the latrine will be the household's responsibility

3.2.2 Hygiene Education

Hygiene education will be a central component of the programme. The reference center will be responsible for the training of sanitation educators (Saneds, female) and sanitation promoters (Sanpros, male) who will work under supervision of the CBO's or tanzeems. The Saneds job will be to reach women in the households and spread hygiene education messages. The Sanpros will be more technically oriented. The Sanpro will support the Saned by contacting men in the community. Hygiene education messages will be delivered through face to face contact as well as using audio-visual aids in group meetings. These messages will be few and simple. Hygiene education related to water supplies will focus on water protection and water use practices and be delivered through the sanitation programme.

3.2.3 Integration

The three components, water, sanitation, and hygiene education will be closely integrated at the community level through activities carried out by the tanzeem staff trained at the reference center in each township. The principal link will be the hygiene education programme.

3.2.4 Targets

Population data of the target communities were drawn from the Nespak socio-economic surveys and, where necessary, from local officials. Neither sources are felt to be very accurate and a more detailed review is strongly recommended. On the other hand, these approximate data can be used for broad planning purposes while making allowances for their possible inaccuracy. So, in the absence of any other data, the following were used:

Town	1989 pop	Growth rate %	1997 pop	# per house hold	1997 house holds
Kuchlak	33000	5.0	48700	16.45	2960
Mastung	28220	5.0	41700	9.10	4580
Kharan	15900	4.5	22600	9.03	2500
Jiwani	13000	5.0	19200	13.00	1500
Ganz	1800	5.0	2700	5.50	490
Pishukan	8000	5.0	11800	9.00	1300
Nearby villages	3000	5.0	4400	5.50	800
Total					14130

The latter four communities are grouped together as only one reference centre (at Jiwani) is planned to serve all. In fact the "nearby villages" comprise three smaller communities of Bundari, Panwan and Okar. These smaller communities should be included in the improved water supply and be served by the Jiwani reference centre for sanitation.

Taking into account the time required to establish reference centres and initiate the program through training local community organizations and mistries, the following number of installations are predicted:

<u>Year</u>	90/91	91/92	92/93	93/94	94/95	95/96	96/97	Total
Kuchlak	50	400	500	600	300	150	0	2000
Mastung		300	600	900	900	500	400	3600
Kharan		60	400	600	600	240	0	1900
Jiwani		50	390	960	930	700	20	3050
Total	50	810	1890	3060	2730	1590	420	10550

It is noted that the production slows down during the fourth and fifth year of operation. This is due to diminishing returns on marketing and reduced resources available to the

reference centres. The total production is 10,550 toilets and as many households reached with hygiene education. This represents 75% of the target population in 1997.

3.2.5 Township Sanitation Technical Assistance Package

Implementation of sanitation in communities which (1) have only basic education in hygiene and disease transmission, (2) are low income, (3) have a history of using the fields for defecation and (4) have high expectations of what government "should" provide them free of cost... will not be easy. These conditions contrast sharply with the project's underlying principles that the householder should pay as close to 100% of latrine costs as possible and that the local private sector should be made the prime mover behind sanitation in the long term.

Meeting project objectives will require a concentrated input over the short term. First, detailing methodology for setting up programmes in the townships will be required. Then, field personnel will require training before programme expansion. Expansion into four townships will require strong input of resources and staff over a short period.

The objective is to strengthen the private sector not replace it. Thus the initial input which is limited in time to a maximum of three years would best be carried out by a private development firm or firms under contract to the LGRDD. Alternatively, a UN agency could be contracted. However, a joint venture between an international development firm and a local firm is recommended. The firm(s) should not work separately from LGRDD but integrate government counterpart staff into its teams.

The Township Sanitation Team at the provincial level would comprise a central team of a project manager (with strong background in community development), a communications/marketing specialist, an applied anthropologist, a technician, an accountant and support staff. The Sanitation Team would have staff in its reference centres in each of the four townships. These would comprise a community development specialist, civil technologist and support staff. The LGRDD would participate in the Teams at both provincial and township levels. At the centre, the Director and Deputy Director (RWSSH) would be fully trained and function as part of the team although necessarily on a part time basis. They would take part in the investigations and decision making processes on cost effective implementation methods. LGRDD staff in the target townships and communities would also participate as team members. In Mastung for example, staff at a new SDO and a sub-engineer levels would be allocated and receive training and work together on a full time basis with the Sanitation Team while it is working in Mastung.

After three to four years in any township the Sanitation Team will withdraw leaving the operation in the hands of LGRDD. By that time the systems should be well established and not require full time attendance of any LGRDD staff. The main requirement will be supervision of the labourer, chowkidar and driver. They will be brought under LGRDD short term contract over the subsequent three or so years. The SDO and sub-engineer trained a part of the sanitation team would later move to a new township to set up their own reference centre there.

The local tanzeems (community based organizations, CBO's) in the Townships will play major liaison and promotional roles within the communities. They will hire sanitation promoters and educators from within their communities (although paid by the Sanitation Team and for the latter three years by LGRDD) who will promote sanitation and provide hygiene education. The tanzeems will be strengthened as part of the technical assistance package through training in technology, promotion, management of revolving funds, and organization.

However, the ultimate target for strengthening through the technical assistance package is the private sector in the form of mistries who will carry the programme forward many years after the formal project has been withdrawn. There will be some three or four masons trained in latrine construction and marketing in each ward or tanzeem area. They will work under the guidance, monitoring and inspection of the reference centre and the tanzeem's sanpro.

Institutional strengthening will include definition of the best approach to the project at the local level. Whereas this report suggests methodology in some detail it is necessarily based on short term investigations. There will inevitably be many refinements and local adaptations. These will be defined through prototype operation in Kuchlak during the first year.

Standardization of methodology (with minor local adaptations and necessary degree of flexibility) in the field is crucial to the successful operation of such a programme. Once the most cost effective method(s) is defined, operational and training manuals will be prepared covering all aspects of the programme. It is important to train and inform all participants and staff associated with the project in as consistent a fashion as possible. All too often, such self-help or community based programmes fail because of one functionary insisting on one thing in one community and another one on something contradictory in another. The preparation of manuals, audio-visuals and training will go a long way to ensuring that the project remains on course using consistent methodology throughout.

3.4 Training

Training will be carried out through the Rural Development Academy at the provincial level and through the Sanitation Team in the reference centres. To a great extent this project will be able to provide its own training however, good use of the resources of the RDA will be made assuming that the RDA is funded and operational as presently planned. Training will be carried out in conjunction with the rural water supply project of the LGRDD, using its resources such as the training specialist and the community development specialist as well as all facilities, training equipment and accommodation at the RDA. The following table lists the various training functions:

Trainee	Trainer	Subject
Sr. LGRDD Staff, SDO's, Sub-Engrs, Sanitary Insp	RDA Community Development Specialist & Project Manager	community participation in sanitation projects and technology implementation
Sanitation Team Community Dev Spec.	RDA Hygiene Specialist	training to be trainer in hygiene education of tanzeem sanitation educators and promoters
Applied anthropologist and comm. dev. spec. in each reference centre	Communications Specialist	communications and marketing
Community dev. spec., applied anthropologist and all LGRDD and sanitation team staff	Technician of the provincial sanitation team	sanitation technology and its design and construction
SDO's, sub-engrs, sanitary insp. community dev spec and technologists on the township teams	Project Manager at the township level	all aspects of the programme: administrative, field methodology and management
Tanzeems/CBO's	Community dev specialists on the township teams	project management, revolving fund management, technology and marketing
Sanpro and saneds	Community dev specialists and technologists of the reference centres	hygiene education, sanitation technology and their specific tasks in relation to the tanzeems and the project
Mistries	Technologists and community development specialists at the reference centres	sanitation technology design, siting and construction in detail, and marketing.

3.5 The Project Cycle at the Community Level

The following is a step by step description of proposed project methodology from the township/community perspectives.

Information Dissemination and Marketing. It is important that the entire community understands the importance of sanitation and the opportunities it has to acquire. Thus, the entire project should be fully described to the community at the household level from the very beginning. This can be accomplished through public meetings and distribution of printed material as an initial step. This will be followed by house visits by reference centre staff (tanzeem's saned and sanpro). Full information should be made available at the reference centre so that all can view it and take home written information at will. All roles and responsibilities should be described as should the costs and benefits. Messages and information should be consistent and therefore use of audio-visuals including flip-charts, demonstration units, latrine models and slide-sound/video shows is advisable. Demonstration units will be built within the township at schools, health clinics, and other locations decided upon by the reference centre and tanzeems. Ten such demonstration units per reference centre are planned. Care should be taken that such demonstration units are positive examples of sanitation and well maintained.

Household Request. The family must express its own needs through a request to the reference centre. This request should be made with full understanding of the programme and household responsibilities. It should be stressed upon that the latrine is a household commodity not a service provided by government. The most difficult hurdle for many households will be the repayment of loans into the revolving fund.

Approval, Agreement, Site Inspection and Plan. The request or application to the reference centre will trigger an early visit by the reference centre technician to the household where a site inspection and basic plan for the unit will be made. The visit will cover all aspects of the programme including any requests for financial support. Approval will be made at the reference centre level once an agreement is signed by the household and reference centre. This agreement will set up all parties' (household, reference centre and tanzeem) roles and responsibilities. Should financial support be required, a separate loan agreement will be signed by the household and its guarantors before approval.

Hygiene Education. Two stages of hygiene education will be implemented. The first will take place while the household is going through the process of having its latrine installed. This is an ideal time to have the family made aware of the benefits of sanitation as well as how the latrine functions and should be maintained. Hygiene education will be the

primary responsibility of the tanzeem saned (female) and sanpro (male). Women being responsible for family health will be the prime target for hygiene education. Men should also be a significant target. Changes in attitudes and practices related to sanitation will first take place in the houses through its female members. However, the males have the ability to either impede or support the project. Being female the saned will be able to visit women of the community with whom she is already familiar as she will belong to the community herself. Likewise the sanpro will also be a respected individual within the community and will be able to influence the men of the community.

Hygiene messages will be few and straight forward. They will focus on sanitation (such as proper use of the latrines, management of children's faeces and hand washing) but include messages related to the protection and use of water supply as well. In fact, the hygiene education component of the water supply project should be combined with the sanitation hygiene education, the latter being the primary vehicle for the former.

Demonstration. The project will bring latrines to those public locations where water is available and proper maintenance of the latrine is assured. Likewise health units and reference centres themselves will have latrines available to the public for purposes of use, marketing and education. Again, special care must be made that these demonstration units do not become negative examples, they should be built only when and where proper maintenance is assured.

Construction. The agreement between householder, mistry and reference centre will include a site plan, standard drawing, list of materials, price and inspection requirements. Maximum flexibility should be maintained to allow the families direct contribution and reduction of cost (for example household provision of pits and superstructure). The household would have the option of buying the materials (bricks, sand, gravel, steel and cement) on the open market or from the reference centre. The pan and pipes would be provided free through the reference centre provided that the household and mistry accept the inspection services of the reference centre. This is the only way by which the reference centre can ensure quality control and maintenance of adequate standards. Construction usually takes some two and a half days work by a trained mistry and labourers over a four day period. Once built and inspected by the reference centre's technologist, direct payment to the mistry for labour would be made by the household.

Operation and maintenance. Latrines are purchased and owned by the household. They are a household commodity. The household should be trained in and accept complete responsibility for O&M of the latrine. This should be written into the agreement. Any defect in workmanship should be the responsibility of the mason and be dealt with by the household and mason, not the reference centre. The sanpro and saned would be responsible for educating the family in the proper use and maintenance of the latrine.

Financing. Some 20-30% of households will pay for the latrines outright. Those that are unable to pay the full amount will be expected to pay the mason for his services (approx Rs.500) outright, but to the reference centre for the materials over time. Repayment capacity varies from town to town but usually falls in the vicinity of Rs 40-100 per month. Experience elsewhere illustrates that many prefer to pay off the loan more quickly and will do so once the latrine is installed and functioning. The most common approach for loans will be for the tanzeem to set up a revolving fund and provide interest free loans for material purchases of up to Rs 1,800 enabling full repayment in under eighteen months.

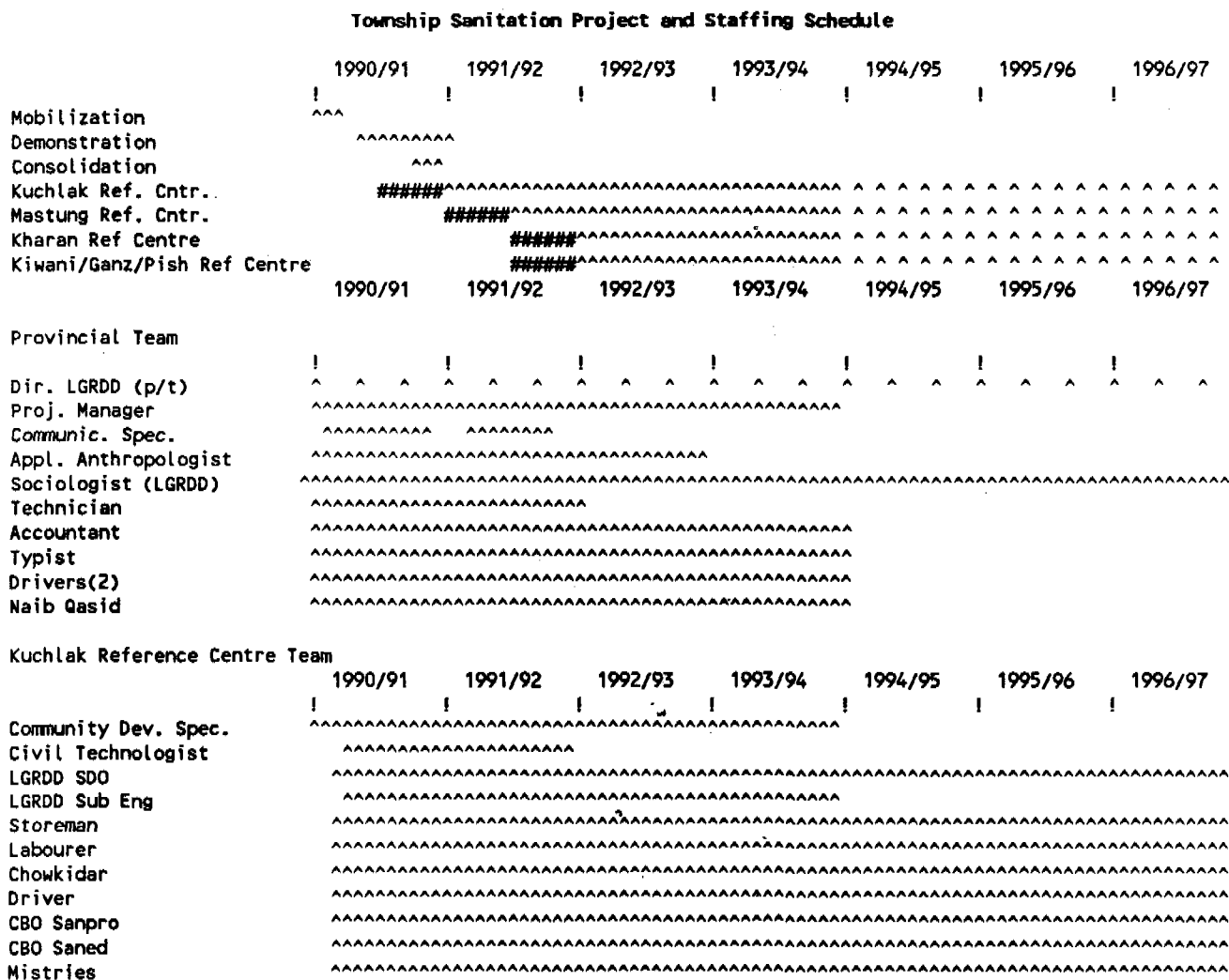
3.6 Implementation Time Inputs

The number of mistries trained and operative will largely determine the rate of production. Mistries are able to build double pit pour flush latrines at a rate of one per four days but require only 2½ days working time using the mistry himself and four labourers. Thus the rate of construction would be in the order of 100 latrines per mistry team per year. Production rates of 800 per year in Mastung with 16 wards and at least as many mistries operating are realistic. In support, the civil technologist operating out of the reference centre and the sanpro of the CBO will have to monitor and inspect the latrines. This would work out to a maximum of three to four latrines per day in the peak construction season but in other months one or two. During the first two years, the reference centre manager and civil technologist will establish a smooth flowing administrative system to handle the workload of receiving applications, site inspections, site plan preparation, procurement, and monitoring and inspecting the construction and finished latrine.

Promotion and marketing are also essential to keep the flow of requests up to the capacity of the mistries. This will be particularly important during the latter years of the programme when the more difficult to convince will be targeted but take longer time to win over. The CBO's sanitation promoters and sanitation educators are designed specifically to meet this need. There will be a maximum of 28 sanpros and saneds by the third year of the project working out of the CBO's in their communities. Again in Mastung, for example, the eight active CBO's would have 16 staff reaching a minimum of 800 households and probably double this number. This implies a capacity of 100 houses per year per pair of

sanpro/saneds. This would enable them to provide sanitation education as well as introduce and promote the acquisition of latrines.

The following figure illustrates the project's staffing schedule. The provincial team is designed to have its greatest impact in setting up the programme and later monitoring and managing it. The project manager is extended to four years to enable his overseeing the Kharan and Jiwani reference centres come into full operation during 1993/94. Technologists are limited in their time input as the technology is a basic and simple one. Their primary roles will be to carry out investigations on making the design and construction as cost effective as possible and to train the mistries.



Mastung Reference Centre Team

	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
Community Dev. Spec.	!	!	!	!	!	!	!
Civil Technologist		^^					
LGRDD SDO		^^					
LGRDD Sub Engr		^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^					
LGRDD San Inspector (P/T)		^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^					
Storeman		^^					
Labourer		^^					
Chowkidar		^^					
Driver		^^					
CBO Sanpro		^^					
CBO Saned		^^					
Mistries		^^					

Kharan Reference Centre Team

	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
Community Dev. Spec.	!	!	!	!	!	!	!
Civil Technologist		^^					
LGRDD SDO		^^					
LGRDD Sub Engr		^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^					
Storeman		^^					
Labourer		^^					
Chowkidar		^^					
Driver		^^					
CBO Sanpro		^^					
CBO Saned		^^					
Mistries		^^					

Jiwani/Ganz/Pishukan Reference Centre Team

	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
Community Dev. Spec.	!	!	!	!	!	!	!
Civil Technologist		^^					
LGRDD SDO		^^					
LGRDD Sub Engr		^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^					
Storeman		^^					
Labourer		^^					
Chowkidar		^^					
Driver		^^					
CBO Sanpro		^^					
CBO Saned		^^					
Mistries		^^					

notes ^^^^^ program execution
 ##### reference centre establishment

The LGRDD staff input would comprise existing staff on a part time basis at the provincial level and new staff acting as counterparts while the reference centres are operational in the townships. At the central level the Director would manage the contract of the development firm and his Deputy Director of rural water supply and sanitation participate directly in the Kuchlak investigations and standardization of methodology. The LGRDD staff in the townships (principally the SDO and sub-engineer) would also participate from the beginning of the programme in their townships by undergoing training and working with the team so that they would take over responsibility for the reference centre's operation during the third year of their operation. The storemen, labourers, chowkidars and drivers are all full

time in support of the implementation programme. Their duties will range from keeping inventory and procurement of materials to assisting in the loading and hauling of materials to the households.

The reference centre start-ups have been staggered at 6 monthly intervals, but with the last two centres being started up simultaneously when the central provincial team has adequate experience and capacity to cope with the task. These are illustrated in the project schedule which underlines the importance of the initial investigative, demonstration and consolidation phases.

3.7 Special Development Projects

There are three special development projects to be undertaken in support of the above described programme. These will be carried out in parallel with implementation of on-site sanitation. Budget allocations have been made for the following three development projects.

3.7.1 Sanitation Technology Field Tests

Although the pour flush latrine technology is affordable by the vast majority of township dwellers, a further reduction in costs would greatly assist marketing, increase demand and further reduce financing requirements. A separate activity will take another look at reducing the cost through use of different materials and methods of construction. For example, in Jiwani there are no bricks available and concrete blocks are too expensive to use for shoring up the sides of the pit walls. Stones from the nearby mountains will be used instead. Cost-effective construction using the locally quarried stones will be investigated. In Kharan there are not even any stones and imported bricks or concrete blocks must be used. Alternatives will be investigated. These include plastics. Snow fencing as developed in Canada could be produced in Karachi and would be less expensive than concrete blocks or bricks. Plastics and ferro-cement offer a variety of opportunities for cost reduction while maintaining the same longevity and efficiency as the standard design materials.

3.7.2 Wastewater Reclamation

Investigations will be carried out into the feasibility of reclaiming sewage and/or sullage water for use in agriculture after treatment. This has particular potential along the Mekran coast where fresh water is very expensive having to be either distilled from brackish groundwater or piped over long distances (>40 km). Current thinking is that sewer systems will eventually be installed in such towns as Gwadar and Jiwani. The collected wastewater would be treated before discharge to the sea. This doesn't make economic

sense in such areas where fresh water of any sort is valuable (currently selling by vendor at Rs 10 per 100 litres), and where the common diet excludes vegetables entirely. Vegetables sell at two to four times the market price in Karachi. There is potential for substantial recovery of costs of sewerage and treatment plant from the sale of vegetables on the local market. This, however, requires serious investigation and analysis of such variables as costs of sewerage (small bore or conventional), treatment, land, market gardening, post harvest processing and management/administration; of the productivity of the land under the extreme variations of temperature which pertain along the coast, of the need for inputs such as fertilizer and agricultural expertise, of market conditions, especially the elasticity of prices of vegetables, of water use and wastewater discharges and of the feasibility of having the entire process from collection at the household to marketing the product owned and managed by government and/or the private sector.

3.7.3 Small Bore Sewer Pilot Project

The small community of Mastung's Hindus living in 200 houses is located in one densely packed area and quite uncharacteristic of the rest of the town which is far less concentrated. Circumstances have caused this community to expand upwards, toilets are located on second floors of buildings. Wastewaters are discharged down pipes on the outer-walls of the houses to septic tanks built in the narrow lanes between the houses. Available space does not allow for pour flush latrines in the compounds. Collection of effluents of the septic tanks by small bore sewers would serve to remove all wastewaters from the lanes. Underground sewers would prevent the current build up of garbage in the lanes and backup of stagnant pools of wastewater in the open ditches. The community has expressed its determination and willingness to participate and contribute to a sewer project and would likely be able to pay for all materials required. Their primary needs are technical and project management assistance. This presents a valuable opportunity for a self-help small bore sewer project. It is proposed that this community be approached by the project for installation of a solids free sewer and that it become the property and thereby the responsibility of the Hindu community in the long term future. Discussions with the Chairman of the Municipal Committee of Mastung confirmed that such a project would be welcomed.

4 Project Implementation

4.1 Implementation Roles

This project will be implemented through a multi-disciplinary approach. It will require expertise and management, competency in marketing, communications, community development, appropriate technology, administration, and financial management. Several agencies will be involved:

The Planning and Development Department will be responsible for:

- o coordination, planning and financing the project,
- o monitoring and evaluation, and
- o reviewing and forwarding reports to donor agencies.

LGRDD will be responsible for:

- o overall execution and management of the project,
- o provision of counterpart personnel at provincial and township levels as they will support the project during and after its third year of implementation. The purpose will be to support tanzeems' (CBOs) and private sector efforts in achieving their targets. Once the reference centres have been made fully operational and the programme at the township level is well underway, LGRDD staff will take them over for the subsequent three to four years of their operation.
- o provision of training to LGRDD staff through its Rural Development Academy, using staff of the provincial sanitation teams as well as RDA trainers associated with the RWSS programme
- o chairing and coordination of the provincial RWSS committee and ensuring operationalization of appropriate recommendations
- o procuring, monitoring and managing the development firm within the scope of the contract for execution of the project (refer to Section 4.3)
- o reviewing the development firm reports and submitting final versions through the Planning and Development Department to the World Bank,

The Community Based Organizations (Tanzeems) will be responsible for:

- o undergoing training in all aspects of the project, and especially in accounting and revolving fund management,
- o forming sanitation committees,
- o promoting and marketing sanitation within their communities,
- o employing (under project funding) the necessary saneds and sanpros to carry out hygiene education within their communities,
- o supervising saneds and sanpros activities in their communities
- o identifying local mistries or semi-skilled workers for training and subsequent certification by the tanzeems themselves.
- o managing the revolving fund within their communities in support of household purchases of latrine units,
- o supervising, inspecting and certifying the construction of latrines by mistries,
- o subsequent to achieving sanitation targets, executing development projects (eg drainage, adult education, and women's income-generating activities) using revolving funds as previously established for sanitation,
- o liaising with local councillors and other leaders within their communities in support of the project, and

The Development Firm will be responsible for items listed in section 4.3.

Local Councils will provide:

- o political support and motivation within their geographic areas, and
- o provision of guidance and advice to the programme in their communities.

The Private Sector will

- o be the central driving force behind the project at the household level and especially in the long term. Mistries will be trained and supported through the life of the project and thereafter be the prime movers behind sanitation in their communities, and
- o execute the project through the development firm(s) in the form of the Sanitation Team.

Households will be responsible for:

- o applications for sanitation
- o becoming party to agreements for sanitation installation and financing
- o proper use and maintenance of the latrines following installation
- o complete payment for the sanitation units (apart from the pan and pipes which will be provided as subsidy).

4.2 Motivation and Incentives

There are several key motivational factors and incentives (beyond salaries) which provide impetus to the project as designed and which ensure continuation of efforts not only during the project's first three years and but also subsequent to cessation of external support altogether. These are

1. *Household*: motivation provided by the tanzeem's saned, and sanpro will result in:
 - o improvement in the household sanitary environment
 - o reduction of risks of diseases transmission
 - o reduction of cost of human waste disposal
 - o increased convenience and privacy
 - o reduction of work load of women in the households
 - o availability of fertilizer to the household

2. *The Private Sector (Mistries)* will be benefit from this project in terms of:

- o wages from applying their trade. This will ensure the expansion of coverage in the ten and twenty years future.
- o acquisition of skills through training in pour flush latrines construction will avail higher earning capacities.

3. *Tanzeems* will be able to

- o meet their objectives as development agents in their communities, and
- o continue and/or spread their positive influence within their communities.

4.3 Institutional Strengthening and Project Management

Neither LGRDD nor the townships have experience and capability in formal sanitation programme delivery. This project will require a rapid start-up and detailed methodology development. This coupled with a substantial requirement of institutional strengthening suggests the use of a firm to provide the necessary institutional strengthening and project management for the first three to four years. During that time LGRDD staff will participate and be trained for take-over during the final year of the Sanitation Teams's input and the subsequent three years. Recommended terms of reference are given in Appendix C.

The firm would have to have extensive experience in development project management, especially in the area of sanitation and water supply. The following describes implementation of the project by such a development firm under contract to government. The advantage of this approach is that under specific terms of reference, the development firm will execute the project with clearly defined roles and outputs. To meet the terms of reference the firm would have to exhibit superior management, professional and training skills. Essential requirements will include

- o experience in sanitation and/or water supply in low income groups in Pakistan
- o management of projects involving all levels from the upper levels of government down to community based organizations and the households themselves, and
- o development of field methodology in sanitation delivery, preparation of technical standards and training materials, and conducting the training programmes themselves.

The development firm will:

1. Establish a reference centre in the first township (Kuchlak) during the first three months of the project for purposes of developing and demonstrating field methodology. The firm will be fully responsible for all staff within the provincial township sanitation team (apart from LGRDD counterparts) and all reference centre staff over the three year period of project initiation.
2. Mobilize and establish a Township Sanitation Team at the provincial level which will be responsible for leading and managing project development over a three year period. It will
 - (a) investigate methods of promoting and marketing low cost on-site sanitation units in Balochistan,
 - (b) develop cost effective and culturally acceptable methods of delivering hygiene education within the target townships,
 - (c) identify organizational and managerial structures and systems for project implementation at the township level which will include community based organizations and extensive use of the private sector for installation of sanitation units in the households,
 - (d) detail practical means of financial support to the lower income groups requiring subsidy and/or financing arrangements in purchasing their latrines,
 - (e) investigate and recommend a complete methodology for project implementation including all project steps, management and administration, the above will be carried out using the established reference centre at Kuchlak,
 - (f) prepare field manuals and administrative procedures, and through the Rural Development Academy train government and project staff in (1) communications, (2) community development and participation, (3) sanitation technology, its delivery and installation, (4) project administration and management, (5) monitoring, reporting and evaluation, (6) accounting and revolving funds management, (7) hygiene education and its delivery, and (8) cultural and ethnic attitudes and practices relevant to the project,

- (g) conduct socio-economic, sanitation and subsoil surveys in three other locations acquiring such information as existing sanitation practices, needs and expectations, willingness and ability to pay for sanitation improvements, financial support requirements, promotion and marketing of household commodities within the community, availability of skilled and unskilled labour, leadership and characteristics of community based organizations, water supply and water use practices subsoils and water table,
- (h) review township plans for infrastructure development including water supply, drainage and sewerage,
- (i) establish a reference centre in each of these communities at a maximum of four monthly intervals. In accordance with field methodology developed introduce the programme in the other townships which will include
- training CBO/tanzeem leadership and personnel in technology, project management, operation of revolving funds and basic accounting, construction and inspection and the functional operation of the project in their area,
 - training local mistries and/or semi-skilled personnel in sanitation unit construction,
 - building demonstration units at the reference centre and other selected locations in the township,
 - promoting and marketing sanitation units within the community
 - assisting the CBO's/tanzeems in setting up and operating revolving funds and other financing mechanisms such as the traditional "bisti" collection system to assist in household purchase of latrines,
 - setting the reference centre into operation in receiving and approving applications, inspecting sites, drawing up site plans,procuring and distributing materials, and
 - supporting construction through assisting the CBO's/tanzeems supervise and inspect construction,
- (j) establish a project information management system covering project accounting, personnel, sanitation installations progress, materials inventory and reporting. The accounting system will be designed to facilitate audit.

- (k) liaise closely with other sector programmes being carried out by the Public Health Engineering Department improving water supply in the townships and the LGRDD improving water and sanitation in the smaller rural communities. In particular, work closely with the LGRDD Rural Water Supply, Sanitation and Health Unit and the LGRDD Rural Development Academy.
- (l) regularly prepare reports to the LGRDD and P&D on project progress; the following reports will be prepared in English and submitted within the stated time period after project initiation:
- Inception Report (3 months) in 10 copies: 5 copies to LGRDD, 5 copies to the World Bank including the Resident Mission, Islamabad,
 - First Interim Report (12 months) in same numbers of copies as Inception Report,
 - Second Interim Report (24 months) in same number of copies as Inception Report,
 - Draft Final Report (36 months) in same number of copies as Inception Report, and
 - Final Report (1 month after receiving comments and making changes to the Draft Final Report) in 27 copies (20 copies to LGRDD, 7 copies to World Bank, including Resident Mission Islamabad).

The development firm would be responsible for fielding the following personnel:

Personnel	Months
<i>Provincial Sanitation Team</i>	
Project Manager/Community Development Specialist	48
Senior Advisor	2
Communications Specialist	18
Applied Anthropologist	36
Technician	24
Accountant	48
Word processing Typist	48
Drivers (2x48m)	96
Naib Qasid	48
Short term Consultancies	7
<i>Reference Centre Staff</i>	
Community Development Specialists	144
Civil Technologists	75
Storemen	93
Labourers	93
Chowkidars	93
Drivers	93
Sanitation Promoters, sanpros	612
Sanitation Educators, saneds	612

5 Financing

5.1 Cost Estimates

5.1.1 Basis of Costing

The selection and costing of latrine technology is crucial in terms of project viability and cost recovery. The double pit pour flush toilet has been tried, tested and proven in Balochistan through BIAD and BWASA sanitation programmes. A standard design has been developed, most recently by BWASA. It is the design chosen for use in this proposed project. June 1989 cost data for the double pit pour flush system were obtained from the Quetta/BWASA programme. They are presented below:

<u>Item</u>	<u>Unit</u>	<u>No.</u>	<u>Rs/unit</u>	<u>Total</u>
Cement	bag	2	100	200
Sand	bag	5	5	25
Gravel	bag	3	6	18
Bricks	brick	630	0.6	378
PVC pipe	ft	15	11	165
Pan and Pipe	unit	1	120	120
Foot rests	unit	1	16	16
Pit cover	unit	2	140	280
Transport Mtl.	unit	1	60	60
Mistry & lab.	unit	1	500	<u>500</u>
Total				1762

There will be variations to the standard design in response to site conditions and requirements. These include:

1. strengthened pit covers where traffic requires (+120Rs),
2. covering of old pit latrines with steel bars where required (+100Rs),
3. PVC bend where configuration of the pipes require it (+80Rs), and
4. where the bathroom floor needs replacement +(300Rs).

In addition, there are local variations to the above unit and total costs. However, experience in Quetta confirms that the normal range for the latrine is from Rs 1500 - 2000 with a mean value in the vicinity of Rs 1800.

Surveys of unit prices in the target townships indicated the following variations (in rupees):

	<u>Mastung</u>	<u>Kharan</u>	<u>Jiwani</u>	<u>Kuchlak</u>
1 bag cement	110	110	100	100
1 bag sand	3	2.5	3.5	2.5
1 bag gravel	2.5	2.5	3.5	2.5
10 bricks	8	20	-	8
1 day labour	40	35	60	40
1 day mason	120	120	150	120
1 load stones			300	

which when used to calculate the cost (in rupees) of double pit pour flush toilets at these locations results in the following

Costs of Township Sanitation Units

	<u>Mastung</u>	<u>Kharan</u>	<u>Jiwani</u>	<u>Kuchlak</u>
Cement	220	220	200	200
Sand	15	12	18	12
Gravel	8	8	8	10
Bricks	504	1260	250.*	378.*
PVC Pipes	180	180	165	180
Pan & Trap	120	120	160	180
Foot Rests	16	20	22	16
Pit Covers	280	280	280	280
Transport	60	60	50	50
Mistry & Lab.	450	50	500	500
Local Adapt.	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
Total	1953	2740	1775	1854

* stones

By weighted average, household contributions amount to Rs 1716.20 per household whereas project subsidies would amount to Rs 327.50 per household.

5.1.2 Summary of Project Costs

Reference is made to the detailed costing Tables given in Appendix B-1. The project costs arise mainly from technical assistance, establishment of reference centres, transportation, material incentives and experimental activities.

Project costs given in this section do not include community contributions. These are considered separately in section 5.3.1. All costs in this section are in constant prices of July 1989. The base costs by disbursement category are summarized below.

<u>Disbursement Category</u>	<u>-----Cost-----</u>			<u>Total</u>
	<u>Local</u>	<u>Foreign</u>	<u>Taxes</u>	
	(Rs. '000, July 1989 prices)			
Civil Works	5,298	882	440	6,620
Materials & Equipment	3,512	717	861	5,090
Vehicles	149	850	793	1,792
Technical Assistance	24,062	16,425	0	40,487
Training	230	0	0	230
<u>Total Cost</u> Rs. '000	33,251	18,874	2,094	54,219

The households themselves will bear almost all costs of latrine installation, therefore the investment in civil works represents only a small portion of the total cost, 12%. This will be spent primarily on the reference centres and demonstration facilities related to them. Materials and equipment, being mainly the incentive pans and pipes constitute 9%, with vehicles making up a further 3%. Technical assistance is the largest disbursement category - 75% - which is required to put the system in place, train LGRDD staff and see that the first 4 reference centres are operational and successful.

The investment is spread over the full 7 years of implementation from fiscal year 90/91 to 96/97. The largest investment is in the first 3 years, especially the first, due to the mobilization of the central Sanitation Team and establishment of reference centres, then drops off considerably in the remaining 4 years. The annual costs are as follows:

<u>Fiscal Year</u>	<u>---Base-Cost---</u>		<u>--Cost with Contingencies--</u>	
	Rs'000	US\$'000	Rs'000	US\$'000
1990-91	14,119	643	17,193	783
1991-92	19,222	859	24,929	1,114
1992-93	10,942	480	15,106	663
1993-94	8,076	348	11,762	506
1994-95	1,200	51	1,827	77
1995-96	522	22	830	34
1996-97	138	6	229	9
<u>Total Cost</u>	54,219	2,488	71,876	3,187

5.2 Cost Recovery

5.2.1 Latrines as Household Commodities

Various attempts have been made to establish latrine programs around the world. Many have used heavy subsidies (up to the total cost of the latrine) to encourage householders to accept and use them. This demonstrates to potential users that the government is willing to provide the facilities free of cost. Once the project demonstrates its willingness to provide free facilities it is very difficult to convince subsequent users to purchase the latrines as they quickly become looked upon as a government service.

Latrines are household commodities. The private sector has been installing them with full cost recovery from the householder for decades. Expansion of coverage must come from reduced cost, improved technology, and enhanced demand through marketing... not subsidies.

5.2.2 Cost Recovery

Surveys carried out in the target townships concluded that there is a demand for latrines which can greatly be enhanced through promotion and marketing improved technology. Whereas there is a percentage of the lower income population requiring financial support to afford any such commodity (estimated as 10%), many (30%) can afford to pay outright, and will. The remaining 60% will need some kind of financing mechanism to spread the costs over time. Thus one can expect a relatively high rate of cost recovery overall. Realistically, it might be as high as 80% of purchasers if the appropriate mechanisms for collection are put into place.

5.2.3 Provision of Pans and Pipes

It is proposed to provide pans and pipes free of cost to the consumer. This is regarded more as a means of "fixing" the technology than subsidizing latrines. By issuing the pans and pipes one is

- (1) ensuring that a quality bowl and pipes are used. The ceramic bowl is preferred over terrazzo or mortar bowl because of its ability to be cleaned much more easily. It is also white and attractive. More importantly however, the pans which are made in Chakwal and proposed for this project have been designed for minimum flushing water use, enabling a saving over 50% of water (at least one litre per flush), and

- (2) ensuring that the CBO's or tanzeem have "leverage" over the mistries operating under "licence" in its community. Should any mistry do inferior work the tanzeem can take away his access to free pans.

5.2.4 Revolving Funds

The cost of the latrine can be divided into three parts: (1) the mason's charges, which the purchaser of the latrines should pay directly to the mason and preferably outright upon certification of the latrine, (2) the pans and pipes as described above to be provided by the project and, (3) the materials and transport charges. The majority of purchasers will require some form of financing to spread some of the costs over time. It is proposed that the financing be limited to the costs of materials and transport charges only.

Where tanzeems are operating, they are a powerful means of applying peer pressure on the defaulter. Each tanzeem knows its constituent families. Its incentive is to recover the funds as quickly as possible so that others in the area can enjoy the benefits of the revolving fund. An example revolving fund operation was computed in which it was assumed that a tanzeem was making loans at a rate of Rs 15 per month, the amount being Rs 960 for the materials. It is noted that the estimated cost for material is Rs 800. The additional Rs 160 represents a contingency in case of defaulters (20%), administration charge levied by the tanzeem, or a combination of the two. Repayment was over a sixteen month period at Rs 60/household per month. By providing the tanzeem with a revolving fund of Rs 122,400 initially the fund would be depleted in 15 months and again be replenished by the 50th month. Such a loan account is listed in Appendix B-2. On this basis and if the targets of the project are being met, then the required funds for revolving funds for the entire project in the second to fifth year would be total Rs. 1,713,600 as presented in the following table.

Revolving Fund Support to Latrine Construction

Year	90/91	91/92	92/93	93/94	94/95	95/96	96/97
No. Rev. Funds Establish.	0	3	4	5	2	0	0
Latrines constr. using Rev. fund 90/9	0	540	540	420	0	0	0
91/92	0		720	720	560		
92/93	0			900	900	700	
93/94	0				360	360	280
94/95	0						
95/96	0						
96/97	0						
Total	0	540	1,260	2,040	1,820	1,060	280
Cumulative Total	0	540	1,800	3,840	5,660	6,720	7,000
Fund Reqt., Rs.'000	0	367	490	612	245	0	0
Cumulative Reqt., Rs.'000	0	367	857	1,469	1,714	1,714	1,714

These funds could be recovered by the project, alternatively they could be put into income generating projects, the tanzeem using them after the project ended to support small business within the community.

A note of caution: the revolving fund concept functions well in some situations and not in others. It should be regarded here as one way amongst others of providing financing such as the local "bisti" system. Care should be taken to set up the revolving fund properly and investigate its characteristics before promoting its widespread use in all tanzeems in the project. It is recommended that funds be allocated in the project budget in the amount suggested above. Higher amounts could be considered, however the demand for financing has tended to be over-estimated. The cost of household financing is low. Where CBO's or tanzeems are not functional, the revolving fund can be operated by the reference centre itself. In this case it would be looked upon as a means of paying back the reference center for the material by instalment. Capacities to pay back suggest that the maximum payback period should not be longer than 16 months. The total number of latrines being installed by the project is 10,550, financing costs to the project are then Rs 162/latrine, or US\$ 8/latrine. Most of these funds would be ultimately used by tanzeems in some form of development project. They would thereby not be lost but be employed in some other development sector.

5.3 Financing

The economic costs of the project will be financed from three sources: the community, the World Bank (IDA) and the government of Balochistan. The community will cover the most of the cost of latrine construction totalling over Rs. 18 million. IDA will cover the project costs as described in section 5.1 above, being mainly institutional development, and the government will take over the salary and running costs of the programme during the latter years of implementation.

5.3.1 Community Financing

The community, being the township households, will play a significant role in the financing of the project. As described above in the section on cost recovery, the householders will bear the full cost of their new latrine minus the small incentive of a pan and pipes amounting to only 16% of the overall latrine cost. The community contributions to latrine construction are not included in the project costing but are shown below to record the economic value of their contribution through this project.

<u>Fiscal Year</u>	<u>No. of Latrines</u>	<u>-Cost to Household*- Rupees('000, July 89)</u>
1990-91	50	85
1991-92	810	1,390
1992-93	1,890	3,243
1993-94	3,060	5,252
1994-95	2,730	4,686
1995-96	1,590	2,730
1996-97	420	721
<u>Total</u>	10,550	18,107

* cost to household is Rs.1716 per latrine.

5.3.2 IDA Financing

It is proposed that the World Bank cover the full amount of its project costs with IDA financing. This is in view of the fact that the community is expected to contribute an additional Rs. 18 million, and the running costs after 3 years will be covered by government. The total cost to IDA is Rs. 71.9 million or US\$ 3.2 million (including contingencies) in constant prices of July 1989.

5.3.3 Government Financing

The Government of Balochistan will take over some of the running costs of the reference centres after 2 years of operation. By the end of the third year, government will assume all responsibility for operating the reference centres. At that time, they will be well established yet still have approximately one more year of technical assistance during which the smooth transition to LGRDD can be assured.

The on-going running costs will consist only of the salaries of low level reference centre personnel, vehicle O&M, and transport of incentive pan and fittings. These costs amount to a total of Rs. 7.5 million over the 7 year project period. The cost to government will be low during the first 2 to 3 years during which IDA will be financing reference centre staff. Thereafter, the level of financing will jump to a relatively constant level of Rs. 1.6 million/yr being primarily for staff paid by LGRDD.

The addition of new reference centres would create additional expenditure. It will average Rs. 780,000 per year per centre until the end of the centre's 6 year lifespan. It is expected that 4 new centres every 2 years will be initiated by LGRDD until all 16 townships have been covered.

6 Project Justification and Risks

6.1 Costs of Alternatives

The proper management and disposal of faecal material in the larger communities of Baluchistan is considered essential to their social and economic development. Choice of infrastructure ranges from pit latrine to full sewerage. Traditional pit latrines are indeed less expensive (approximately half) than the double pit pour flush toilet which is being proposed for this project. They are however, smelly, tend to get soiled and must be replaced when full. Many houses already have pit latrines in their compounds. They are not highly regarded from either health or aesthetics perspective. Surveys indicate that households not only want improvements but are also willing to pay for them. The benefits of the pour flush toilet far outweigh the additional costs involved.

The other alternative is full sewerage. The cost of full sewerage has not been estimated, however suffice is to say that it is normally 1.5 to 2 times more costly than piped water supply to the home under such conditions as exist in the larger settlements of Balochistan. They require water to operate, this is another constraint on their use in Balochistan.

An exception exists in the case of Mastung where a Hindu community has established itself in one area as a mahalla of 200 houses. Due to space constraints the houses are small, crowded and mostly two storied. Septic tanks have been built in the narrow lanes to settle the domestic wastewater before discharge into the open drains between the houses. There is insufficient space for double pit pour flush toilets. Sewers will be necessary. Solids free sewers (SFS) will be the least costly alternative. The community is both socially and economically tightly knit. Strong community support to a self help project is anticipated. Installation of small bore sewers down the lanes to pick up the effluents from upgraded existing septic tanks is the least costly alternative under the lawns. This would be a pilot project. The community has indicated its willingness to cover all material costs but needs technical and managerial support.

6.2 Justification of Selection of Institutions

Traditionally, sanitation has been left up to the householder and local mason. With improvement in water supply and the need for improvement in hygiene, sanitation becomes essential. Relying on the private sector alone has proven inadequate. Government must provide support which will result in the rapid improvement and expansion of sanitation in these communities. The full range of community administrative systems from union council to municipal committee is represented in the selected communities. These bodies are however, not well suited to the administration of sanitation programs. However, the

LGRDD provides them technical and a limited amount of financial assistance. The LGRDD has been selected due to its active support to and presence in these communities. It is also mandated by local ordinance to be responsible for sanitation.

The construction of latrines on private property must remain a private sector function. Therefore government support should be aimed at the private sector or masons, as provided for in this project. The nature of this support suggests that it must be short and intensive. The objective is to support the masons through demonstration, marketing and training. Intensive inputs over a relatively short period are best carried out by the private sector itself. Therefore, a consulting or development firm is recommended to become the prime mover behind the project. It would act on behalf of LGRDD while training LGRDD staff for take-over of the programme. It would withdraw after three to four years once the programme is firmly established and functioning. Government would then expand the programme to other townships.

6.3 Impact on Women and Children's Health

Women face higher risks of sanitation related diseases because of their vulnerability to excreta and household wastes. Household sanitation is considered women's job. In all townships of Balochistan, women scoop dry excreta from surface latrines in the households, gather garbage from the compound and throw them outside either in the field, refuse piles or streets. They are therefore, in regular contact with faeces. The provision of sanitation and hygiene education through this project will definitely decrease the risk factors for women's health. It will also have a positive impact on the health of their children. Hygiene education will enable them to raise personal hygiene along with the household sanitation conditions. It will create awareness of the risk factors related to poor sanitation and hygiene practices and enable them to improve their families health and their living environment.

Difficulties are faced by women in towns who do not have latrines in their compounds. In such cases they must go outside into the fields at dawn or at night in darkness. Apart from the need to heavily regulate and restrict defecation to these times, this exposes them to greater personal danger and lack of privacy. This project will have a highly desirable impact on women as they will be able to defecate in privacy, and at any time of day or night.

6.4 Impact on the Environment

Current practices of human waste disposal result in faeces being widely spread throughout the community, in the household compounds, in the streets, drains and alleyways. As mentioned above, faeces are commonly collected by women and sweepers without any protection, and thrown outside on rubbish heaps and open fields, which become sources of food for insects, rats, dogs and donkeys. This project will eliminate almost all of these dangerous practices and sources of disease, and result in improved health and general environmental quality.

The technology being proposed for the double pit pour flush latrine is such that it digests and composts human waste, making it into a soil conditioner and to a lesser extent a fertilizer which will most likely be used in household vegetable gardens. For an area such as Balochistan where soil quality is poor. The availability of humus, even at the household level, would be valued. Already, in the townships inhabited by Pathans, composting of refuse is informally practiced at the roadside. The product compost is used in local agriculture.

6.5 Risks

1. This project will be implemented through the Local Government and Rural Development Department and a development firm but will also utilize local community based organizations and the household. The target is the household. All parties to the project will have clear cut roles to play, however there is a risk that with several actors involved, administrative and communications systems will be stretched and the project suffer. The project has been designed to be as uncomplicated as possible and yet retain its effectiveness. Further, an inter-departmental committee will be set up (also as part of the rural water supply project) to maintain adequate co-ordination at the operational level.
2. There is the risk that the community at the household level will not appreciate the benefits of sanitation and thus not purchase the latrines. These benefits (especially those related to health) will not be realized unless the householder understands the relationship between health and sanitation and changes in hygiene habits. The project has been designed to minimize this risk. Changing behavioral patterns is difficult in a short period of time. A hygiene education programme has been designed and will be carried out by sanitation promoters and sanitation educators whose specific purpose is to have the household understand the benefits of hygiene and improve personal and household hygiene. They will do this through house to house

visits and public meetings where specifically designed audio-visuals will be presented and the participatory approach will be taken to involving the community as a whole. In addition, the marketing will be primarily based on the benefits of privacy, convenience and status. These will be easier to project than health benefits and will also minimize the risk of low demand for the latrines.

3. There is also a risk that loans will not be paid back in the required time period or not paid back at all. To prevent such a situation, tanzeems will form a committee of influential people from within the communities who will ensure that the money is paid back on time. Other projects using the revolving fund concept at community level have demonstrated that one of the most effective means of ensuring cost recovery is through a system of peer pressure, provided that those applying the peer pressure have adequate incentive themselves. The household will also be required to provide two guarantors who will sign the agreement paper between household and tanzeem.
4. Past experiences in community based self-help programmes have suffered from political conflict within the community itself. Often influential persons have benefited most, to the detriment of the poor. This project will involve development oriented tanzeems instead of union councillors or the village elite. In case there is no local tanzeem appropriate for the project, the reference center will initially take on the tanzeem's role and later identify persons who are respected and acceptable by the entire community to form a committee and assume the tanzeem's role over time.
5. Many of the LGRDD staff have not had the opportunity to work on such a project before. There is the risk that the project will be carried out "without them" and when the time comes for hand-over from the development firm to LGRDD the project will fail due to lack of commitment and understanding. This risk will be minimized through a carefully designed training and staff management. Full time counterpart LGRDD staff will be working side-by-side with the development firm's personnel at both provincial and township levels. When the time comes for hand-over, they will be fully trained and capable of assumption of responsibilities. Hand-over will be gradual over the second to last year of the firm's contract. During the last year the firm will act as advisers, rather than managers to ensure complete and satisfactory assumption of responsibilities by LGRDD.
6. Continued commitment to the project has been indicated by LGRDD and, to the extent possible, assurance is given that government will support the project in the long term.

Appendix A

Descriptions of Townships with Respect to the Sanitation Programme

A.1 Kuchlak

Kuchlak is situated on the national highway about 15 km towards the north of Quetta city. Ethnically, Pushtoons are the major group living in the area, they are mostly engaged in agricultural activities. During this decade, there has been a large shift of Afghan refugees into the town who are now dominating the business in the bazaar. The local population is about 2700 persons, while Afghan refugees are about 32,000 in number. The town is divided into 9 wards consisting 39 surrounding Killis. The Union Council office is located in the town.

The traditional economy of the town is based on private business, and cultivation of fruit and vegetables. There are number of private tube-wells used for irrigation purposes. There is no drinking water scheme for this town. Usually children and women fetch drinking water from the tube-wells or wells located in some of the houses. There is also a water stream running through the village which is used for washing dishes and clothes.

About 20% of local population have pit latrines and the rest have enclosure (dry) latrines in the household. The latter are swept by women and the excreta is thrown in the disused Kareze. It was indicated that the locals have adopted the idea of pit latrine from the Afghan refugees.

Meetings in Kuchlak were held with members of a volunteer organization called Islahi (reform committee) tanzeem. This tanzeem is run by the local population. The purpose of this tanzeem is to solve the problems of local people in the area of water, education, and health. Ideally the whole village has membership in this tanzeem. The people in the meeting did have a wide experience in voluntary development work, and they were excited about the proposed method and implementation in the area of sanitation.

It was indicated that people are not satisfied with the existing methods of sanitation. It is considered dirty posing health risks. This applies especially in the rainy season when the soil gets wet and muddy and walls collapse. Double pit pour flush latrines were considered technically very appropriate for the area.

It was suggested by the tanzeem members that the double pit pour flush toilet should be demonstrated in the town. Once the people become aware of its benefits, the demand will increase. About 25 well to do houses in one ward will be able to install the latrines right-away. This would enable others view the methodology, technology and understand the programme. It was suggested that local councillors should not be involved in the management side of the programme. The money should come directly from the local government of the tanzeem management body. The tanzeem should elect honest and dedicated persons for the handling of the accounts.

Afghan refugees dominate the populace in the town. They make up 80% of the residents in the town. However, they are a relatively mobile population. Kuchlak is used as a intermediary place before shifting to bigger cities such as Quetta or Karachi. Meetings with few Afghans indicated that 60% of their population is living in rented houses. However, the owners are Afghans who are living in other cities. A majority (70%) of the houses in this population do have traditional style pit latrines. A very small number (2%) of households have enclosure latrines. The rest use open fields for defecation purposes. There is no tanzeem or any type of organization among Afghan refugees. It was stated that they come from different areas and belong to different refugees camps. If they do face any problem it is solved by the individual himself by approaching the local government authorities. Mosques and other places used for the solution of conflicts.

An interest was expressed in adopting the new sanitation methodology, but people were not very clear about the procedure to be used. The local tanzeem members suggested that the programme should be started in the local side of the town and later on be extended into the refugee population.

A.2 Mastung

The municipality of Mastung comprises 16 wards. They are generally of medium density apart from the market area in the town centre which has developed linearly along the main streets, and the Hindu residential area. The Hindu area is atypical due to restrictions on land purchase in the neighbourhood. The other wards are scattered around the central area most representing large villages all within the municipality and in need of improved sanitation. The Wards and their stated populations are as follows:

Wards	Population
1. Mhd. Shah	5000
2. Behram Shah	5300
3. Tendlan	10000
4. Kuasam	5000
5. Ishkana	5200
6. Killi Shakhan	3800
7. Shaikh Taqi	3000
8. Killi Qasian	3000
9. Aziz Abad No 2	3500
10. Aziz Abad No 1	3000
11. Ghazgi	3500
12. Babo Mohala	2000
13. Zar Khalan	3000
14. Hindu Mohala	1500
15. Meana	2500
16. Saddat	1800
total =	61100

Each ward has an organization or tanzeem, which represents its households in development and charity work. They are restricted to their areas in their activities.

Meetings were held with the chairman of the municipal council Sumendar Khan Mohammad Shah, who indicated strong interest in sanitation improvements and methodology of implementation being proposed. Others at the meeting included a councillor, the local government sub-engineer and the chief sanitary inspector. It was concluded that the municipal councillors should not be directly involved in the project due to their political nature and tendency to mismanage funds. The preferred organization for the project included the provincial LGRDD officers, a single reference center in Mustang run by a development firm under contract to LGRDD, the 16 tanzeems and their households. Strict financial controls including audit trails were recommended by the chairman. The technology would be brought in through the firm's staff which would include a community development specialist and technicians.

The municipality would provide (at least part time) the services of the chief sanitary inspector and sub-engineer. It was recognized that the municipal councillors should support the project through their political influence. Thus the municipality would have to play a positive role, although a passive one. As may be expected the councillors themselves are typically very influential in their wards and hence in their tanzeems. There were two other organizations identified worth noting. These were the Muslim and hindu Panchayats. Both

are oriented to conflict resolution, although the latter representing 100 households take more active roles in a developmental sense.

With regard to technology selection it is very apparent that the double pit pour flush is preferred over existing dry pits, bucket latrines and enclosure latrines. A visit to the Hindu Mohallas demonstrated amply that the double pit pour flush toilet would not be appropriate. The solution will be conventional or solid free sewers.

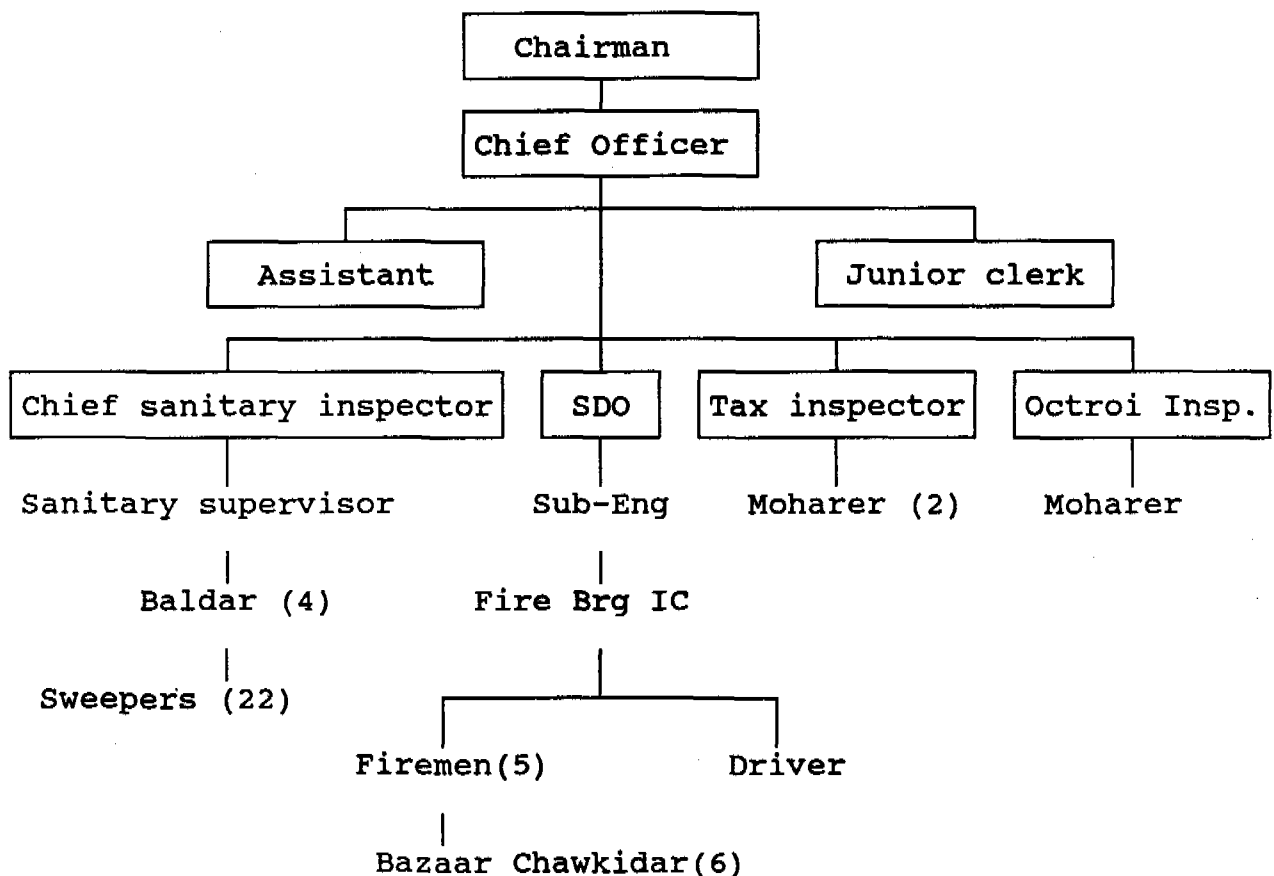
Discussion were held on willingness to pay, it was agreed that users should pay but would value subsidy in terms of the pan and pipes. A meeting in Mohammad Shah ward indicated that provided there was good demonstration of the units some 25% could pay for the toilets out-right. Some 3% could not pay any thing toward sanitation. Where as the rest could deposit 300 rupees as a first instalment before construction, and some 30-70 rupees per month back into a revolving fund. The revolving fund concept was described and welcomed.

The flow of funds should avoid local councillors and come direct from LGRDD Quetta to the Reference Centre for the distribution for the tanzeems. The only fund reaching the tanzeems those required to set up the revolving fund. The tanzeems all have bank accounts requiring double signatures. The revolving fund will make loans to individuals with guarantors as neighbours. Pay back would avail the funds to be used again as loans. Therefore peer pressure would reinforce early pay back.

In terms of unit costs, materials are similar to those in Quetta.

It was recommended that hygiene education by trained females living in their wards with 10 grade education would be available but would likely required salaries 500 rupees per month. TBAs were not recommended as their hygiene habits were considered to be below average. Also, young educated women are more like to understand the importance and benefits of sanitation.

The staffing of the municipal council and LGRDD is as follows:



The traditional pits are about 10-12 feet deep, and get filled over a period of 3-4 years. There is no super structure built, just a half mud wall around the latrine is considered enough. The approximate cost per latrine comes to 500 rupees.

A.3 Kharan

Kharan is Located about 180 miles towards south-west of Quetta. The estimated population of Kharan town was stated to be around 25,000 people, ethnically they are all Baloch with a small minority (250) of Hindus. The local economy is based on agriculture, animal husbandry, trading and government services. The Kharan town is divided into 9 wards. The center of the city is densely populated. The actual population of the central town is 7000, while rest is scattered in a larger area around the town. The population distribution in the wards is as follows:

Ward	Population	New Villages	Population
1. Collage ward	2500		
2. Mir Essa Khan	2500		
3. Babo Mohalla	3000	Kili Sherozai	700
4. Rest house	3000	Mir Khawasit Khan	500
5. Ilamzilan	2500	Kili Lattar	800
6. Sadullazilan	2500	Kili Said Abdul Kaliq	600
7. Bazaar	3000	Kili Said Noor Mohd	500
8. Muddersa	3000	Kili Dusal Khan	500
9. Diwankhana	2500	Kili Haji Abdul Razaq	700
10. Minority	250		
Total = 24750		Total = 4300	

In recent years a few new areas have been included into the township wards as shown in the above table. People are interested in development work. About 10% of the population is nomadic. Ethnically they are Mengal Baloch and depend on livestock and cultivation for their living. If it does not rain in Kharan, they migrate to Kalat and Pangoor districts. They do have houses in Kharan.

There is no organization in the town except among the Hindus who have their Panchayat. The ward population depends on their elected members in the union council for solution of their problems. There is also a politically based ex-student organization which is active in presenting people's problems to the government.

Discussions were held with the chairmen of town committee, and Hindu leaders and other community members from different wards in the township. It was stated that presently, people are using dry pit latrines (15%), and open surface latrines (30%). In the surrounding villages open fields are used. About 2 or 3 houses have septic tanks.

The double pit pour flush latrines idea was appreciated by those met. The discussion with the chairman of the town committee and others indicated that about 100 households could make outright payment for the installation of the latrines. Hindus were more willing to pay the amount right-away because of their immediate need for the sanitation in their area. Another 100 households could pay Rs 300 at the first instalment and rest at Rs 100 per month. About 10% of the population would need some sort of substantial help. In the Hindu community there are 25 households of which 10 household will be able to pay outright. Another 10 houses could pay 300 at first instalment, and rest at Rs 30 to 50 per month. It was stated that once the programme is started and demonstrated, there would be a strong demand for the latrines.

The methodology for implementation and cost recovery suggested by the members included formation of a new committee or tanzeem based on development oriented people from the community. These people would motivate others through talking and installing the latrines in their own houses first for demonstration purposes. They would pay for the latrines outright. The chairman of town committee (Haji Essa Khan) offered a location for the reference center. It was suggested that the present members of the town committee could be involved in the programme.

The release of the funds should be made to the committee formed by the reference center. The committee members should be responsible for the recovery of the loans. They should make an agreement with the household. The concept of revolving funds was understood and appreciated.

A.4 Jiwani

Jiwani is situated about 70 km towards west of Gwadar near the Iranian border. Its population is around 13,000 people of which about 85% are fishermen. The rest are traders and civil servants. Ethnically they are all Baloch. The city is densely populated fronting the coast and follows linear development along a main market street. The Union council based on 7 local and 4 surrounding wards is mostly responsible for the development work in the community. There is no development oriented tanzeem or organization existing, except the politically based student organizations, which lobby and promote development activities with government.

Water supply is based on 11 wells located in 3 different parts of the town. The water table of these wells depend on rain. In the dry season, government provides water through tankers. Women are responsible for fetching water. Younger girls help, but not much. Typically a woman assumes full responsibility for carrying water up to 5 hours a day when she gets married. Carrying water is considered dishonourable for men. They are only involved in fetching water when they are paid. Thus all the water vendors are male. The average walking time for one round trip to well is about 15 to 30 minutes. But when it has not rained and wells produce reduced amounts of water, a woman spends 1-2 hours per trip waiting for her turn. Usually a woman brings 6-8 cans (20 litre cans) for a family of 8 people per day, and spends 2 to 3 hours doing it. This can increase if it is clothes washing day. Under very dry conditions, she might spent 4-5 hours and yet bring only 3-4 cans per day.

Scarcity of water also causes serious fights (physical) between women over their turn at the well. During last few years such fights resulted in two miscarriages.

The general sanitation conditions in the town are poor. Garbage and human waste is piled up at street corners. Diarrhoea and gastrointestinal infections are common. Malaria is endemic. Presently dry pit latrines are being used by 80% of the populace. Only 2 or 3 houses have single pit pour flush latrines. The estimated cost of this type of pit is about Rs 6000-7000. It was mentioned that stones are needed to shore up the pit walls against collapse, this increases its costs dramatically. The pour flush double pit latrine system will be welcomed in Jiwani provided that water becomes available. Good demonstration and hygiene education will also be required. Over 50% of households will be able to pay for latrines, once convinced. 15% will require heavy subsidy, whereas the remaining 35% could pay up to Rs 500 for the mason's labour outright, but could only pay the remaining 800 in instalments of Rs 100/month.

As there are no development tanzeems in Jiwani, the project will be started through the Reference Center alone. Within a year the RC should have had a committee formed and after the third year it should have transferred the responsibilities of managing the saned, sanpro, and revolving fund to the committee. It will be committee's responsibility to ensure that the loans are given to right people and are paid back.

A.5 Ganz

Ganz is a small homogeneous fishermen community near Jiwani. There are about 330 houses with 1800 people. Like other coastal towns in the area the sanitation and water supply situation is very serious. BIAD has built a water supply project based on rain catchment, and has also introduced double pit pour flush latrines along with hygiene education.

People are aware of the concept of development and self help programmes. Presently, water is being supplied from BIAD's scheme which depends on rain. During dry season (which lasted over three years) government supplies water through tankers.

BIAD has built 40-50 double pit pour flush latrines which are kept clean and are being successfully used. Those who did not want latrines then, are said to be willing to have one now. The ex-councillor Abdur-Rab stated that it was a new idea then; now they know the its benefits after seeing it in neighbours' houses. There are about 230 houses which either have dry pits or use the open field or beach. They would like to have one. Of these, only 4 or 5 houses will be able to pay outright. Around 10-15% would require some kind of substantial subsidy. The remaining 85% would require loans but would be able to pay back within a year.

Like Jiwani, Ganz also do not have any tanzeem or organization involved in development work. However, the councillors are very much interested in the development projects. It will be reference center's responsibility to encourage the formation of a committee and hand over the responsibilities of supervising saneds, sanpros and revolving funds within a period of two years. There is a BIAD formed Cluster committee which is taking care of water supply and sanitation activities.

Appendix B
Cost Tables

B-1 : Balochistan 16 Townships Detailed Costing

B-1.a Units and Unit Costs

DESCRIPTION	UNITS	UNIT COST				NUMBER OF UNITS							Total
		Unit Cost	Local Comp	For. Comp	Tax	90/91	91/92	92/93	93/94	94/95	95/96	96/97	
CIVIL WORKS													
Reference Centres (4)	unit	250,000	1.00	0.00	0.00	1	3	0	0	0	0	0	4
Demonstration Facilities at Reference Centres	unit	100,000	1.00	0.00	0.00	1	3	0	0	0	0	0	4
Demonstration Latrines 10/community	unit	2,500	0.98	0.02	0.00	10	30	0	0	0	0	0	40
Transport construc'n materials	unit/ctr/y	60,000	1.00	0.00	0.00	1	3	4	3	1	0	0	12
Small Bore Sewer Pilot Scheme	unit	2,000,000	0.70	0.20	0.10	0	1	0	0	0	0	0	
Technology Field Tests	unit	400,000	0.70	0.20	0.10	0	1	0	0	0	0	0	
Wastewater Reclamation Pilot	unit	2,000,000	0.70	0.20	0.10	0	1	0	0	0	0	0	
Sub-Total Civil Works													
TECHNICAL ASSISTANCE													
Central Team:													
Senior Advisor	month	400,000	1.00	0.00	0.00	0.5	0.5	0.5	0.5	0	0	0	2
Com. Dev. Special/ P.Manager	month	375,000	0.40	0.60	0.00	12	12	12	12	0	0	0	48
Communications Specialist	month	375,000	0.40	0.60	0.00	10	8	0	0	0	0	0	18
Applied Anthropologist	month	50,000	1.00	0.00	0.00	12	12	12	0	0	0	0	36
Technician	month	20,000	1.00	0.00	0.00	12	12	0	0	0	0	0	24
Accountant	month	15,000	1.00	0.00	0.00	12	12	12	12	0	0	0	48
Typist	month	12,000	1.00	0.00	0.00	12	12	12	12	0	0	0	48
Drivers (2)	month	3,000	1.00	0.00	0.00	24	24	24	24	0	0	0	96
Naib Qasid	month	1,800	1.00	0.00	0.00	12	12	12	12	0	0	0	48
Misc. Short Term Consultancies	month	300,000	0.25	0.75	0.00	2	2	2	1	0	0	0	7
Kuchlak Reference Centre:													
Com. Dev Specialist	month	15,000	1.00	0.00	0.00	12	12	12	12	0	0	0	48
Civil Technologist	month	6,000	1.00	0.00	0.00	9	12	0	0	0	0	0	21
Storeman	month	4,000	1.00	0.00	0.00	9	12	12	0	0	0	0	33
Labourer	month	2,000	1.00	0.00	0.00	9	12	12	0	0	0	0	33
Chowkidar	month	2,000	1.00	0.00	0.00	9	12	12	0	0	0	0	33
Driver	month	3,000	1.00	0.00	0.00	9	12	12	0	0	0	0	33
CBO Sanitation Promoter	month	2,500	1.00	0.00	0.00	36	48	48	0	0	0	0	132
CBO Sanitation Educator	month	2,500	1.00	0.00	0.00	36	48	48	0	0	0	0	132

Mastung Reference Centre:													
Com. Dev Specialist	month	15,000	1.00	0.00	0.00	0	12	12	12	0	0	0	36
Civil Technologist	month	6,000	1.00	0.00	0.00	0	12	6	0	0	0	0	18
Storeman	month	4,000	1.00	0.00	0.00	0	12	12	0	0	0	0	24
Labourer	month	2,000	1.00	0.00	0.00	0	12	12	0	0	0	0	24
Chowkidar	month	2,000	1.00	0.00	0.00	0	12	12	0	0	0	0	24
Driver	month	3,000	1.00	0.00	0.00	0	12	12	0	0	0	0	24
CBO Sanitation Promoter	month	2,500	1.00	0.00	0.00	0	96	96	0	0	0	0	192
CBO Sanitation Educator	month	2,500	1.00	0.00	0.00	0	96	96	0	0	0	0	192
Kharan Reference Centre:													
Com. Dev Specialist	month	15,000	1.00	0.00	0.00	0	6	12	12	0	0	0	30
Civil Technologist	month	6,000	1.00	0.00	0.00	0	6	12	0	0	0	0	18
Storeman	month	4,000	1.00	0.00	0.00	0	6	12	0	0	0	0	18
Labourer	month	2,000	1.00	0.00	0.00	0	6	12	0	0	0	0	18
Chowkidar	month	2,000	1.00	0.00	0.00	0	6	12	0	0	0	0	18
Driver	month	3,000	1.00	0.00	0.00	0	6	12	0	0	0	0	18
CBO Sanitation Promoter	month	2,500	1.00	0.00	0.00	0	48	96	0	0	0	0	144
CBO Sanitation Educator	month	2,500	1.00	0.00	0.00	0	48	96	0	0	0	0	144
Jiwani/Ganz/Pishukan Reference Centre:													
Com. Dev Specialist	month	15,000	1.00	0.00	0.00	0	6	12	12	0	0	0	30
Civil Technologist	month	6,000	1.00	0.00	0.00	0	6	12	0	0	0	0	18
Storeman	month	4,000	1.00	0.00	0.00	0	6	12	0	0	0	0	18
Labourer	month	2,000	1.00	0.00	0.00	0	6	12	0	0	0	0	18
Chowkidar	month	2,000	1.00	0.00	0.00	0	6	12	0	0	0	0	18
Driver	month	3,000	1.00	0.00	0.00	0	6	12	0	0	0	0	18
CBO Sanitation Promoter	month	2,500	1.00	0.00	0.00	0	48	96	0	0	0	0	144
CBO Sanitation Educator	month	2,500	1.00	0.00	0.00	0	48	96	0	0	0	0	144
Revolving Fund	unit	122,400	1.00	0.00	0.00	0	3	4	5	2	0	0	14
Office Running	month	10,000	1.00	0.00	0.00	12	12	12	12	0	0	0	48
Sub-Total Technical Assistance													
MATERIALS AND EQUIPMENT													
Incentive Pans, Pipe, Fittings	unit	328	0.70	0.10	0.20	50	810	1,890	3,060	2,730	1,590	420	10,550
Equipment:													
Tool sets for Ref Centre	unit	25,000	0.90	0.00	0.10	4	0	0	0	0	0	0	4
Computer	unit	80,000	0.00	0.70	0.30	1	0	0	0	0	0	0	1
Photocopier	unit	50,000	0.00	0.70	0.30	1	0	0	0	0	0	0	1
Audio visual equipment	unit	400,000	0.00	0.70	0.30	1	0	0	0	0	0	0	1
Reference Centre	unit	250,000	1.00	0.00	0.00	1	3	0	0	0	0	0	4
Sub-Total Materials & Equip													

VEHICLES														
Double cab pick-up	vehicle	400,000	0.05	0.50	0.45	1	0	0	0	0	0	0	0	1
Suzuki Jeep (5)	vehicle	200,000	0.05	0.50	0.45	5	0	0	0	0	0	0	0	5
Motorcycles (10)	vehicle	30,000	0.05	0.50	0.45	10	0	0	0	0	0	0	0	10
O&M Pick-up/Jeep	month/veh	3,000	0.70	0.00	0.30	6	6	6	6	0	0	0	0	24
O&M Motorcycles	month/cycl	500	0.70	0.00	0.30	10	10	10	10	0	0	0	0	40
Sub-Total Vehicles														
TRAINING														
Training LGRDD Staff	trainee	120	1.00	0.00	0.00	5	0	0	0	0	0	0	0	5
Training of Ref Ctr Staff	trainee	120	1.00	0.00	0.00	3	9	0	0	0	0	0	0	12
Training of Tanzeem Staff	trainee	120	1.00	0.00	0.00	12	36	0	0	0	0	0	0	48
Training of Masons	trainee	1,000	1.00	0.00	0.00	12	36	0	0	0	0	0	0	48
Production of Tr/Educ Material	unit	100,000	1.00	0.00	0.00	1	0	0	0	0	0	0	0	1
Tool Kits for Masons	trainee	1,000	1.00	0.00	0.00	10	40	24	0	0	0	0	0	74
Sub-Total Training														

B-1.b Cost Breakdown

DESCRIPTION	COST IN PAKISTAN RUPEES ('000)							Total Cost	Portion Local	Portion Foreign	Portion Taxes
	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97				
CIVIL WORKS											
Reference Centres (4)	250	750	0	0	0	0	0	1,000	1,000	0	0
Demonstration Facilities at Reference Centres	100	300	0	0	0	0	0	400	400	0	0
Demonstration Latrines 10/community	25	75	0	0	0	0	0	100	98	2	0
Transport construction materials	60	180	240	180	60	0	0	720	720	0	0
Small Bore Sewer Pilot Scheme	0	2,000	0	0	0	0	0	2,000	1,400	400	200
Technology Field Tests	0	400	0	0	0	0	0	400	280	80	40
Wastewater Reclamation Pilot	0	2,000	0	0	0	0	0	2,000	1,400	400	200
Sub-Total Civil Works	435	5,705	240	180	60	0	0	6,620	5,298	882	440
TECHNICAL ASSISTANCE											
Central Team:											
Senior Advisor	200	200	200	200	0	0	0	800	800	0	0
Com. Dev. Special/ P.Manager	4,500	4,500	4,500	4,500	0	0	0	18,000	7,200	10,800	0
Communications Specialist	3,750	3,000	0	0	0	0	0	6,750	2,700	4,050	0
Applied Anthropologist	600	600	600	0	0	0	0	1,800	1,800	0	0
Technician	240	240	0	0	0	0	0	480	480	0	0
Accountant	180	180	180	180	0	0	0	720	720	0	0
Typist	144	144	144	144	0	0	0	576	576	0	0
Drivers (2)	72	72	72	72	0	0	0	288	288	0	0
Naib Qasid	22	22	22	22	0	0	0	86	86	0	0
Misc. Short Term Consultancies	600	600	600	300	0	0	0	2,100	525	1,575	0
Kuchlak Reference Centre:											
Com. Dev Specialist	180	180	180	180	0	0	0	720	720	0	0
Civil Technologist	54	72	0	0	0	0	0	126	126	0	0
Storeman	36	48	48	0	0	0	0	132	132	0	0
Labourer	18	24	24	0	0	0	0	66	66	0	0
Chowkidar	18	24	24	0	0	0	0	66	66	0	0
Driver	27	36	36	0	0	0	0	99	99	0	0
CBO Sanitation Promoter	90	120	120	0	0	0	0	330	330	0	0
CBO Sanitation Educator	90	120	120	0	0	0	0	330	330	0	0

Mastung Reference Centre:											
Com. Dev Specialist	0	180	180	180	0	0	0	540	540	0	0
Civil Technologist	0	72	36	0	0	0	0	108	108	0	0
Storeman	0	48	48	0	0	0	0	96	96	0	0
Labourer	0	24	24	0	0	0	0	48	48	0	0
Chowkidar	0	24	24	0	0	0	0	48	48	0	0
Driver	0	36	36	0	0	0	0	72	72	0	0
CBO Sanitation Promoter	0	240	240	0	0	0	0	480	480	0	0
CBO Sanitation Educator	0	240	240	0	0	0	0	480	480	0	0
Kharan Reference Centre:											
Com. Dev Specialist	0	90	180	180	0	0	0	450	450	0	0
Civil Technologist	0	36	72	0	0	0	0	108	108	0	0
Storeman	0	24	48	0	0	0	0	72	72	0	0
Labourer	0	12	24	0	0	0	0	36	36	0	0
Chowkidar	0	12	24	0	0	0	0	36	36	0	0
Driver	0	18	36	0	0	0	0	54	54	0	0
CBO Sanitation Promoter	0	120	240	0	0	0	0	360	360	0	0
CBO Sanitation Educator	0	120	240	0	0	0	0	360	360	0	0
Jiwani/Ganz/Pishukan Reference Centre:											
Com. Dev Specialist	0	90	180	180	0	0	0	450	450	0	0
Civil Technologist	0	36	72	0	0	0	0	108	108	0	0
Storeman	0	24	48	0	0	0	0	72	72	0	0
Labourer	0	12	24	0	0	0	0	36	36	0	0
Chowkidar	0	12	24	0	0	0	0	36	36	0	0
Driver	0	18	36	0	0	0	0	54	54	0	0
CBO Sanitation Promoter	0	120	240	0	0	0	0	360	360	0	0
CBO Sanitation Educator	0	120	240	0	0	0	0	360	360	0	0
Revolving Fund	0	367	490	612	245	0	0	1,714	1,714	0	0
Office Running	120	120	120	120	0	0	0	480	480	0	0
Sub-Total Technical Assistance	10,941	12,397	10,035	6,870	245	0	0	40,487	24,062	16,425	0
MATERIALS AND EQUIPMENT											
Incentive Pans, Pipe, Fittings	16	266	620	1,004	895	522	138	3,460	2,422	346	692
Equipment:											
Tool sets for Ref Centre	100	0	0	0	0	0	0	100	90	0	10
Computer	80	0	0	0	0	0	0	80	0	56	24
Photocopier	50	0	0	0	0	0	0	50	0	35	15
Audio visual equipment	400	0	0	0	0	0	0	400	0	280	120
Reference Centre	250	750	0	0	0	0	0	1,000	1,000	0	0
Sub-Total Materials & Equip	896	1,016	620	1,004	895	522	138	5,090	3,512	717	861

VEHICLES												
Double cab pick-up	400	0	0	0	0	0	0	0	400	20	200	180
Suzuki Jeep (5)	1,000	0	0	0	0	0	0	0	1,000	50	500	450
Motorcycles (10)	300	0	0	0	0	0	0	0	300	15	150	135
O&M Pick-up/Jeep	18	18	18	18	0	0	0	0	72	50	0	22
O&M Motorcycles	5	5	5	5	0	0	0	0	20	14	0	6
Sub-Total Vehicles	1,723	23	23	23	0	0	0	0	1,792	149	850	793
TRAINING												
Training LGRDD Staff	1	0	0	0	0	0	0	0	1	1	0	0
Training of Ref Ctr Staff	0	1	0	0	0	0	0	0	1	1	0	0
Training of Tanzeem Staff	1	4	0	0	0	0	0	0	6	6	0	0
Training of Masons	12	36	0	0	0	0	0	0	48	48	0	0
Production of Tr/Educ Material	100	0	0	0	0	0	0	0	100	100	0	0
Tool Kits for Masons	10	40	24	0	0	0	0	0	74	74	0	0
Sub-Total Training	124	81	24	0	0	0	0	0	230	230	0	0
Total Base Cost	14,119	19,222	10,942	8,076	1,200	522	138		54,219	33,251	18,874	2,094
Physical Contingencies (10%)	1,412	1,922	1,094	808	120	52	14		5,422			
Price Contingencies	1,662	3,785	3,069	2,878	507	256	77		12,235			
Grand Total	17,193	24,929	15,106	11,762	1,827	830	229		71,876			

COST IN US DOLLARS ('000)

Total Base Cost	643	859	480	348	51	22	6		2,408			
Grand Total	783	1,114	663	506	77	34	9		3,187			

B-2: Revolving Fund Serving 500 Latrine Installations

Month	Loan Amt.	Repayment	Fund Acct.
1	14.40	0.00	-14.40
2	14.40	0.90	-27.90
3	14.40	1.80	-40.50
4	14.40	2.70	-52.20
5	14.40	3.60	-63.00
6	14.40	4.50	-72.90
7	14.40	5.40	-81.90
8	14.40	6.30	-90.00
9	14.40	7.20	-97.20
10	14.40	8.10	-103.50
11	14.40	9.00	-108.90
12	14.40	9.90	-113.40
13	14.40	10.80	-117.00
14	14.40	11.70	-119.70
15	14.40	12.60	-121.50
16	14.40	13.50	-122.40
17	14.40	14.40	-122.40
18	14.40	14.40	-122.40
19	14.40	14.40	-122.40
20	14.40	14.40	-122.40
21	14.40	14.40	-122.40
22	14.40	14.40	-122.40
23	14.40	14.40	-122.40
24	14.40	14.40	-122.40
25	14.40	14.40	-122.40
26	14.40	14.40	-122.40
27	14.40	14.40	-122.40
28	14.40	14.40	-122.40
29	14.40	14.40	-122.40
30	14.40	14.40	-122.40
31	14.40	14.40	-122.40
32	14.40	14.40	-122.40
33	14.40	14.40	-122.40
34	4.80	14.40	-112.80
35	0.00	13.80	-99.00
36	0.00	12.90	-86.10
37	0.00	12.00	-74.10
38	0.00	11.10	-63.00
39	0.00	10.20	-52.80
40	0.00	9.30	-43.50
41	0.00	8.40	-35.10
42	0.00	7.50	-27.60
43	0.00	6.60	-21.00
44	0.00	5.70	-15.30
45	0.00	4.80	-10.50
46	0.00	3.90	-6.60
47	0.00	3.00	-3.60
48	0.00	2.10	-1.50
49	0.00	1.20	-0.30
50	0.00	0.30	0.00

Appendix C
Government of Balochistan
Local Government and Rural Development Department
Township Sanitation Project
Technical Assistance Consultancy

Terms of Reference

1. Background

The Government of Balochistan, with the assistance of the World Bank and the Canadian International Development Agency, has recently prepared a Strategic Investment Plan for the rural water supply, sanitation and health sector as part of its long term programme for improving water supply, drainage, human waste disposal and hygiene conditions in the rural areas of the province, including some of the larger communities (townships). An assessment of the current situation was made to identify constraints to achievement of desired targets for coverage with acceptable water supply and human waste disposal facilities. Strategies to overcome constraints were developed which would involve modifications in procedures for implementation of water supply and sanitation (human waste disposal) and hygiene education schemes, institutional strengthening through human resources development and enhancement of planning, training, technical capability, and increased community involvement in the management of rural water supply and sanitation schemes.

The Public Health Engineering Department (PHED) is the lead department in the provision of urban and rural water supply (excluding major cities). The PHED has a program of design and construction of water supply schemes which is funded under the provincial Annual Development Program. The Local Government and Rural Development Department (LGRDD) is responsible for the smaller rural community schemes through local councils. It is also responsible for sanitation both in the rural and medium sized townships of Balochistan. These communities tend to have densely populated centres surrounded by contiguous residential areas which are also heavily populated. There, the households have no or only perfunctory sanitation facilities. Use of the surrounding agricultural lands for defecation is common. This is particularly difficult for the women who, needing privacy and security, can only defecate in the fields at dawn or dusk.

Sanitation has long been recognised as an essential component of the water supply, sanitation and hygiene education integrated package which must be included if full benefits to health are to be realized. This is particularly true in the denser townships. To a limited extent, government has introduced low cost sanitation in the rural areas and is now intending to broach the sanitation problems in sixteen townships. Four have been selected (Kuchlak, Kharan, Mastung and Jiwani/Ganz/Pishukan) for an initial program of introducing low cost sanitation and funds have been allocated. This project comprises institutional strengthening, definition of cost-effective field methodology, training, and the establishment of sanitation reference centres in these four communities through which the sanitation program can be implemented.

2. The Project

The overall water supply, sanitation and health project, of which this consultancy (relating specifically to township sanitation) is a part, is described in project preparation documentation prepared for the Government of Balochistan by consultants contracted by the World Bank with funding by the Canadian International Development Agency. The government of Pakistan has requested an IDA credit of about US\$ 112 million for integrated rural water supply, sanitation and hygiene education projects in Sindh, Balochistan and AJK. Part of the proceeds of this credit would be applied to eligible works of Balochistan and this component of the project is estimated at approximately US\$ 45 million. The project components in Balochistan include procurement of equipment, office construction, consulting services, district database development, water supply scheme rehabilitation, water resource monitoring, drainage works and sanitation. This document pertains specifically to the sanitation component which is to be implemented in the larger communities (townships) of the overall project in Balochistan.

3. Objectives

The objectives of this consultancy are to:

Provide support to the LGRDD in establishing low cost sanitation programs in the larger communities (townships) of rural Balochistan. In doing so, the consultancy's specific objectives are to

- o develop field methodology for implementation of sanitation (human wastes disposal) in townships;

- o establish management and operational systems and prepare manuals and audiovisual materials in support of training and project implementation;
- o train government, community organization and project staff in all aspects of the project;
- o implement the project through the establishment of reference centres in the townships and direct involvement of the local community based organizations; and
- o ensure timely and smooth transfer of responsibilities to trained LGRDD staff during the second and third years of the project enabling them to continue the program in the first four townships and expand into a second four townships.

4. Scope of Service

The consultant will carry out the following services under this contract:

1. Establish and mobilize a Township Sanitation Team at the provincial level which would be responsible for leading and managing the project's development over the project's first three years.
2. Establish a reference centre in the first township (Kuchlak) during the first three months of the project for purposes of developing and demonstrating field methodology. It would
 - (a) investigate methods of promoting and marketing low cost on-site sanitation units in Balochistan;
 - (b) develop cost effective and culturally acceptable methods of delivering hygiene education within the target townships;
 - (c) identify organizational and managerial structures and systems for project implementation at the township level which would include community based organizations and extensive use of the private sector for installation of sanitation units in the households;

- (d) detail practical means of financial support to the lower income groups requiring subsidy and/or financing arrangements in purchasing their latrines;
 - (e) investigate and recommend a complete methodology for project implementation including all project phases, management and administration, the above would be carried out using the established reference centre at Kuchlak;
 - (f) prepare field manuals and administrative procedures and, through the Rural Development Academy, train government and project staff in (1) communications, (2) community development and participation, (3) sanitation technology, its delivery and installation, (4) project administration and management, (5) monitoring, reporting and evaluation, (6) accounting and revolving funds management, (7) hygiene education and its delivery, and (8) cultural and ethnic attitudes and practices relevant to the project.
3. Conduct socio-economic, sanitation and subsoil surveys in three other townships acquiring such information as existing sanitation practices, needs and expectations, willingness and ability to pay for sanitation improvements, promotion and marketing of household commodities within the community, availability of skilled and unskilled labour, leadership and characteristics of community based organizations, water supply and water use practices, subsoils and water table.
 4. Review township plans for infrastructure development including water supply, drainage and sewerage.
 5. Establish a reference centre in each of these communities at a maximum of four monthly intervals.
 6. In accordance with field methodology developed, introduce the program in the other townships which will include
 - (a) training CBO/tanzeem leadership and personnel in technology, project management, operation of revolving funds and basic accounting, construction and inspection, and the functional operation of the project in their area;
 - (b) training local mistries and/or semi-skilled personnel in sanitation unit construction;

- (c) building demonstration units at the reference centre and other selected locations in the township;
 - (d) promoting and marketing sanitation units within the community;
 - (e) assisting the CBO's/tanzeems in setting up and operating revolving funds and other financing mechanisms such as the traditional "bisti" collection system to assist in household purchase of latrines;
 - (f) setting the reference centre into operation in receiving and approving applications, inspecting sites, drawing up site plans, procuring and distributing materials; and
 - (g) supporting construction by assisting the CBO's/tanzeems in construction supervision and inspection.
6. Establish a project information management system covering project accounting, personnel, sanitation installations progress, materials inventory, and reporting. The accounting system will be designed to facilitate audit.
7. Liaise closely with other sector programs being carried out by the Public Health Engineering Department improving water supply in the townships and the LGRDD improving water and sanitation in the smaller rural communities. In particular, work closely with the LGRDD Rural Water Supply, Sanitation and Health Unit and the LGRDD Rural Development Academy.

5. Project Outputs

The outputs of the project will include:

- (a) The definition of cost effective methodology for the implementation of sanitation and hygiene education in the townships of Balochistan,
- (b) The establishment of reference centres and operational sanitation and hygiene education programs in four townships or larger communities,
- (c) The strengthening of the Local Government and Rural Development Department through training and in-service experience in sanitation project implementation,

- (d) The strengthening of community based organizations and their participation in sanitation and hygiene education delivery within their constituency,
- (e) The creation of demand for sanitation units and a willingness to pay for them among the township's inhabitants,
- (f) Strengthening of the private sector's capacity to market and install sanitation units in the townships through training and use of local masons enabling them to extend coverage without external assistance on completion of the project,
- (g) Improvement in the personal and household hygiene practices and attitudes of those residing in compounds in which sanitation units are installed, and
- (h) The installation of 3,000 sanitation units during the projects first four years and 10,000 by the end of the 7th year.

6. Time Frame

The contract for this consulting service will extend over 48 months commencing around November 1990. The first year would focus on establishing the Provincial Sanitation Team, the first reference centre, field methodology and training. The second year will see the establishment of the remaining three reference centres and expansion of the program in the first. Expansion of the sanitation delivery program in all townships will take place in the third year during which a transfer of responsibility from the consultant to the LGRDD will occur. During the fourth year the consultant staff and inputs will reduce enabling the LGRDD to fully take over the program which would extend up to the seventh year in all townships. During the sixth year LGRDD will establish an additional four reference centres in as many townships.

7. Reports

The consultant will prepare regular reports to the LGRDD and the Planning and Development Department; the following reports will be prepared in English and submitted within the stated time period after project initiation:

- *Inception Report* (3 months) in 10 copies (5 copies to LGRDD, 5 copies to the World Bank including the Resident Mission, Islamabad,
- *First Interim Report* (12 months) in same numbers of copies as Inception Report,
- *Second Interim Report* (24 months) in same number of copies as Inception Report,
- *Draft Final Report* (36 months) in same number of copies as Inception Report, and
- *Final Report* (1 month after receiving comments and making changes to the Draft Final Report) in 27 copies (20 copies to LGRDD, 7 copies to World Bank, including Resident Mission Islamabad).

8. Execution of the Assignment

The consultant will be required to assign qualified and experienced staff for the execution of this project for a period of four years. The consultant is expected to associate with and make full use of national consulting expertise. This work should be undertaken in close conjunction with the counterpart staff nominated by the Secretary, LGRDD.

9. Government Inputs

During the period of the consultancy, LGRDD will appoint and make available to the project, under the direction of the project manager, the following staff

(a) <i>Counterpart Staff</i>	Duration
- Sociologist	48m (1 person x 48 months)
- SDO	141m (1 person x 45 months) (1 person x 36 months) (2 persons x 30 months)
- Sub-engineers	141m (1 person x 45 months) (1 person x 36 months)

(2 persons x 30 months)

(b) Data

All available information required to conduct the project will be provided by the appropriate departments.

(c) Offices

In view of present office space constraints, LGRDD will be unable to provide sufficient space for the consultant during the consultancy. LGRDD will endeavour to make appropriate arrangements for counterpart staff to work closely with the consultants. LGRDD will also allow access for the consultants to other offices and workshops.

(d) Project Costs and Staffing

The approximate value of the contract is estimated at around US\$ 2.5 million. This would involve 68 person-months of expatriate assistance, 327 person-months of local professionals and an appropriate level of local expenses, including support staff as listed below, to conduct the project which would be centered in Quetta but also function in the four designated townships. It is anticipated that the following professional expatriate and/or local staff may be mobilized:

Personnel	Months
<i>Provincial Sanitation Team</i>	
Project Manager/Community Development Specialist	48
Senior Advisor	2
Communications Specialist	18
Applied Anthropologist	36
Technician	24
Accountant	48
Word processing Typist	48
Drivers (2x48m)	96
Naib Qasid	48
Short term Consultancies	7