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WATER, SANITATION, HYGIENE & HEALTH STUDIES PROJECT

Aga Khan Health Service Northern Areas & Chitral

Seventh Progress Report

January to June 1996

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INTRODUCTION

Highlights

1996 is the final year of the Water, Sanitation, Hygiene and Health Studies Project (WSHHSP). During the second annual workshop held in October 1995, two broad objectives were set for 1996. The first was to finalize the WSHHSP research activities and the second was to make preparations for enabling a smooth transition from WSHHSP to an implementation Programme. An important event during the first half of 1996 was the visit in May to Northern Areas and Chitral by a pre-appraisal team from Kreditanstalt für Wiederaufbau (KfW). Their purpose was to discuss the proposed Water and Sanitation Extension Programme (WASEP) planned for implementation in 1997 to 2001. The outcome of the visit was very encouraging and there appears to be an excellent possibility of financing subject to a formal appraisal scheduled for October.

Steady progress has been made with the different research and trial implementation activities, particularly in the field of community water treatment and household sanitation. Completion and commissioning of the full-scale experimental water filtration systems started last autumn in Oshikhandass and Murtazabad is a noteworthy achievement. Also the successful trial implementation of improved dry pit latrines in two villages in Chitral deserves special mention. Progress with trial sanitation implementation in Ghizer, Gilgit and Baltistan districts has been slower but nevertheless some interesting lessons have been learnt. Participatory health and hygiene promotion activities have been carried out to a limited extent in the villages where drinking water and/or sanitation activities are underway. Due to resource constraints it was necessary to adapt the initial idea of individual family sanitation sessions to sessions with groups of 10 to 12 mothers from households with a new latrine. It is assumed that men can be informed about improved hygiene practices during the latrine construction process, but there may still be potential for investigating other methods for targeting men, children and young people.

Staff changes and training

The team which consisted of 18 professionals in 1995 decreased to 16 in December with the departure of the two Dutch anthropologists who led the social science activities since mid-1993. We are grateful for their two-and-a-half years of energetic and dedicated work. In April an Assistant Engineer left for a 3-month course at the Water, Engineering and Development Centre (Loughborough, UK) on community water supply and sanitation. This was financed from ODA Technical Assistance and Training funds approved for the Project in 1994. In order to avoid set-backs to activities during his absence, arrangements were made for another Assistant Engineer to join the Project on secondment from AKHBP Chitral. Other training opportunities availed during this period included a one-week course on effective communication skills and another for executive secretaries (both at the Pakistan Institute of Management, Lahore) and a four-week course at AKHSP Department of Health Education Karachi on health promotion and education.

Workshops, conferences and documentation

In January the Project Director attended a country level consultative meeting in Islamabad organized by the UNDP-World Bank Regional Water and Sanitation South Asia. The purpose of the meeting was to make the annual work-planning process of the Group RWSG more systematic through formal discussion of their plans with representatives from Government, donors and NGOs working in the RWSS sector. Worth noting was the similarity between the objectives of WASEP and those of the UNDP-World Bank RWSP:

"The objective of the Programme is to improve access to and use of water and sanitation for poor people. This objective is addressed through the intermediate goals of: building local capacity; supporting sustainable investments; and learning and dissemination"

Three senior staff gave a presentation on the WSHHSP at the AKHS Senior Staff Conference in Islamabad in April. In June the Director attended an evaluation workshop of the AKES-AKHB Self-help School Construction Programme where concerns were raised about the drinking water and sanitation facilities for the pupils. Earlier in the year the Director gave a detailed briefing to the Ismaili Regional Council Presidents in Gilgit at their request.

With assistance from the two Dutch team members who left in December 1995 several documents mentioned in the last report have progressed and are expected to be completed soon. An article on "Hygiene Behaviour Studies in North Pakistan" was published in the IRC Water Newsletter in June 1996. Another article "Incorporating Local Knowledge into Action" will be published in the next issue of Knowledge and Development Monitor due in August.

SANITATION INVESTIGATIONS

The experience gained through the practical trials with ventilated dry pit latrines in Chitral and Ghizer, and with twin pit composting latrines in Hunza and Baltistan over the last two-and-a-half years, have enabled the Project to propose these systems for pilot-scale implementation in selected areas. This decision was motivated by the post-implementation monitoring results and the encouraging feed-back from the users, neighbours and other villagers. For testing the practicality of implementation, six villages in Gilgit, Chitral and Baltistan were selected. The details of this activity which included defining village selection criteria, shortlisting potential villages, and deciding about coverage and the level of subsidy, were discussed in an internal workshop in Gilgit in November 1995, and were later finalized during a joint workshop with AKHS fieldstaff in January. The level of subsidy for the different sanitation systems was calculated on the basis of their actual cost. Generally, the Project undertook to contribute 25 to 30 percent of the total cost, mainly in the form of purchased materials (see Table 1 for details).

Ventilated dry pit (VDP) latrines in Chitral and Ghizer

In Chitral the selection of Parsan and Raman villages was finalized after visiting six shortlisted villages. A series of visits were then made to discuss and clarify responsibilities for implementation. During these meetings, the communities were given encouragement to establish a Sanitation Committee which was responsible for managing implementation at the village level and to help the Project staff arrange supervisory, material and technical inputs.

By the end of June, nearly eighty families in Raman and fifty in Parsan had started building their latrines. In Raman, where the Sanitation Committee was very active, progress has been satisfactory whereas in Parsan it has been comparatively slow. The main reasons were a less active committee and delays in procuring sand for construction by the villagers - this was an expensive task given the remoteness of the village.

After holding meetings in three shortlisted villages in Ghizer, the village of Sandhi was finally selected for implementation. Several subsequent visits were made to the village by the female anthropologist and the field engineer in order to meet both men and women for motivating community members and to discuss issues such as cost-sharing, design details, latrine location and construction. The purpose was to minimize the problems of slow progress and lack of motivation experienced in 1995 when six experimental latrines were constructed in Sandhi. Additional visits were made by the same team to help accelerate progress and to monitor construction work. About 36 families had started building their latrines by June. A Sanitation Committee was also formed which has been motivating the villagers for timely and proper construction. In order to broaden the experience with latrine implementation in Ghizer it was initially planned to work in two villages. However, due to the interest shown in Sandhi, it was decided to concentrate efforts in this village.

The experiment of entrusting village activists with the responsibility for motivation and supervising the construction work proved to be very successful. The supervisory work-load of Project staff can be reduced substantially where a local committee is active. The timely organization of material inputs in the village and the provision of guidance on smaller technical issues were additional advantages of having these committees.

Twin-pit composting (TPC) latrines in Gilgit

After initial visits to the three shortlisted villages, Hoper and Murtaza Abad were finally selected for pilot-scale implementation. In the third village of Oshikhandass where an experimental water filtration plant has been constructed, people did not show much interest or gather for dialogues so this village was dropped. In Hoper where an experimental TPC latrine was constructed in 1994, dialogues were held with male and female members of the community who were quite enthusiastic about the prospect of extending the sanitation activity. Nearly 30 families have started constructing latrines and ten were completed by the end of June. In Murtaza Abad, where the second full-size experimental water filtration plant has been established, the community were also interested and they have agreed to the Project's terms of partnership for this activity. However, they want to start this work after completing the pipe network which is needed to supply the village with water from the new filtration plant.

In order to know the existing practices concerning water and sanitation and to formulate sanitation implementation strategies on the basis of reliable information, a base-line survey was conducted in Murtaza Abad in March. For this survey, structured interviews with the help of a questionnaire were conducted with 42 respondents representing 35 percent of the households. The data revealed that 99 percent of the villagers were ready to pay for the filtered water including a stipend for the plant operator and the establishment of a fund for O&M. When asked about a set of rules and regulations, 85 percent of the respondents agreed that the treated water should only be used for drinking and cooking purposes and not for flushing latrines or for watering vegetables. The data also showed that more than 75 percent of people have traditional composting sanitation systems and 14 percent of the remainder have both traditional and flush systems, the latter being generally reserved for guests.

Improved Balti-latrines

In Baltistan, future sanitation strategies will have to take account of the fact that almost every household has a traditional Balti-latrines. Results of microbiological sampling show that contents of dry Balti-latrines are less infected with pathogens compared to the wetter latrines. Consequently, instead of trying pilot implementation of the TPC latrine it appears to be worthwhile to first try out simple improvements to the Balti-latrines aimed at helping to keep them dry. The proposed measures are:

- improving the latrine superstructure by providing a roof;
- provision of a separate ablution place with a proper drainage system;
- re-locating latrines where there is no risk of flooding from irrigation water; and
- improving the closure of the emptying hole to enhance the general sanitary conditions around the latrines.

Three villages were initially shortlisted for implementation, out of which Shagari Bala and Mendi were finally selected. In both villages almost every household agreed to improve their latrine. In Shagari Bala, about 30 out of a total of 34 families have initiated improvement work out of which 10 have been completed; the rest are progressing satisfactorily. In Mendi, which comprises 34 households, work is proceeding comparatively slower due to the harvesting season and peoples' pre-occupation with another community project sponsored by AKRSP.

To help promote an understanding of the need for the proper use and maintenance of the family latrines, a series of participatory health education sessions will be conducted in the villages once the majority of the systems have been completed. These sessions are planned to take place during the next half of the year. Preparation for these sessions is in progress. They will mainly focus on village women and will utilize different packages of location specific visual materials.

	Household share		Project share		Total cost (Rs.)
	Description	Cost (Rs.)	Description	Cost (Rs.)	
Twin pit compost latrine	Materials: stones, mud bricks, lids.	3,150.00	Materials: cement, PVC vent pipe with fly mesh and PVC drain pipe	1,000.00	
	Labour: un-skilled labour + half of skilled labour cost	850.00	Labour: half of skilled labour cost	500.00	
	Total contribution	4,000.00	Total contribution	1,500.00	
Ventilated dry pit latrine	Materials: stones, mud bricks, timber, door and ventilator	1,690.00	Materials: cement, PVC vent pipe with fly mesh, PVC drain pipe and lid	1,000.00	
	Labor: skilled + un-skilled labour	960.00	Labour: nil	0.00	
	Total contribution	2,650.00	Total contribution	1,000.00	
Improved Bati-latrine	Materials: mud bricks and timber	1,400	Material: cement, PVC drain pipe, and plastic sheet	560.00	
	Labour: skilled + un-skilled labour	330.00	Labour: nil	0.00	
	Total contribution	1,730.00	Total contribution	560.00	
Simple do-it - yourself sanitation options	Materials: stones and timber	300.00	Materials: nil	0.00	
	Labour: skilled + un-skilled labour	200.00	Labour: nil	0.00	
	Total contribution	500.00	Total contribution	0.00	

Table 1. Household and Project share of construction costs of different sanitation systems

Parasitological study of traditional Balti-latrines manure

Building upon the previous microbiological studies of traditional composting latrines, a detailed study was carried out in Baltistan during the first quarter of 1996. The main objective was to assess the assumed health risks associated with the handling of Balti-latrines manure at different stages from emptying the latrine to final spreading on the fields. The risk indicator used was the number of viable *Ascaris lumbricoides* ova per gram found in the samples. Additional stool samples of women and men involved in the process were examined for *Ascaris*. The study involved taking samples as follows:

- Stage 1 From inside the latrine, when the latrine is about to be emptied.
- Stage 2 From the main heap outside the latrine just after emptying.
- Stage 3 From the main heap after 4 or 5 days of emptying, just before spreading the manure on the fields.
- Stage 4 From the smaller heaps in the field just before final spreading.
- Stage 5 From the soil after spreading the manure (surface and sub-surface samples, the latter being collected from a depth of 6 inches).

Six latrines in three villages were selected for this study. Three of these latrines (where users performed ablution at a separate place or outside the latrine) were categorized as "dry" latrines. The other three were classified as "wet" because ablution is carried out directly above the squat holes. In spite of these different practices, the contents were found to be similarly moist at the time of sampling, probably explained by snow-melt and rain entering the latrines, none of which had roofs.

The data have been consolidated in two figures on the opposite page. The first shows the data for the wet latrines and the second shows the data for dry latrines. It can be seen from both sets of data that the level of viable *Ascaris* in the manure decreases steadily from one stage to the next, but it is not eliminated by this process. A clear difference between the dry and the wet systems is that the former are less infected with *Ascaris*. In order to check the helminth loads of family members, 50 matched faeces samples were collected from wet and dry latrine users. For the families with wet latrines, 80 % of the samples were found infected with viable *Ascaris* ova whereas the percentage for the dry latrine users was 56 %. The average loads were found to be in the order of 7000 *Ascaris* ova/gram and 3000 *Ascaris* ova/gram respectively. A draft report and an article about this work and the earlier microbiological examination of traditional and twin pit composting latrines was discussed with the parasitologist who visited in June to help with the correlation study. It is planned to complete the writing up during the winter months.

Trials to prevent freezing of pour-flush latrines

In Skardu town, flush-latrines are common in newly built houses. However, in winter the majority of these systems are not useable due to freezing of the water trap. The temperature in the winter regularly falls below minus 10°C. To assess the possibility for reducing this problem by simply covering with a lid, experiments were conducted in 1995 and early 1996 using Thermopore and wooden covers. Data from two years showed that neither of these lids helped when the temperature dropped to minus 3°C. At minus 6°C, water in the trap was completely frozen and was difficult to break. These results show that for a situation like Skardu town, the lid is not a viable solution.

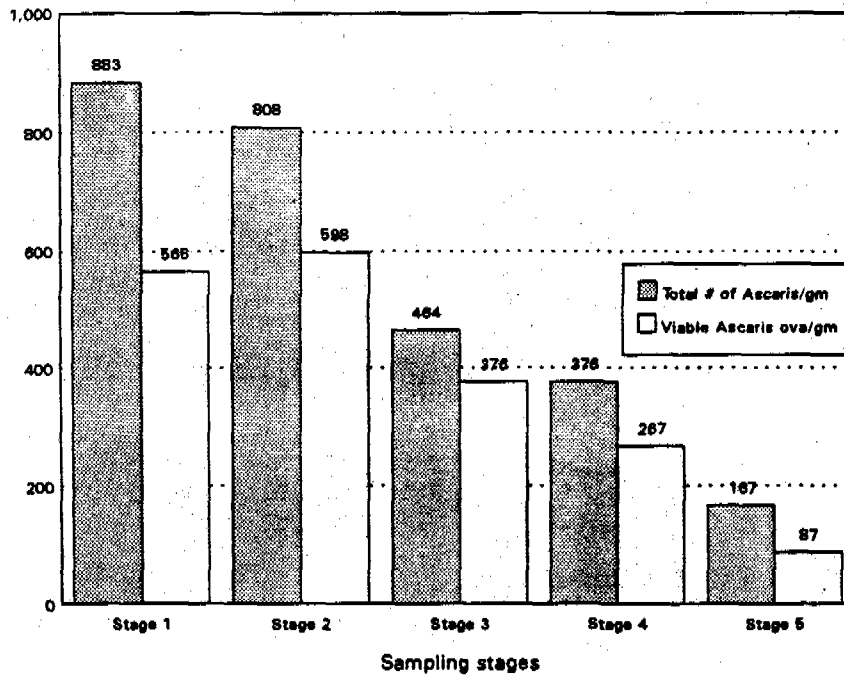


Figure 1. Consolidated parasitological data from the wet Balti-latrines.

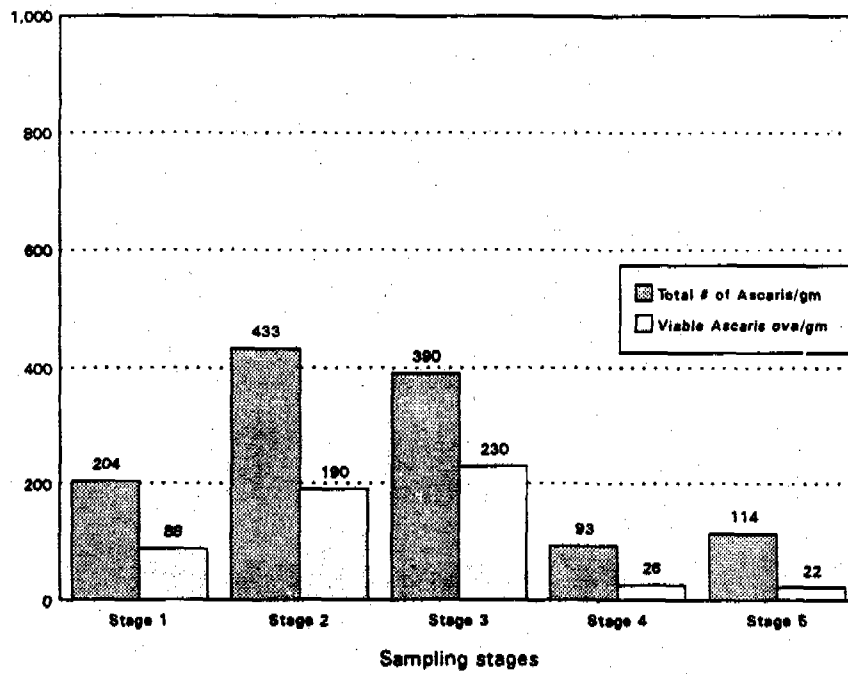


Figure 2. Consolidated parasitological data from the dry Balti-latrines.

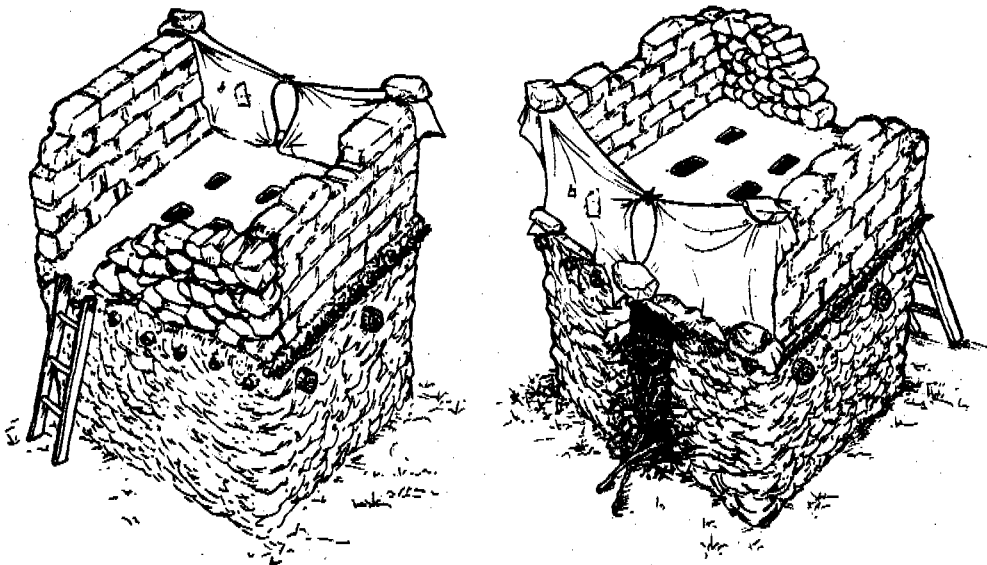


Figure 3. The traditional Balti-latrine before improvement.

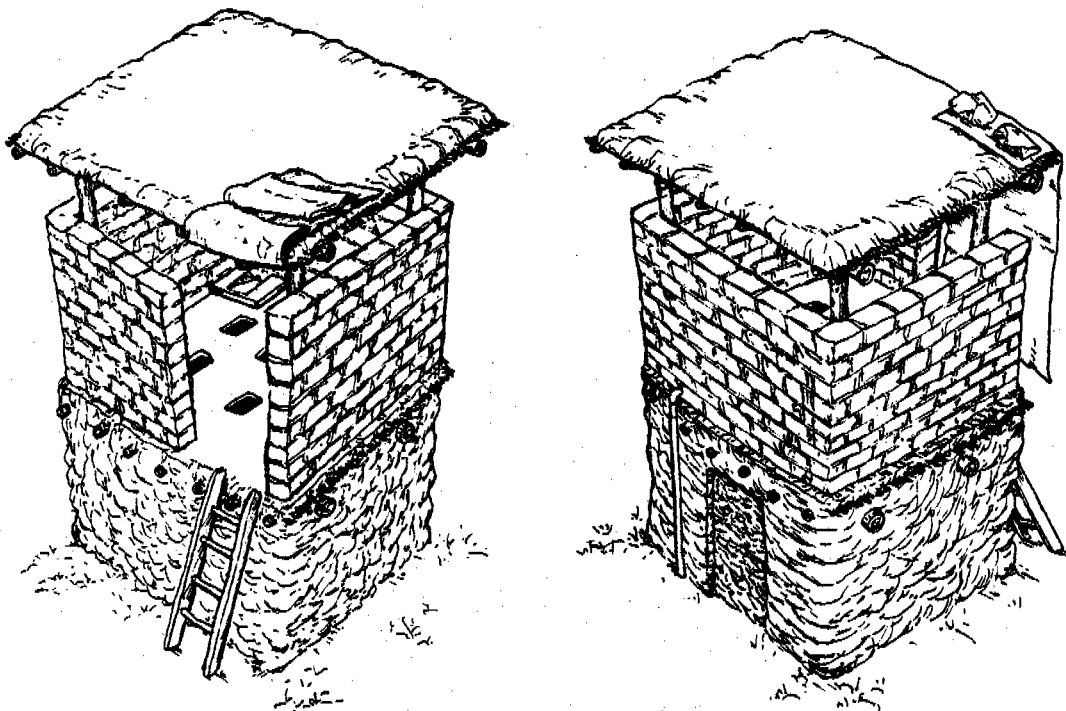


Figure 4. The traditional Balti-latrine after improvement.

DRINKING WATER QUALITY: RESEARCH AND DEVELOPMENT

Full-scale water treatment trials

The construction work on the full-scale experimental water filtration plants in Oshikhandass and Murtaza Abad was resumed in March and April respectively after the winter break, and took about a month to complete. Preparation of the gravel filter medium of different sizes ranging from 1.5 to 25.0 mm, took much more time than expected especially the smallest gravel (1.5 - 3.0 mm). The task was further delayed due to unexpected rains. In Murtaza Abad where all unskilled labour was the community's responsibility, it took more than two months to complete gravel preparation and placement. About 70 cubic metres of gravel was required for Murtaza Abad and nearly twice as much for Oshikhandass. The total cost to date of the Murtaza Abad plant has been approximately Rs. 700,000 including the community share of Rs. 150,000 in the form of un-skilled labour and land. Actually the community decided to contribute money for hiring labour instead of following the tradition of pooling free labour, which in the villagers' opinion would have resulted in slow progress. The details of cost break-up for the Oshikhandass plant can be found in the previous Progress Report.

The Oshikhandass and Murtaza Abad plants became operational in April and May respectively. For the purposes of the research, it was decided to monitor the systems on an intensive basis. This involved taking turbidity readings at the inlets and outlets of each component at two hour intervals during the day-time. The plant operators at each site, who were selected by the communities, were trained to measure and record the data. The initial performance of the Oshikhandass plant has been very satisfactory. The average inlet-water turbidity was in the range of 1500 and 2000 TUs from May to June and generally about 50 percent of the turbidity was removed by the sedimentation tank, the remainder being completely removed by the up-flow roughing filters (URFs). For a few days in June, the water turbidity was exceptionally high (between 5,000 to 20,000 TUs) due to a mud-slide upstream of the supply channel. Even in this case the plant produced water of zero turbidity. This encouraging performance is mainly attributed to the good settling characteristics of the suspended solids in the water. Periodical bacteriological sampling showed significant improvement: the inlet-water contamination of 200 to 250 E.coli/100 ml was invariably reduced to below 10 E.coli/100 ml. The need for a slow sand filter will be assessed after analyzing the data to be collected over the remaining summer months.

Compared to Oshikhandass, the water at Murtaza Abad has been more troublesome to deal with. Despite conservative design criteria in terms of filtration rates, the plant was unable to reduce turbidity to below 5 TUs. The average inlet-water turbidity in June and July was about 1,700 TUs of which the sedimentation tank removed nearly 30 %, the URFs about 67 % leaving 3 % in the outlet water. On average the outlet turbidity was around 50 TUs. By trying out different modifications the aim is to completely remove this turbidity or at least reduce it to below 30 TUs so that slow sand filtration will be feasible if needed for improving bacteriological quality (sampling to check this will begin in August). At both sites no operational problems have arisen so far. However, importance is being given to motivate the operators and to make sure that the draining of the filters is undertaken according to the specified schedule. Frequent visits of the Project staff during the first one or two years of operation are anticipated to help achieve this objective.

As mentioned in the previous Progress Report, in both communities the water distribution pipeline was incomplete. With the help of the Project each village submitted a formal request to the Local Bodies and Rural Development Department (LBRDD) for additional pipes and accessories. For Oshikhandass the LBRDD provided 15,500 feet of HDPE pipe in May which was immediately installed by the villagers.

However further pipe is needed for complete coverage and this is still awaited. Murtaza Abad's application is in the final stages of approval and it is expected that the requests from both communities will be met by August when it should be possible to supply the treated water to the communities.

Pilot studies in Danyore and Karimabad have been in progress since May. In Danyore, the original pilot plant was modified to a two-stage URF for testing. This more economical system has proved been able to completely remove the turbidity even with higher filtration rates, which indicates that for Danyore and adjacent villages (which rely on the same water source), a combination of sedimentation tank and two-stage URF is probably sufficient. Unfortunately, in spite of carrying out this activity at the Northern Areas Public Works Department's water treatment complex at Danyore, NAPWD have yet to show any interest in up-grading their own unsatisfactory systems of which there are seven in the area. The pilot plant in Karimabad, which like the first pilot plant in Danyore is a combination of a sedimentation tank and a three-stage URF, has not performed so well which can be mainly attributed to the different characteristics of the suspended solids. Changes to the plant design and its operation will be made to try and improve its performance.

In Shigar valley, Baltistan, the nullahs and channels generally become extremely turbid in the summer months. The people of Hurchus approached the Project in 1995 for assistance to tackle this problem and the village was shortlisted for construction of the third full-size experimental water filtration plant in 1996. The village which comprises 110 households, has a good record of implementing community-based projects mainly with the AKRSP. The decision to go ahead was finalized after several meetings with the community during which besides assessing the authenticity of their need, motivation was also assessed.

The pre-implementation investigations in Hurchus showed that in June turbidity levels reached an extraordinary high of 90,000 TUs. However, the results of column tests showed that the solids in this water have good settling characteristics. These factors were taken into consideration in the plant design which is a combination of a sedimentation tank, a three-stage URF and a clear-water storage tank. After reaching agreement with the community about the terms and conditions for co-operation, construction work began in mid-June, and is aimed to be completed by the end of October.

In Chitral, the Project had discussed with the people in Shoghore village the idea of modifying their existing WFU constructed with AKHBP assistance in 1991-92. During meetings the villagers expressed interest in investigating a nearby spring near before making any commitment about modifying the existing WFU. The Project agreed to help the villagers implement their first priority. People in Kuju village near Chitral have also shown interest in establishing a water filtration plant. Staff in Chitral are in the process of having meetings with both villages and assessing the water quality in order to draw up plans for the next half of the year.

The second visit by the CINARA consultant is on schedule for July. The main objectives are to:

- review the overall progress on the community water-treatment activities;
- analyze data obtained from the full-scale systems;
- identify the need for any modifications and to assist with any necessary design changes; and
- assist with the preparation of research reports and operator training manuals

During the visit a report outline will be discussed. The aim is to finalize a document describing the work and the findings so far, by the end of the year. The need for a third visit by the consultant will also be reviewed.



Figure 5. A community meeting during the planning phase at Hurchus in Shigar Valley.



Figure 6. Site clearance for the water filtration plant at Hurchus

DRINKING WATER SUPPLY: APPLIED RESEARCH

Community management research project

The Participatory Action Research (PAR) team completed the diagnosis phase in the four research communities in January. The work involved helping the villagers to identify problems and their root causes related to the management of their water supply schemes and to prioritize these problems by a pair-wise ranking exercise. In addition, PRA tools like preference ranking and role plays were tested for their usefulness in collecting information in different situations. Also in January, the second Regional Workshop was held in Islamabad with the PAR team from Nepal and the Asian Coordinator from IRC. The main purpose of the workshop which lasted for 2 weeks was to make preparations for facilitating the trial implementation of problem-solving strategies identified by the communities. In addition, workplans and the budget for 1996 were finalized, and a draft article on the community selection process was prepared. At the end of the workshop the communities being helped by ACTION AID Pakistan in Kalinger Union Council Haripur were visited to learn about the experiences in planning, experimentation and monitoring of a strategy for solving their problems at the local level.

During the period under review reports of the Community Research Teams (CRT) and the first National Reference Group (NRG) meeting were printed for distribution. Also, a presentation was made for local institutions about the research process and its outcomes. Two three-day workshops with male and female CRTs were organized in March in Skardu to build villagers' confidence and capacity for identifying and selecting appropriate strategies for tackling their priority domestic water supply problems.

In April, the four communities were visited to help them prepare workplans for the trial implementation of their chosen strategy. For a technical feasibility assessment of the different strategies a joint team of WSHHSP and LBRDD engineers, the PAR team and the CRT members was formed in May. These assessments were completed, and designs and cost estimates were prepared in the first week of June. In the second week of June the second NRG meeting was held in Islamabad to review progress and workplans for 1996 and to discuss how to disseminate the experience and findings of the PAR project. A draft proposal, workplan and budget for the methodical dissemination of the PAR findings has been prepared for discussion at an International Advisory Group meeting at the IRC in October. Plans for the next period include the development of a Logical Framework at the community level so that the CRTs will be able to monitor the activities detailed in their workplans.

Scheme rehabilitation, AKRSP and the Social Action Programme

For obtaining practical experience with community-based rehabilitation in 1996 it was planned to implement projects in two villages in the Ghizer District. For this purpose it was decided to link this with the PAR Project (see preceding section). Also contemplated is the idea of selecting a separate village in Ghizer for testing the complete rehabilitation process from initial dialogues to the implementation of physical works (since the PAR Project is already at an advanced stage of problem identification and development of strategies for tackling of those problems). This work is expected to gather pace in August when the Assistant Engineer returns from a short course at WEDC, U.K. The plan to implement two drinking water supply schemes in Astore in collaboration with AKRSP has not materialized, partly due to the decision to send the A.E. on training and partly because of other fieldwork priorities and communication difficulties.



Figure 7. A female Community Health Worker collecting a stool sample from the mother of a sick child for the correlation study in Oshikhandass.



Figure 8. Processing of stool and water samples in the WSHHSP laboratory, Gilgit.

Efforts to assist LBRDD under the LBRDD-AKRSP/WSHHSP partnership arrangement for implementing the RWSS component of the Social Action Programme, appear to have been appreciated, especially by field staff. However, follow-up has been frustrated by time-consuming bureaucratic procedures and consequently little has been achieved. At a review meeting-cum-workshop in February achievements, constraints and lessons learned were discussed. It was also announced that the long-awaited LBRDD Rural Water Supply and Sanitation Unit would be established in the coming month, which would hopefully be able to overcome many of the past problems. In April LBRDD requested assistance from AKRSP/WSHHSP with organizing district-level conferences and a mass-media campaign to disseminate the Uniform Policy for future implementation of RWSS in the NAs. During initial meetings it became apparent that the Policy had not yet been formulated and consequently it was considered inappropriate to pursue.

Trials with improved traditional water pits and spring protection

The post-improvement microbiological monitoring of four water pits in Chitral and Baltistan was carried out during the review period. As in the case of the Gilgit trials, the results show that the tendency of water in the pits to be more contaminated than the channel water used to fill them, is decreased. However, because the contamination levels in the channel water are so high it appears difficult to find any practical solution in the foreseeable future for being able to recommend these water pits for drinking water purposes.

The post-implementation monitoring data from two protected springs in Chitral and one in Baltistan showed a marked improvement in the water quality. In Chitral, Momun and Izh villages were also selected for spring protection in 1996. In Momun, pre-implementation samples at the point of water collection showed a high level of contamination. In Izh, although contamination levels were lower, sanitary inspection of the collection point revealed the presence of animal faeces and other domestic litter posing a significant risk of water contamination. After agreement with the community on the terms of partnership, work at Momun started in early June. This involves building a spring box and installing about 500 feet of pipe to provide a stand-post in the village. In Izh the villagers have decided to start working on their system after the harvesting season.

Correlation study in Oshikhandass

In May the proposal and research protocol for the correlation study was finalized and the study commenced in June with two weeks of training for the microbiologists and fieldworkers provided by a consultant parasitologist from the London Hospital for Tropical Diseases. The three months of fieldwork involves daily visits by the Project microbiologists to the nearby village of Oshikhandass to collect water samples, stool and control samples. Processing of these samples is then done in the laboratory. The microbiologists are being assisted by 11 female Community Health Workers from the village and two senior Lady Health Visitors of the Aga Khan Health Services. The Project will pay a agreed to pay a nominal stipend to these workers during the study period. 400 case control samples have been processed so far but it is too early to attempt to draw conclusions. However, the preliminary results show that most of the diarrhoeal cases are parasitic. A report on this study will be prepared by the end of the year. Enquiries are being made to decide about the necessity of characterizing the E.coli isolates which will probably involve using gene probe molecular biology facilities at ICDDR, Bangladesh.

DOCUMENTATION AND COMMUNICATION

KAP survey: an intervention evaluation tool

This document, in its final stages of preparation, is an outcome of the Knowledge, Attitude and Practice survey carried out in 1995. The main purpose of the report is to evaluate the KAP questionnaire and to develop an improved version that can be used as a survey tool for gathering baseline information and for monitoring and evaluation of future WASEP activities.

Behavioural and microbiological aspects of handwashing in northern Pakistan

No additional fieldwork has been carried out in 1996. The report on this work which is in preparation, describes the results of the applied anthropological and microbiological research. The overall aim of this activity was to identify behaviours that could be realistically targeted for change, and to develop appropriate hygiene education messages.

Investigations of drinking water quality

The full year of weekly water quality sampling in 6 villages was completed in March and a report which incorporates the results with those of the earlier seasonal sampling is in progress. In total, more than 5000 samples have been analysed since beginning these investigations in 1993. The report will suggest practical measures that can be taken to improve the situation.

Water and sanitation inventory

The fieldwork for this baseline survey of the water and sanitation situation in the area was completed in December 1995. Out of 985 villages in the Project area 862 were included in the study. Data analysis and the preparation of a report are still in progress. The final chapter will suggest recommendations for consideration during implementation of the future WASEP.

Manual on participatory health education

Considering the positive comments made by LHVs in their December 1995 workshop about the training programme for participatory health education, it was thought worthwhile to compile the instruction materials into a manual. The document which is in its final stages of preparation, gives comprehensive details for organizing and facilitating three 3-day workshops: Introduction: Theory and Practice; Participatory Exercises and Using Stories; Development of Participatory Health Education Materials. The experiences of the trainers and feed-back from the participants have been incorporated into the manual which is written for trainers of AKHS, WASEP, AKRSP and others interested in participatory learning.

Communication plan for WASEP

This discussion document which is in its final stages of preparation, proposes a communication and health education strategy for WASEP. A range of activities are presented for three different levels: advocacy; social mobilization; and programme communication.

Manual on do-it-yourself simple sanitation options

The final draft of the "do it yourself" low-cost sanitation options manual was circulated to the AKHS Field Modules for their comments and suggestions. After incorporating these suggestions, it is planned to print the manual in the form of a mini flip-chart before the end of the year. It is hoped to instruct interested LHVs and CHWs next year in Ishkoman Valley about the use of this visual aid, so that they can give advice to families asking about how to improve their sanitation.

Participatory health and hygiene promotion and education

Building on the LHV training programme for participatory health education, two follow-up sessions for LHVs were organised in Karimabad and Chatorkhand in March and April. The application of the skills learned and practiced in 1995 has been hampered by insufficient staff to provide follow-up and a lack of support and supervision from the field module staff. In June, the co-ordinator of the AKHS Health Education Support Unit, her counterpart from Chitral and the WSHHSP artist attended a four week training course at the AKHSP Department of Health Education in Karachi. This was mainly a theoretical course and it was felt that practical on-the-job training would have been more useful. The plan to organise complementary participatory health and hygiene education activities in the villages where WSHHSP is working on drinking water and sanitation, has been partially fulfilled. This work has focused mainly on the villages where trial sanitation implementation has been carried out. The methods and materials developed in 1995 for use with individual families have been adapted so that they can be used with small groups. Other packages of visual materials for motivating villagers to correctly use piped drinking water supplies and TPC latrines are in preparation for pre-testing.

Evolution of Water



**WATER SANITATION HYGIENE & HEALTH STUDIES PROJECT
NORTHERN AREAS AND CHITRAL**

WITH COMPLIMENTS

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