

WASEP

Water and sanitation

extension programme

a project of

the Aga

Khan

Planning

and Building

Service,

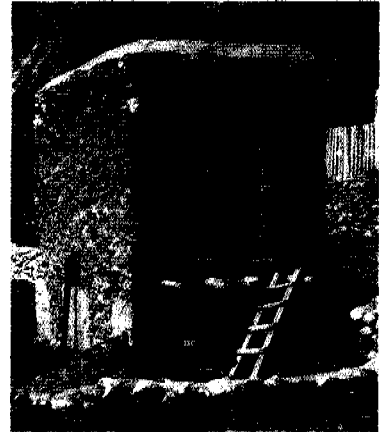
Pakistan



water



sanitation



management



health and hygiene



programme cycle 1997 to 2001

822-PR00-16690

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List of Abbreviations

AKDN	Aga Khan Development Network	SHIP	School Health Intervention Programme
AKF	Aga Khan Foundation	TOP	Terms of Partnership
AKPBS	Aga Khan Planning and Building Service	WASEP	Water and Sanitation Extension Programme
CHIP	Community Health Intervention Programme	WSC	Water and Sanitation Committee
KAP	Knowledge – Attitude – Practice	WSI	Water and Sanitation Implementer
KfW	Kreditanstalt für Wiederaufbau	WSO	Water and Sanitation Operator
PRA	Participatory Rural Appraisal		

table of Contents

WASEP an introduction	Page 1
addressing the Demand	Page 2
Infrastructure development	Page 3
Management by communities	Page 5
promotion of Health & Hygiene	Page 6
intervention Impact	Page 12
Excellence in development	Page 13



WASEP an introduction

In the Northern Areas and Chitral, 87% of households use unsafe traditional sanitation systems, and 63% of villagers rely on open channels for their water supply. The resulting unhygienic conditions in these communities lead to ill health and disease. An Aga Khan Health Service survey revealed that 50% of all deaths in the Northern Areas and Chitral are caused by water and sanitation related diseases. Therefore, the Aga Khan Planning and Building Service (AKPBS) initiated the Water and Sanitation Extension Programme (WASEP) in 1997 with the aim of providing infrastructure services to assist in preventing water related diseases. The delivery of the programme involves both water and sanitation hardware and software components such as health and hygiene education.

WASEP's overarching goal is to reduce diarrhoeal morbidity by 50% in its partner communities in the Northern Areas and Chitral. The organization aims to provide quality drinking water and sanitation facilities to approximately 100,000 inhabitants of Gilgit, Baltistan, and Chitral over a five year programme cycle (1997 to 2001). The general purpose of WASEP is to substantially reduce the risk of food and water-related diseases as a public health problem for its target group. WASEP intends to fulfill this objective by offering technical advice and resources in order to:

- Provide safe, potable drinking water to 3800 households per year
- Improve access to sanitation facilities to

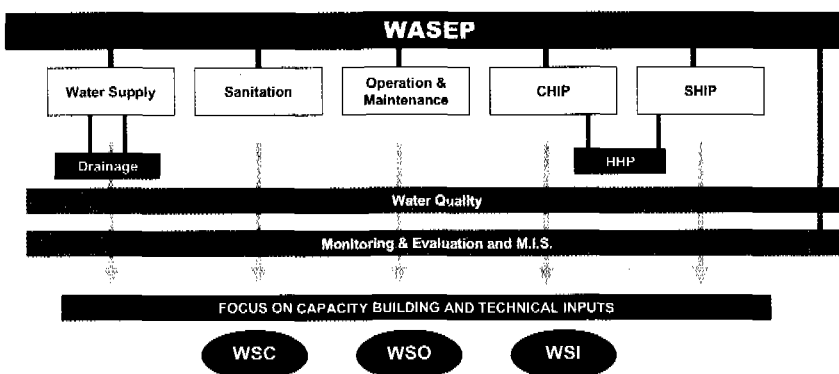
- over 1800 households each year
- Develop drainage facilities to each household receiving a water scheme
- Establish an operational and sustainable village based management structure for each project
- Facilitate the adoption of healthier domestic, personal, and environmental hygiene in project villages.

WASEP is the result of several years of combined research and planning by the many institutions of the Aga Khan Development Network (AKDN). It falls under the auspices of the AKPBS, and works closely with all of the AKDN institutions in the Northern Areas. The primary funding agencies for the 1997 to 2001 phase of WASEP are the German bank of Kreditanstalt fur Wiederaufbau (KfW), Aga Khan Foundation (AKF), and AKPBS.

During the implementation of schemes, WASEP provides villages with engineering and construction services, non-local materials, skilled labour, training, and health and hygiene education. Partner villages are required to provide local materials, local unskilled labour, and operation and maintenance funds. The community's share, in terms of endowment funds and materials and labour in kind, accounts for over 45% of the total scheme costs.

These projects are carried out by qualified engineering, finance, and health and hygiene teams in WASEP's offices located in Gilgit (Head Office), Skardu, and Chitral.

WASEP's integrated approach to water and sanitation intervention focuses on engaging partner communities in sustainable and effective changes to improve the health condition of communities.



addressing the Demand

Partner Selection

Research conducted under WASEP's predecessor, Water, Sanitation, Hygiene, and Health Studies Project (WSHHSP) indicates that there are over 1000 villages in the region who require new schemes or rehabilitation of nonfunctioning existing schemes. WASEP's mandate under its current funding cycle is to assist in providing water and sanitation schemes to 105 of these villages by 2001. The search for potential partner villages begins with communities submitting application forms which must be signed by 80% of the village households. WASEP has received over 600 village applications to consider for the 105 partnerships to be formed. Following a preliminary evaluation of applications, a longlisted set of villages is selected for reconnaissance visits and preliminary technical and social feasibility evaluations.

The Buy In

Prior to investing in a thorough assessment exercise, WASEP asks communities to commit to the project by submitting their operation and maintenance endowment fund up-front. Once communities have "bought-in" to the scheme, WASEP begins its in-depth village selection process.

Participatory Approach

WASEP uses a participatory approach in determining the depth and breadth of each potential project and to assess a community's ability to carry out and sustain an intervention project. An exhaustive series of Participatory Rural Appraisals (PRA) are used to identify the specific needs of the community prior to commencing work. Using tools such as village mapping and seasonal calendars (with separate groups of men and women), the intervention teams learn more about the community, the context in which it operates, and where special considerations are needed. The extent and quality of the community's participation during this process is a major factor in it being selected for a scheme. Through the use of a transparent and objective evaluation

criteria, WASEP identifies partners where needs are evenly balanced by capacity to sustain a project. WASEP completes the process with a technical and logistical feasibility assessment of the village and a financial evaluation.

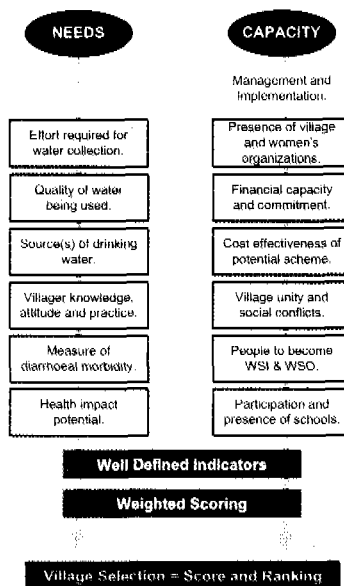
Terms of Partnership

Final village selection is only made after communities accept WASEP's Terms of Partnership (TOP). The TOP outlines roles and responsibilities and asks the villagers to commit to all portions of the programme: water supply, sanitation, drainage, operation, maintenance, and health and hygiene education.

The TOP requires that the village form an elected Water and Sanitation Committee to administer and manage the water supply scheme. Each committee is composed of a voluntary administrative staff and two salaried employees: a male Water and Sanitation Operator (WSO) and a female Water and Sanitation Implementer (WSI).

As a part of the TOP, the village must contribute to an operation and maintenance endowment to buy spare parts and create a self managed investment fund whose profits are used to pay the WSO and WSI. WASEP also contributes to this endowment to a maximum amount. This operation and maintenance fund allows for each village to employ trained staff and ensure that the tools and parts are readily available.

The TOP must be agreed on by all members of the village in order to proceed with construction work.



The village selection process balances needs with capabilities through a transparent process.

Village mapping is a tool used by WASEP to determine village geography and possible pipeline routing during the PRA sessions.



Infrastructure development

Water Supply and Drainage



HDPE pipes are part of the barrage of North American and European technologies successfully transferred to the Northern Areas.

The primary sources for drinking water are glacier fed springs and nallahs (streams). Source waters are tested for microbial and chemical purity and must meet World Health Organization (WHO) standards for developing countries (i.e. less than 10 E. Coli per 100mL). Water is collected in concrete boxes constructed around the eye of the spring and piped along sides of mountains in high-density polyethylene (HDPE) pipe. The water is led to a storage reservoir at the apex of the village then piped to into the village where each household is provided with a tapstand.

Schemes are designed to provide 70 litres of water per capita per day (lcpd). Although the industry norm is 45 lcpd, WASEP recognized the increased water use that occurs as a result of individual tapstands, and accordingly increased the amount of water to be supplied. Where source waters cannot meet the 70 lcpd value, systems are designed for 45 lcpd, and village education sessions on responsible water use are stressed accordingly.

WASEP provides reliable and safe drinking water to every household in the village.



WASEP's design process includes villagers, especially women in every technical assessment, from land surveying, pipeline routing, and determining tapstand location. WASEP engineers design water distribution networks using the industry standard software EPANet. Engineers provide break pressure tanks in portions of the system where rapid changes in elevations require the suppression of pressure prior to water delivery. The design process takes into account and incorporates appurtenances such as pressure reducing valves, drainage valves, and gate valves to ensure delivery of

an acceptable level of service.

In villages where previous systems are being rehabilitated, WASEP attempts to reuse as much of the existing pipe and structures as possible without compromising water quality and level of service.

The pipe materials, fittings, and associated technologies which are provided are at par with those used in Europe and North America. During the installation of the system, WASEP engineers and site supervisors carefully inspect the construction work and ensure that quality control is provided throughout the process. Each scheme is methodologically commissioned and tested prior to its inauguration.

An increase in water supply leads to an excess production of wastewater from washing and cooking. WASEP and the community determine an appropriate method for the disposal of this grey water and install HDPE drainage pipes leading to nallahs or soak-away pits.

Water Quality

WASEP's Gilgit office houses the premier water quality testing laboratory in the Northern Areas and Chitral. In addition, all field offices and field staff have access to and training in the use of portable Del Agua water testing units. WASEP's testing facilities are able to analyze samples for microbiological substances such as coliforms and chemical contaminants including heavy metals.

Each supply source is thoroughly tested to ensure quality drinking water. The initial tests includes a heavy metals examination for lead, arsenic, and mercury amongst others. The water quality programme begins with a microbiological baseline survey of household containers, reservoirs, and channels prior to intervention and several points along the network are examined on a regular basis after schemes are in place.

Prior to implementation of WASEP schemes, E. Coli contamination in the distribution

system averaged 356 E.Coli/100mL in Gilgit, 4594 E.Coli/100mL in Baltistan, and 310 E.Coli/100mL in Chitral. With careful selection of water sources and careful routing to the home, WASEP has been able to increase the quality of drinking water available at tapstands by ten (10) to 290 times. Following intervention, the levels in household containers have dropped to an average of 33 E.Coli/100mL in Gilgit, 16 E.Coli/100mL in Baltistan, and 28 E.Coli/100mL in Chitral. The reduction of E. Coli levels observed in containers is being achieved through provision of cleaner water and increased education on water handling and storage at the household level.

Water Treatment

WASEP has developed a reputation in the Northern Areas for being specialists in providing water treatment technologies for high turbidity zones. The engineering and environmental teams have performed extensive research (during WSHHSP and at present) on appropriate treatment methods for the region. WASEP has chosen to use sedimentation and "up-flow roughing filtration" to reduce turbidity levels and eliminate microbial contaminants.

Water treatment plants to clear water of turbidity and reduce microbial contamination to WHO standards. An operational routine for the filtration units has been developed to allow for village level maintenance and regular troubleshooting by the WSO. WASEP provides additional training to operators where their duties include responsibility for the plant and carefully monitors the unit for performance and effectiveness.

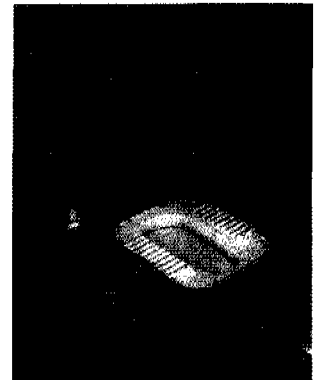
Water treatment facilities in Yono and Hurchus in Baltistan treat over 150,000 litres of water a day. In the Gilgit region, the Oshikhandass plant has a capacity of 270,000 litres a day and the one in Murtazabad operates at 150,000 litres per day. These filtration plants may be augmented with secondary treatment processes should the need arise.

Sanitation

PRA exercises have shown that in different regions of the Northern Areas and Chitral there are different cultural preferences for latrine technology, and as such, WASEP has made provisions for different designs. Following a comprehensive and objective information session on the available options, communities choose the sanitation technology of their preference. The three basic types of latrines available to communities are the pour flush latrine (using a lota and soak-away pit), the twin-pit composting latrine, and the VIP (ventilated improved pit) latrine.

Each household that does not have facilities is motivated to construct a latrine. Households are provided with drawings and advice on building. WASEP provides incentive to construct latrines by offering a token contribution of non-local materials (less than 15% of the total cost).

WASEP has surpassed its demand forecast and is steadily achieving 70% coverage in project villages for latrines.



Pour flush latrines are one of the three culturally preferred sanitation technologies of the Northern Areas and Chitral.

Appropriate technology "up-flow roughing filtration" plants reduce turbidity and contamination in drinking water.



Management by communities

Water and Sanitation Committees



WASEP has contributed to developing the local municipal services industry by arranging with local merchants to carry materials such as HDPE pipes and compression fittings.

The presence of a trained and salaried operator helps to ensure that routine repair and maintenance work will be performed.



In the Northern Areas and Chitral alone, it is estimated that 400 villages possess schemes which have failed due to lack of provision for long term maintenance and operation. WASEP schemes focus on building on the village's capacity to manage its scheme through the creation of the Water and Sanitation Committee (WSC). The Water and Sanitation Operator (WSO) is trained in maintenance and upkeep of the system and is referred to as the village plumber. The Water and Sanitation Implementer (WSI) is trained in promoting health and hygiene and collecting information on diarrhoea.

The WSC is responsible for administering the system and their tasks include planning and managing the development and upkeep of the network. WSCs set and collect water tariffs and are responsible for all financial matters including payment of salaries. Committees develop and enforce local legislation vis-à-vis water and sanitation, and ensure that the village's spare parts store is kept well stocked.

Regular maintenance, including repairing leaks and broken faucets is the responsibility of the WSO, who is also a member of the WSC. Each day, the WSO inspects the water reservoir and records the reading of the bulk flow meter. The WSO is well known in the village, and is easily accessible should the need for his services arise. The WSO is trained in repairing valves, distribution mains, and larger components of the network. Preventative maintenance performed by the WSO involves line flushing and exercising valves.

The function of the WSI is to provide support to the women on various domains of hygiene activity and to monitor health and hygiene status. WSIs visit each house twice a month to collect information on incidence of diarrhoea and to observe other parameters of hygiene behaviours

such as latrine use and presence of faeces around the home. WSIs act as WASEP's regular link with the women, and are recognized as health and hygiene experts within the village.

WSIs are members of the WSC, and in addition to being a voice for health and hygiene matters she also acts as a link for women to the committee. In some villages, such as Hassis Paene (1998 partner villages), she is joined by additional "female members" on the committee. WSCs in communities such as Sermik (1998 partner village) regularly receive input from the local Khatun Committee (women's organization).

To assist the WSC, WSO, and WSI to perform their duties as envisaged, WASEP provides training and a manual to outline their roles and responsibilities. Each member of the committee has attended a workshop to address their respective roles and as a group have been provided with management and record keeping training. Implementers and Operators are also provided field based training in their respective villages.

Spare Parts Inventory

The spare parts inventory that is purchased from the community's operation and maintenance endowment fund contains parts that are regularly required such as faucets, pipe lengths, and valves. The inventory is run as a "revolving-store" allowing villagers to buy parts locally and at a reduced rate.

WASEP has made additional arrangements with local merchants to stock most construction materials such as large diameter HDPE pipe and compression fittings. Thus, should communities require to expand or alter systems by themselves, most components will be available at the bazaar in Gilgit.

promotion of Health & Hygiene

Years of experience from the development community have shown that the provision of clean water and latrines alone does not reduce the incidences of waterborne diseases. The effectiveness of traditional infrastructure oriented projects have been significantly undermined when the planning process has not accounted for the level of education and prevalence of poor personal, domestic, and environmental hygiene. Despite the physical improvements made by these projects, many people retain their traditional beliefs, attitudes, and behaviours with respect to hygiene - which might be counterproductive in improving the health of beneficiaries.

Community Health Intervention Programme (CHIP)

Therefore, in addition to providing safe water, adequate sanitation facilities, and improved site drainage, WASEP initiated the Community Health Intervention Programme (CHIP) in conjunction with Community Health Services, Aga Khan University. The programme has been developed and implemented on the basis of these specific objectives:

- To create awareness about health and hygiene
- To facilitate local action in improving domestic, personal, and environmental hygiene
- To assist villagers in sustaining adoption of healthier behaviours
- To make villagers aware that they are important partners and are responsible for improving hygienic conditions in their villages and homes
- To make partners understand how diarrhoeal diseases are spread and what preventative measures can be taken to reduce their occurrence
- To enable villagers to take required actions to cure children and other family members infected by diarrhoea
- To ensure use, operation, and maintenance of water and sanitation schemes implemented by WASEP.

The target groups for CHIP are the female participants in WASEP interventions. Although CHIP involves men and children also, the focus is primarily on women. Women carry out tasks such as cooking, feeding children, and washing and cleaning. For most women, their roles also include disposal of wastewater, solid waste, and children's faeces. The emphasis on women is a direct result of the relationship between women, water, and sanitation in traditional gender roles. Thus, CHIP has identified women as the target group where its activities can achieve the most significant impact on improving community health and hygiene.

All of WASEP's offices include trained female Health and Hygiene Promoters (HHPs) who conduct education sessions with the women of the village in their local languages. The foci of these education sessions are:

- Traditional Concepts about Diseases: Truth versus Belief
- Latrine Promotion and the Usage or Safe Disposal of Human Faeces
- Domestic, Environmental, and Personal Hygiene
- Care in Food Preparation, Handling, and Storage
- Transmission Routes of Waterborne Diseases



Improving personal, domestic, and environmental hygiene through practices such as covering cooking utensils aids in fostering a norm of healthier behaviour.

WASEP engages the women in partner communities for a two way flow of information; education on health and hygiene and learning about community priorities.





Through the use of dynamic teaching tools, villagers not only learn about the topics at hand, but also have a chance to socialize and share concerns.

- Diarrhoeal Diseases: Causes, Prevention and Cure
- Intestinal Worms
- Water Use and Operation and Maintenance.

Health and hygiene sessions approach learning using a multifaceted approach. The first aim is to transfer knowledge and information to the women, and secondly, to educate WASEP about local issues and concerns, thereby creating a two-way flow of information. The sessions focus on finding local solutions to a given problem based on mutual discussion. HHPs employ different techniques such as household visits, group discussions, posters, role-playing, and relating anecdotal information as communication tools.

Programme Implementation

CHIP begins with visits by the Health and Hygiene Promoters (HHPs) to all the households in the village. During the course of this three (3) day initial visit, the HHPs' activities focus on collecting baseline data and include:

- Assigning and marking a unique identifier to each household which will be used to locate each family and monitor it within WASEP's Management Information System (MIS)
- Communicating programme objectives and the purpose of the visit to the family
- Collecting basic information such as water use, defaecation practices, and personal hygiene using WASEP's

The presence of HHPs on a regular basis and in the homes themselves has resulted in a great rapport between WASEP and the communities.



Knowledge-Attitude-Practices (KAP) questionnaire

- Noting domestic hygiene practices such as cleaning, latrine use, food preparation, and utensil storage
- Observing the environment in and around the home with particular attention to presence of human and animal faeces
- Gathering information on the incidence of diarrhoeal diseases in the last two (2) weeks.

Following implementation of the scheme, HHPs visit each programme village bimonthly and meet with the women. HHPs visit individual households and discuss particular health and hygiene concerns. During the health and hygiene sessions, HHPs discuss issues pertaining to the planned topic (e.g. Intestinal Worms), and utilize tools such as role-playing and posters. On average, 20 to 30 women attend these education sessions.

In order to assess the impact of health and hygiene activities undertaken in programme villages, WASEP has established an exhaustive monitoring and evaluation system. In addition to the baseline survey, observation formats are used during every visit to evaluate a community's progress and changes in behaviour. Another KAP questionnaire is conducted six (6) months after the intervention to assess short term impacts, then repeated on the two (2) year anniversary to evaluate long term impact. All the data is standardized and is subjected to a scoring system so that its progress from pre to post intervention can be monitored. WASEP's Management Information System (MIS) assists CHIP staff to maintain a digital database, and analyze and trend programme performance on an ongoing basis. The results of the monitoring are fed back into the programme implementation and appropriate adjustments and modifications are made to the sessions to maximize the impact of CHIP.

By the end of 2001, WASEP anticipates that through CHIP, HHPs will complete over 30,000 household visits. HHPs have established an excellent rapport and affinity between WASEP and its partner communities. The regular presence of WASEP staff in the villages and the observable and tangible benefits of the water and sanitation schemes has resulted in the perception of WASEP as a unique organization committed to helping its partners in bringing basic change in hygiene behaviour at the grassroots level.

Impact of CHIP

Analysis and comparison of pre and post intervention data revealed the following facts:

- Increased handwashing before eating and after defaecation
- Increase in the use of soap for handwashing
- Significant increase in latrine usage
- Cleaner environment around homes
- Drastic reduction in the presence of human faeces around homes
- Use of cleaner utensils
- Improvement in personal hygiene
- Increased covering of food and utensils from dust and flies
- Increased knowledge on the cause, prevention, and cure of diarrhoea.

An analysis of the standardized village data shows an increase in health and hygiene in all WASEP partner villages. Surveys shows that between 1998 and 1999 the average health and hygiene score rose by over 45% in the programme area. This figure indicates that villagers are more knowledgeable about issues, have changed attitudes, and have adopted improved health and hygiene practices.

School Health Intervention Programme (SHIP)

During the first year of CHIP's implementation, the need to modify part of the programme's strategy was recognized. Monitoring results showed that special attention and education needed to focus on

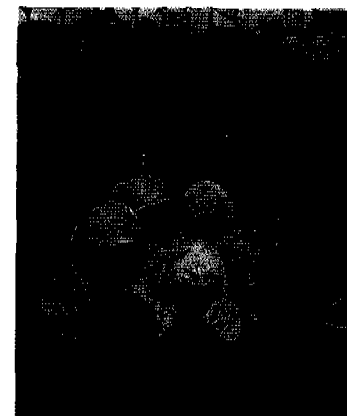
children in the village as certain observations were common in many programme communities:

- Small children found it difficult and were reticent to the use of latrines
- Children were not washing hands after defaecation
- Children were drinking from open channels
- Children were eating unwashed fruit
- Children were eating without washing their hands.

Realizing that sustainable changes in behaviour could not be achieved without addressing the educational needs of children WASEP initiated the School Health Intervention Programme (SHIP) in September 1999 in collaboration with the Institute for Educational Development (IED), Aga Khan University, Karachi.

SHIP primarily engages primary level school children in villages where WASEP is present. The implementation of SHIP has proceeded on the basis of these specific objectives:

- To increase the health and hygiene knowledge of children.
- To assist children in making plans and taking action to create awareness and adopt healthier behaviours in their schools, homes, and villages.



WASEP places great importance on addressing the most vulnerable and impressionable of its partners: children.

The CIC approach employed by WASEP encourages children to learn by Knowing, Doing, and Feeling.



- To involve children in helping their siblings to adopt healthier behaviours.
- To make the children feel that they are important and responsible actors in improving conditions and promoting hygienic practices.
- To improve health and hygiene in schools and villages.
- To actively involve teachers in the process to attain better results.

Experience has shown that children adopt new behaviours with less effort than adults. School children are also more susceptible to food and water-borne diseases and therefore are considered important WASEP partners.

Curriculum

WASEP collaborated with the IED to develop a curriculum on health and hygiene for children attending primary schools in the Northern Areas and Chitral. The curriculum consists of seven topics:

- Clean Hands and Personal Hygiene
- Children's Stools and Hygiene
- Clean, Safe Water
- Diarrhoea: Causes, Prevention and Cure
- Intestinal Worms
- Clean, Safe Food
- Water Use and Operation and Maintenance

The curriculum is designed to make use of active teaching methods such as group discussion, stories, role-playing, and cartoons. SHIP allows children to plan and take actions to improve the hygiene conditions at their homes, schools and villages. Each topic is objective oriented and designed to disseminate its message based on

knowing, doing and feeling. One of the important characteristics of the curriculum is that it allows children to determine the problems by themselves and subsequently think, plan, take action and monitor the outcome. The curriculum allows children to translate ideas into creative activities and learn.

Teaching Methodology

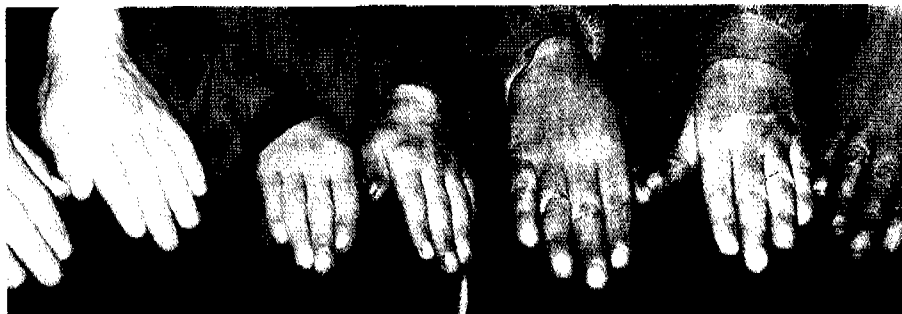
WASEP's partner children have shown themselves capable of taking action for change, and being promoters and disseminators of health and hygiene knowledge to other children. Recognizing the dual nature of the children's role in health and hygiene, SHIP adopted the Child to Child (CtC) approach in implementing its curriculum. SHIP's use of CtC is based on the assumptions that:

- Children can act as role models for health and hygiene behaviour
- Children can take action to prevent ill health in the community
- Children are able to help those weaker than themselves
- Children can treat minor health conditions they can recognize and get help for those they cannot
- Children can easily spread their knowledge to others.

Implementation

SHIP requires teachers to have the capability not only to teach topics but also to involve children in the process to facilitate change. Unfortunately, (non AKES) teachers in the Northern Areas and Chitral are generally accustomed to

Teachers and children respond well to WASEP's "hands-on" approach in communicating messages such as the importance of handwashing.



traditional teaching methods that are didactic, authoritative, and dictatorial and affecting changes in teaching methodology and education policy is beyond the scope of WASEP. Therefore, WASEP has taken on the role of being the primary facilitators for SHIP through the use of its female Health and Hygiene Promoters (HHPs).

HHPs had an excellent background in conducting hygiene education in the community through CHIP and were ideal candidates for additional training to allow them to carry their message on to school children. In order to ensure effective programme implementation, WASEP collaborated with IED to hold a training workshop for the HHPs on SHIP and CtC.

WASEP visits all schools in the SHIP bimonthly to cover a specific theme. Each topic plan is designed to take three days (one 45 minute period a day) to complete. On the first day health and hygiene information is disseminated to the children and they are asked to observe and collect data related to the topic from their homes. During the second day, the children consolidate their findings, analyze the information for common themes and messages, and develop action plans to amend behaviours seen at home. On the final day, children report on the changes they implemented at home, and then relate the lessons they have learnt using posters, stories, and plays.

Class III and Class V have been identified as the target groups for SHIP. During the activities where interaction is required with other children, students are assigned to work with schoolmates one year below them (Class II and Class IV especially). Where enrolment is small, classes are being combined and additional age ranges are targeted.

Tools developed for monitoring CHIP are also used to assess the combined impact of both SHIP and CHIP at the household and village levels. In addition, schoolteachers and children are also responsible for monitoring health and hygiene conditions at schools.

SHIP in Action

Observations made following SHIP sessions revealed that children have been sharing their new knowledge with other community members especially siblings and parents. Students had also shared the story of "The Happy Germ" with their friends while playing outside. Pictures and posters developed by the students were excellent and were subsequently used as tools to engage other children and community members.

As part of their independent research activity, students observed many incidences of open field defaecation and human faeces in the streets around their homes. In Hopay (1999 partner village), SHIP students

organized a campaign to safely dispose of the faeces (burial) and improve the village environment. A group of girls in Broshal (1998 partner village) initiated a community beautification project following a SHIP session. Students collected and sanitarly disposed of solid waste from the village, and swept the streets around their homes. The efforts of these school children have been noticed and appreciated by their neighbours and have served as examples for the community.

An immediate result of SHIP has been the improvement of hygiene in and

Child to Child Approach

Six Steps to Facilitate Behavioural Change in School Children

Step 1: Listening To and Understanding the Message

WASEP's Health and Hygiene Promoters (HHPs) begin by talking to children about the session's topic, and provide them with information on personal and domestic health and hygiene. The children and HHPs discuss the problems, ideas, and issues related to the subject matter.

Step 2: Independent Research

Following the discussion session, the children are assigned research as homework. At home, the children survey, observe and interview to collect more information related to the day's topic.

Step 3: Group Analysis of Data

During the next day's session, the children share their research with the other students and consolidate their data using tables, charts, and simple mathematics. The HHPs facilitate the remainder of the session where the children develop plans to take corrective action based on their findings.

Step 4: Implementation of Ideas

As homework for the day, the students follow through on their action plans in their homes and villages. During this step the children are encouraged to involve siblings in their activities. The following day, the older students also take action in their schools and share their ideas and activities with other classes.

Step 5: Evaluation of Performance

Once again, the children convene and share their previous night's activities, and discuss their results. The children demonstrate the lessons they have learnt by making posters, writing stories, and performing plays.

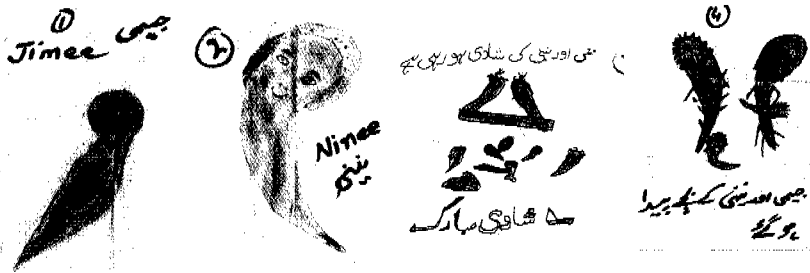
Step 6: Sustaining Healthier Behaviour

The final activity in the lesson plan involves having the children refine their ideas and discuss ways to improve their action plans. Children also develop indicators and monitoring tools to track their own performance.

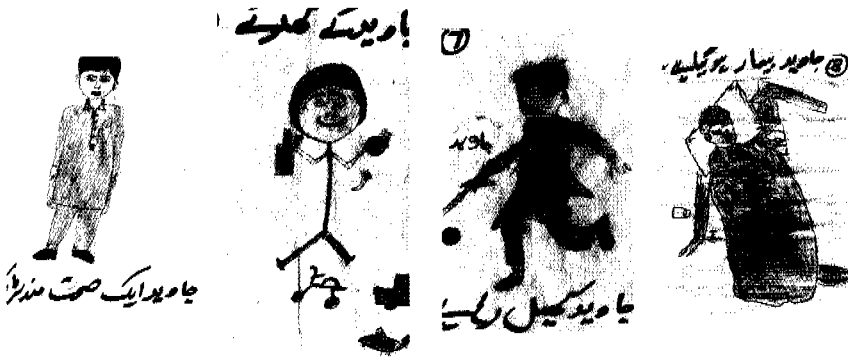
The Happy Germ

Using an Active and Creative CtC Tool

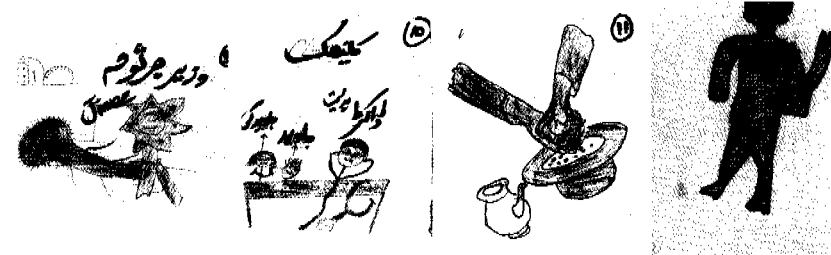
This tool uses a storyboard to show children that many illnesses can be prevented by washing their hands after defaecation and prior to eating. The message to be conveyed was that germs carry many diseases that can easily be transferred onto hands and mouths, and that stool is dangerous. The artwork made by the school children shows that they understood the lesson and can communicate it to others.



Jimee and Ninee were happy germs who got married. There was enough rubbish to breed and feed them and their children.



Javaid is a schoolboy. He plays with his toys that are left on the dirty floor. He eats his food without washing his hands. Now Javaid is sick and has diarrhoea.



Jimee gets a prize for making Javaid ill by sticking to his hands and toys. Javaid's mother gives oral re-hydration salts (ORS) and takes him to the doctor. The doctor advises Javaid to wash his hand before eating with plenty of water and with soap if possible. Javaid is well and goes to school and the germs are happy no more.

around partner schools. Changes in the surrounding environment were noticed as early as the second and third days of SHIP sessions. In the 1999 project village of Shishkat, students even brought soap with them to school to allow them to wash their hands after defaecation and before eating.

WASEP has been quick to note the many benefits that have been realized from SHIP that were not planned for:

- Increased confidence amongst children to express their views and share their feeling through the use of dramas, role playing, and songs
- Expression of creativity through the use of non-traditional teaching methods such as posters and art
- Developing skills for data collection and analysis from the use of homework assignments
- Exposure of teachers to alternate methods to engage children in the learning process.

intervention Impact

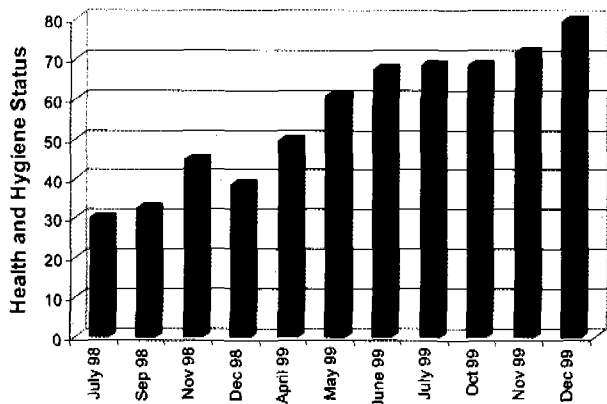
Diarrhoea as an Indicator

There are many common diseases resulting from poor sanitation, inadequate hygiene, and unsafe water. Monitoring systems required for tracking incidences of such diseases are complex and sophisticated, and are often difficult to correlate as direct results of water and sanitation interventions. Therefore, after researching other work performed in the development field and studying its target group, WASEP decided to consider incidence of diarrhoeal disease as its main indicator of community health. This decision was further supported as the definition of diarrhoea is understood by most local women. Therefore, as part of its monitoring activities, WASEP has collected data on the incidence of diarrhoeal disease at the household level in all the programme villages at regular interval.

Reduction in Diarrhoeal Morbidity

The subsequent result of the success of each of the programme components in fulfilling its objectives has been the reduction of diarrhoeal morbidity in partner communities.

Through 1999, an average reduction of 52% was achieved in programme villages in the Gilgit Region (when compared to the same season during the pre-intervention year). For Baltistan the average reduction was 36% and in Chitral a 64% reduction. On a programme wide basis during 1999, WASEP achieved a 49% reduction in diarrhoeal morbidity.

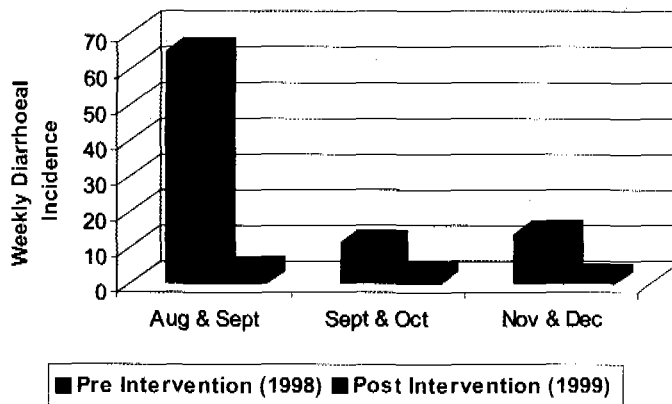


External Comparison

In order to arrive at a more solid conclusion about the impact of WASEP's intervention, an external comparison of one of the partner villages was made with a village that did not receive a scheme. Datuchi is a 1998 programme village and was used as a representative of WASEP's partners. Hoppay has been used as the external control group as it had not received a WASEP scheme at that time. These two are sister villages located on either side of a nallah in the Bagrote Valley. They share common communal characteristics such as economy, topography, weather, and sectarian composition; in fact most villagers are even family relatives.

Prior to intervention, the situation of drinking water, sanitation, and hygiene in Datuchi was similar to Hoppay. Baseline surveys conducted in Datuchi and Hoppay revealed that the incidence of diarrhoea were not too dissimilar. As part of CHIP, diarrhoeal data was collected during June, July, and August in both Hoppay and in Datuchi one year after intervention. The survey data shows that a villager from Hoppay was 10 times likelier to have diarrhoea in July, and 6 times likelier in August when compared to a villager in Datuchi. At the very least, one can conclude that WASEP has made an impact on community health by reducing the number of reported diarrhoeal cases in partner villages.

The direct impact of the integrated approach on diarrhoeal morbidity is characterized by Datuchi's (1998 partner village) rise in health and hygiene status and subsequent drop in the number of diarrhoeal episodes.



Excellence in development

WASEP is an innovative and unique programme that has heralded many successes during its initial introduction into the development world. By all accounts, WASEP is a rather new programme that is in its adolescence, continuously experimenting with new ideas and approaches and learning from its achievements and challenges. From its inception, WASEP has been able to react to the changing environment in which it operates and address its shortcomings along the way. Whether it is through redefining engineering design based on field results or developing a new programme such as SHIP due to deficiencies in CHIP, WASEP has been willing to admit to and learn from its mistakes.

WASEP is an interdisciplinary organization with specialists in engineering, water quality, health promotion, social science, and information technology. Although leaders in their respective fields, each team member is cognizant of the interplay that occurs between their roles, and as such, a cross-fertilization of knowledge results. To ensure that activities do not occur in isolation such as in silos, WASEP ensures a well-rounded approach to intervention through strategies involving making engineers active in PRAs and HHPs responsible for water quality testing.

The ultimate sign of success for any development initiative is replication and reaping of benefits by other. WASEP aims to develop its programme so that it may be transferable as a whole or as separate modules throughout Pakistan and in other nations.

Through successful construction of water and sanitation infrastructure, facilitation of behavioural change, and improvement in hygiene status WASEP has shown that its approach contributes to the reduction of diarrhoeal morbidity. WASEP has molded itself as a leader in the provision of integrated interventions, and hopes to earn its status as the Centre of Excellence for Water and Sanitation in South Asia, and indeed, in the developing world.

Through innovative initiatives and the willingness to learn from experience, WASEP has shown itself to be a dynamic leader in the provision of water and sanitation based interventions.



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