



Rehabilitation of Drinking Water Supply in Khyber Pakhtunkhwa





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Abbreviations

1) BCC:	Behaviour Change Communication
2) BHU:	Basic Health Unit
3) CRPs:	Community Resource Persons
4) GHD:	Global Hand Washing Day
5) HH:	Household
6) IEC:	Information, Education and Communication
7) IRSP:	Integrated Regional Support Program
8) JIPL:	JOBS International Private Limited
9) KPK:	Khyber Pakhtunkhwa
10) LHWs:	Lady Health Workers
11) NGOs:	Non Governmental NGOs
12) PHED:	Public Health Engineering Department
13) PTCs:	Parent Teacher Councils
14) SDC:	Swiss Development Cooperation
15) SODIS:	Solar Disinfection
16) UCs:	Union Councils
17) WWD:	World Water Day
18) WASH:	Water Sanitation and Hygiene



1. Executive Summary

The project '*Reduction in water borne diseases through Rehabilitation of Drinking Water Supply in Khyber- Pakhtunkhwa*' applied a two- pronged approach which included i) providing access to safe drinking water and ii) creating awareness amongst the community about basic sanitation and hygienic water use and storage practices. The project was funded by the Swiss Agency for Development and Cooperation (SDC) and implemented by Integrated Regional Support Program (IRSP) and by Jobs International Private Limited (JIPL).

The project targeted different groups at all levels of the community with its sensitization programme and maximized use of funds by reaching a wide group of beneficiaries. Young children and their parents were the primary target audience, while religious leaders, teachers, parent teacher councils (PTCs), Lady Health Workers (LHWs), hospitals/Basic Health Unit (BHU) staff, community support persons, shopkeepers and medical store owners/managers were the secondary target audience.

Over the course of 31 months (from Nov, 2011 to Sep, 2014) the project was renewed under three separate agreements. Ultimately, it reached 11,060 households across 11 Union Councils (UCs) in two districts (Charsadda and Nowshehra). The infrastructure ("hard") component of the intervention targeted 6,509 households with rehabilitation of dug wells, cleaning of 6,307 wells, 6,113 wells tested (2,778 before and 3,335 after rehabilitation), 140 community sessions with well owners, rehabilitation of 667 latrines, rehabilitation of 7 water supply schemes and training of 132 Public Health Engineering Department (PHED) staff members on chlorination.

In the behavior change ('soft') component, the team targeted the neighbors of the well owners (one participant per HH) in addition to the well owners. The training of other community members, such as shop keepers, LHWs, BHU staff, religions people and community resource persons (CRPs), was conducted in order to ensure the sustainability of the project messages beyond the end of the project. At the school level, teachers of classes 3 and 4 at the public and private primary schools were targeted. They conducted interactive sessions with their students in order to promote water safety and hygiene. This multi-pronged approach ensured that various effective channels were utilized appropriately to reinforce key messages related to well protection, water treatment, water storage, handling and hand washing, for each targeted population.

In 2014, project also targeted 37 schools which were rehabilitated by SDC. It was comparatively easier to work with these schools on soft component, and teachers and students were quickly able to practice learned behaviors, since an enabling environment had already been created by the other SDC activities.



A. Project Impact

Survey results indicate that medical expenditures of households significantly decreased at the end of the project. Sharp increase in access to clean drinking water was reported by 83% of the communities – from a mere 2% at the inception of the project. The number of protected dug wells increased to 73% from a starting level of 4%. A similar, marked increase was observed for usage of safe containers (cooler) where prevalence rose from 8% to 65%. At the start of the project only 25% of the people believed that it was necessary to treat water to make it safe for drinking, whereas by the end of the project 74% reported that they believed it was necessary to purify water prior to drinking. About 93% of the respondents in the survey have claimed to have started using soap after project interventions and 86% claimed awareness of the benefits of air-drying. Improvement in water quality was one of the main indicators of the project; and the data show that the ratio of safe water sources increased from 17.52% (before rehabilitation) to 52% within seven to nine months after rehabilitation.

B. Conclusions and Recommendations

Although the SDC support to IRSP and JIPL extended over a three-year period, it is important to note that the project ‘segments’ were short-term, (Phase I was 11 months in duration, Phase II Year 1 was 10 months and Phase II Year 2 was only 9.5 months in duration). Also, each time, the project was implemented in different Union Councils, with some follow-up in previous UCs during Phase II. The interventions were successful in each ‘segment’ – although traditional best practice advocates that behaviour change projects should be at least 3-5 years in duration. With short-term interventions, there is a lingering vulnerability i.e., that people may adopt safe behaviours initially, and yet slide back into old patterns over the longer-term. Behaviour change is a slow process that requires consistent practice and scaffolding over an extend period of time in order for new habits to truly replace the old ones. However, as our interventions demonstrated, changing the context with strategic infrastructure inputs (rehabilitation of wells, provision of soap, testing of water purity levels) while providing continuous messaging and support, through diverse channels such as media, community support persons, religious leaders, and health and education practitioners can also result in change.

This is further evidenced in the project team’s experience working at the school level. Although at the community level, the project was able to work at both the hard and soft components in parallel, when it came to schools, we quickly realized that many schools had no water or sanitation facilities. Working on behaviour change without an enabling environment was not only less convincing for the teachers and students, but in some instances it made the practices impossible to adhere to. In contrast, when SDC invited the project team in 2014 to work in the rehabilitated schools, the results were instant and amazing. Once the teachers and students had all the facilities with which to implement their newly learned behaviours, their motivational levels were completely different. Moving forward, the approach in schools should be similar to that used with communities—the hard component should be introduced first, followed by the training rather than the other way around.

The project’s experience in working with schools has been very positive; children not only adopted and practiced the new behaviours themselves but were instrumental as change agents and helped their family members adopt the new methods more quickly. Because the messaging came via the school, mothers became convinced about the authenticity of the practices more quickly and were seen supporting their children in purifying drinking water through SODIS technique for use at school. Given the receptivity of the children and their families, it is recommended that future projects consider working with the Bureau of Curriculum and/or the Department of Schools to integrate specific water and sanitation content within the academic curriculum.



Participatory and interactive approaches proved successful for teachers' training and students. The project team recommends that participatory learning approaches be adopted for all behaviour change activities. Delivering IEC content in the form of role plays, quizzes, speeches, SODIS video display, walks and competitions creates a momentum within communities and appeals to a broad group of members. The analysis of bacteriology after **wells rehabilitation revealed that 80% of sources were safe after two months of rehabilitation. However, the ratio decreased to 62% after 4-6 months and 52% after a 7-9 month period following rehabilitation.** This indicates that community members had not completely adopted the practice of protecting wells and safe handling of water sources at levels sufficient to maintain the status of water quality. This was one of the indicators that would likely have benefitted from longer-term project duration.

Overall, a greater number of projects focusing on WASH-related behaviour change should be designed and implemented all over Pakistan to help to save lives and achieve MDGs.



2. Introduction

Lack of access to safe drinking water and sanitation facilities coupled with poor hygiene conditions, are the most critical health issues in Pakistan. Pakistan's projected population growth will likely exacerbate demands on the country's limited water and sanitation facilities, making wide-spread access to safe drinking water increasingly challenging. Data from Pakistan's Planning Department indicate that at present, only 65% of the total population has access to drinking water and 59% have access to sanitation facilities. **These percentages are drastically lower in the rural areas of the country.** As another example of the urban-rural disparity, the percentage of people practicing hand-washing with soap is approximately nearly 50% in urban areas but only 25% in rural areas.

Unsafe water consumption combined with poor hygiene practices results in illnesses which contribute to high child mortality and morbidity. Water-borne illnesses have other, longer-term (but less visible) impacts on society such as children's lowered educational achievement due to reduced school attendance and the financial strains placed on impoverished families because of to high health costs. According to a study conducted by the United Nations, 162% of Pakistan's urban and 84% of Pakistan's rural population does not treat their water properly and hence it results in more than 100 million cases of diarrheal being registered within the hospitals of Pakistan. This further leads to around 40% deaths within the country as a result of contaminated water consumption. Unsafe drinking water can lead to several diseases such as diarrhoea, typhoid, intestinal worms and hepatitis and an estimated number of 250,000 deaths occur within the country as a result of water-borne diseases.

The situation in Pakistan further deteriorated in 2010 when an unprecedented flood hit Khyber Pakhtunkhwa province. The heavy rainfall washed away thousands of houses, uprooted trees, and destroyed standing crops resulting in casualties to both humans and livestock. The majority of household wells, which are the primary source of drinking water in the region, were destroyed and those that were not became contaminated after the floods.

JOBS International Private Limited (JIPL) and the Integrated Regional Support Program (IRSP) started working on the eradication of water borne diseases by improving access to clean drinking water and improved hygiene practices in two of the worst flood effected districts of KP province (Charsadda & Nowshehra) as well as Swat. This work was supported by funding from the Swiss Development Corporation (SDC).

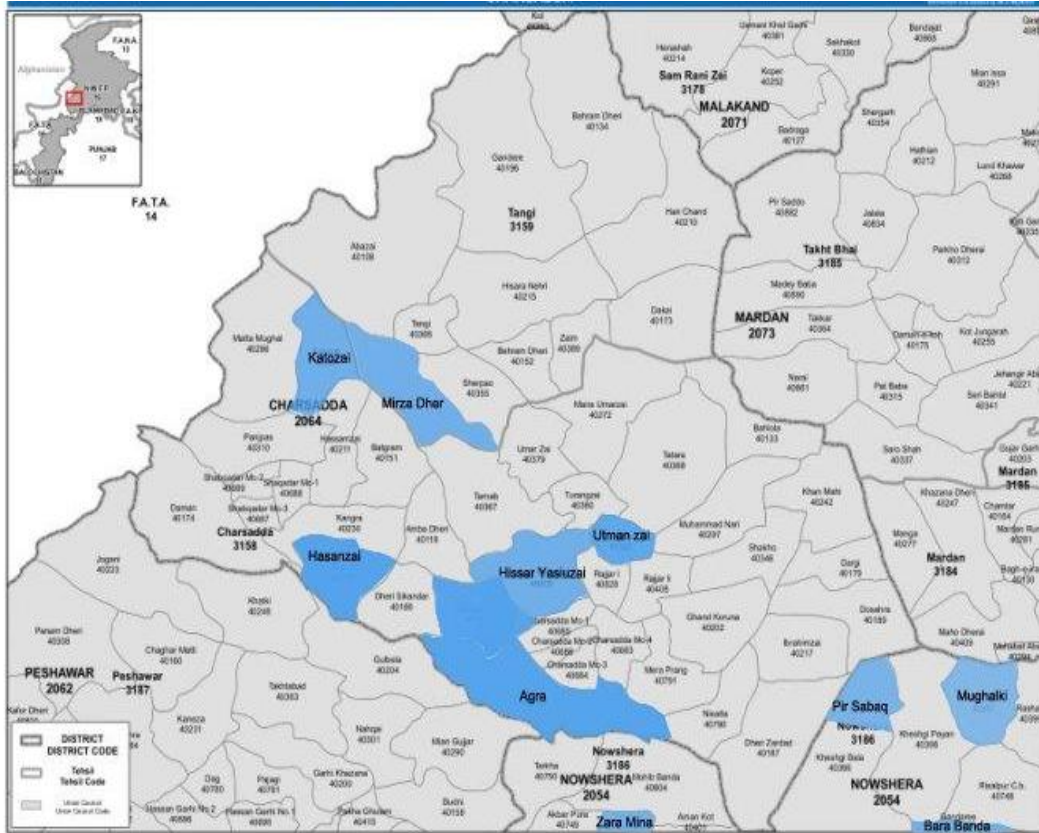
Over the longer-term, water and sanitation initiatives are only effective and sustainable if the water system infrastructure is well-constructed and maintained on a regular basis. In remote, rural areas, this is accomplished by providing beneficiaries with the requisite knowledge and skills to adopt safe behaviours using a multi-pronged behaviour change communication methodology. In such interventions, the target audience (households) is approached through multiple channels; women, men, school children, health workers, community support persons as well as other community-level influencers and advocates such as religious leaders, teachers, doctors, and shop owners. JIPL was the lead implementing partner for the behaviour change activities in Nowshehra, Charsadda and Swat while IRSP led the infrastructure component of the project in Nowshehra and Charsadda.

¹ <http://www.aaj.tv/2012/04/contaminated-water-contributes-to-40-death-in-pakistan-un/>



Figure 1: UC MAP of Charsadda and Newshehra

UCs covered by the project in Newshehra: Pir-Sabak, Zara Maina, Mughlaki and Bara Banda.
UCs in Charsadda: Daulat pura, Hasanzai, Katozai, Agra, Utmanzai, Mirza Dher, and Hisar Yasin Zai.





3. Scope and Structure

A. Phase-I

Soon after the floods in 2010 IRSP implemented a six-month project which consisted only of infrastructural inputs (hard component) – specifically cleaning wells. In the process, it was realized that when communities are provided with clean drinking water via cleansed or repaired water sources, the sources will not stay clean over time, until the community members learn how to keep their water clean from the source till they drink it. As a result, a behaviour change component (soft component) was added later in Phase-I starting in November 2011 and extended for 11 months (through September 2012).

B. Phase-II – A different approach:

During Year 1 of Phase-II two new UCs in Charsadda were added on (Daulat Pura and Agra). Follow ups and refresher activities were also conducted in the old union councils (UCs) of Nowshehra and Charsadda to further reinforce the adoption of safe water and hygiene behaviours. Building upon lessons learned during Phase I, new techniques and training approaches were adopted as appropriate in the new UCs (Daulat Pura and Agra) of Charsadda. As in Phase I, the project also systematically targeted households, selected public institutions and community water schemes respectively. The major difference between the two phases was that in Phase 1 the soft team had to reach 4,500 households with dug wells. The canvassing approach to behaviour change included neighbours, schools, mosques, health facilities and other stakeholders. That was too large of an undertaking to complete well during the eight months remaining following the implementation of the hard component. As a result, during Phase II, the team agreed to tackle a smaller number of wells for rehabilitation each year (2,000 private household wells per year; 4,000 in total over two years). Another change was that soft component activities were initiated in parallel, rather than after the hard component was completed. This meant that all users and community members were educated on water source protection, treatment, storage, safe handling and hand hygiene – regardless of whether they were the immediate beneficiaries. Public and private primary school children were reached through their teachers and the children were encouraged to work as change agents for their families and communities. Lady health workers, traditional birth attendance, doctors, shop keepers, parent teacher councils and religious leaders were also provided messages about on communicate safe water and hand hygiene that could be easily communicated to the families they were in contact with. Special events, such as Global Hand Washing Day and World Water Day were celebrated in Phase I and II UCs, and follow-up was conducted in both Phase I and II UCs using SODIS video and interactive IEC materials. Some other differences between Phase I and II are highlighted in the sections below.

Partners' role: During Phase I IRSP was main implementer of both hard and soft components in the field. JIPL was responsible for IRSP staff training, IEC materials development, and monitoring of soft component activities. This division of responsibilities led to some challenges in coordination, staff management and timely implementation of recommendations based on field visits and coordination meetings. As a result, during Phase-II, IRSP and JIPL continued the partnership, but JIPL was given the lead in implementing the soft component directly. JIPL introduced two innovations during the second phase: a) the concept of community resource persons (CRPs) and the inclusions of shopkeepers to the list of secondary target groups; and b) more frequent follow-ups per household and per school. The latter was a response to a key learning from Phase I about the link between the uptake in new behaviours and follow-up.



Security:

During year 2 of Phase II, the project expanded to another two selected UCs (Hasanzai and Katozai). These UCs were the closest to the Federally Administered Tribal Areas (FATA) and bordered with Mohmand Agency. The UCs were selected because they of the level of need resulting from flood damage. However, at the same time, the security challenges also placed significant constraints on IRSP and JIPL teams – distance, remoteness, proximity to the Afghan border, higher illiteracy rates and a lack of acceptance of NGOs were among the obstacles encountered.

Phase II Targets:

In Phase I, seven UCS were targeted (3 of Charsadda and 4 of Nowshera) covering 5,686 households including 4,500 well owners. In Phase II, the focus remained on Charsadda with two new UCs added each year, with follow-up continuing in the previous intervention areas. In year 1 of Phase-II, 2,000 HH dug wells were rehabilitated and 3,140 female representatives from the beneficiary households and larger community were trained. In year 2 of another 2,000 wells were rehabilitated and 2,235 household well owners and community members were trained.

District	Phase-I 11 months (Oct 2011 - Sep 2012)	Phase II, Year-I 10 months (Feb 2013 - Dec 2013)	Phase II, Year-II 10 months (Dec 2013 - Sep 2014)	Total
Districts	2	1	1	2
UCs	7	2	2	11
Households	5,686	3,140	2,235	11,062

Table 1: Number of districts, UCs and HH covered in Phase I and II



4. Program highlights

This section describes the various project achievements during Phase I and II.

A. Baseline:

Prior to project start-up, a baseline study was conducted in order to:

- Identify gaps in knowledge and practices regarding safe drinking water and hygiene;
- Describe the socio-demographic cultural information of respondents and villages;
- Learn about the incidence of communicable diseases in the area attributable to lack of hygiene;
- Determine the types of interventions that might be effective in the context.

Data was collected from 10% of targeted households through household questioners, focus group discussions and direct observations. Based on the findings, a project approach and set of activities were designed for implementation. The project targeted two types of groups; users of household dug wells and public institutions (health and education). The experience in Pakistan and KPK proved that awareness campaigns and training were key elements in ensuring the sustainability of interventions – since water often gets contaminated not only at the source, but also during the process of collection and consumption. By ensuring that HH dug wells were rehabilitated and by providing information and skills on water source protection, treatment, storage, safe handling and hand hygiene the project was successful in improving both habits and access to safe water.

B. Training:

Separate training sessions were conducted for men and women. Women were also provided with calendars depicting hygienic practices to keep in their homes and with SODIS bottles. Primary school children were selected by their teachers to work as agents for change within their families and communities. Lady health workers (LHWs), shop keepers, parent-teacher council members, community support persons (CRPs), and religious leaders were mobilized to communicate safe water and hand hygiene messages to the targeted communities. Special events such as World Water Day (WWD) and Global Hand Washing Day (GHWD) were celebrated within the community with interactive activities such as stage shows, hand washing competitions, quizzes, SODIS videos along with a display of information education and communication (IEC) materials. During Phase II, the project supported 10 such events (4 GHWDs and 6 WWDs) mobilizing thousands of students, parents, teachers, government officials and community

Figure 1: Training Contents Summary

Contents covered during training and awareness raising activities

- A. Maintenance and proper use of WASH facilities
 - Washrooms
 - Water points
 - Hand washing stations
 - Cleanliness in and around schools
 - Proper disposal of garbage

- B. Safe Drinking Water
 - Purification methods at HH level (boiling, chlorination and SODIS)
 - Safe storage (ensuring the water container is clean, keeping it out of reach of children and animals)
 - Safe handling (gathering water using a lid or long-handled scoop)
 - Covering the well after gathering water
 - Ensuring that the rope and bucket remain clean
 - Keeping animals and children away from the well

- C. Hygiene
 - Washing hands with soap for 20 seconds
 - Prioritizing air-drying over use of towels
 - Washing hands with soap after using the toilet, before eating, before feeding children and after working with animals
 - Guiding family members to use soap and wash hands especially during critical times





members. To further reinforce the

messaging the four-minute SODIS video was also displayed for the students in schools and students were provided with SODIS bottles, stickers and monitoring sheets to incentivize the immediate practice of the habits they were exposed to in the video and in class. Through the video, students were able to follow a 'water droplet' character on its 'journey' which included information on how water can get contaminated and how the children can prevent the same, along with SODIS use procedures and tips. Through

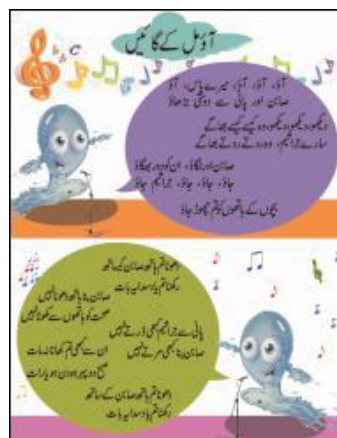


Figure 2: Examples of Visual Aids



the various school-level interventions, students were tasked with specific activities with which they could in turn engage their family members. This process helped to build up the children's sense of ownership and pride, and increased their confidence in their abilities to influence their family members to make positive health choices. In tandem, these activities were also reinforced by the training received by other community members, such as shop keepers, LHWs, BHU staff, religious leaders and community activists (CRPs). Perhaps the big

differentiating factor between Phase I and II was that in Phase II, the project team created a customized strategy for each target audience – messages and materials were changed to appeal to different groups incorporating lessons learned from Phase I, e.g., the calendars used for mothers and religious leaders contained different content. Similarly, in schools, not only was a participatory

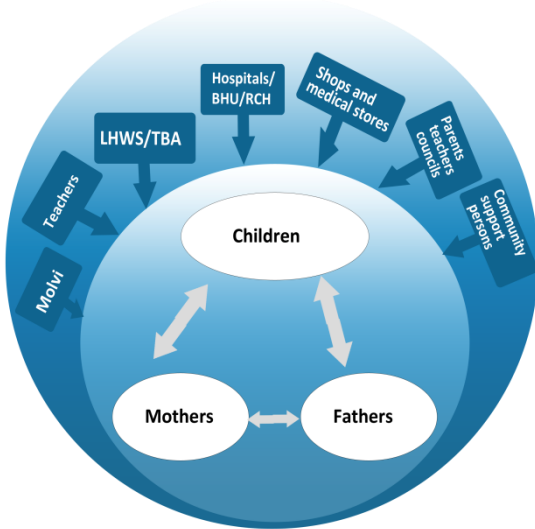


Figure 4: The Phase II Approach

approach used to engage students, but the training sessions were also conducted over a three to five week period to allow for repetition of information and habituation of skills. Over the 31 months of Phase I and II the soft component trained, 32,996 community members, 11,061 HH members and 406 teachers who worked with 222 schools and 14,876 students (in Class 3 and 4). An additional 243 religious leaders, 245 health workers,

Figure 3: Scenes from Event Days





49 CRPs and 253 shopkeepers/medical store managers were also trained. The following table provides additional details by year and target group.

Table 2: Activities by Phase and Target Group

No.	Activities	Year 1		Year 2		Year 3		Total
		Targets	Achieved	Targets	Achieved	Targets	Achieved	Achieved
1.	Teachers	184	213	80	68	81	125	406
2.	Students	8,859	9,052	3,500	3,300	1,345	2,524	14,876
3.	Schools	98	112	39	39	35	71	222
4.	WWDs & GHWDs	4	4	2	2	4	4	10
5.	PTAs oriented	0	0	39	39	35	35	74
6.	Schools follow ups	98	112	39	39	35	35	222
7.	SODIS video dis	98	112	39	29	35	25	212
8.	Religious leaders	100	114	25	82	61	61	243
9.	CRPs	0	0	4	6	40	43	49
10.	Female sessions	224	220	170	161	100	120	501 (11,060 participants)
11.	Male sessions	86	114	60	52	50	55	193 (5,790 participants)
12.	Shopkeepers	0	0	75	75	134	136	211
13.	LHWs	14	180	20	22	40	43	245
14.	HH follow ups	200	200	350	347	200	200	747
15.	Medical Stores	4	4	6	6	31	32	42

C. Working with rehabilitated schools:

In 2014, project also provided training within 37 schools which has been previously rehabilitated by SDC. It was much easier to work with these schools on soft component, since the enabling environment allowed students and teachers to start practicing their learned behaviours. The reconstruction had provided for proper hand washing stations, drinking water, working toilets, cemented floors and proper boundary walls. These schools gave students a sense of security and the motivation to change their behaviours. In contrast, other schools in the area did not have an environment so conducive to practice and although the messages were well-received, it was harder for students to put their learning to work immediately.

D. Capacity building:

Following staff induction during Phase I in 2011, a weeklong training was conducted for the ten team members on effective strategies and approaches to behaviour change. Project goals and targets were discussed along with the activity design, individual roles and responsibilities. Team performance was closely monitored through JIPL and IRSP headquarters staff and planning meetings were conducted each month to review past performance and anticipate the work and challenges ahead. Additional trainings on time management, social mobilization and team building were conducted over the course of Phase II subsequent years.



E. Activities of hard component:

Under the hard component comprised of civil works including wells cleaning and rehabilitation and improvements to latrines to avoid faecal contamination. Information from the baseline survey was used to target the infrastructural inputs and a separate, social mobilization team at IRSP sensitized the community and well-owners on the importance of the intervention. In this way, community participation was obtained to ensure ongoing sustainability of the effort. Before and after the rehabilitation of wells, water quality analysis was obtained and shared with the community members. During Phase I of the project water supply schemes of PHED were also rehabilitated in Nowshehra and technical staffs from PHED were trained on chlorination and cleaning of water sources and water storage tanks. The table below shows the activities completed under the hard component.

Table 3: Hard Component Activities

S.#	Activities	Year 1	Year 2	Year 3	Total
1	Wells rehabilitated	2,502	2,007	2,000	6,509
2	Well cleaning and chlorination	2,327	1,980	2,000	6,307
3	Latrines repaired/constructed	387	151	129	667
4	Drainages repaired/constructed	3	-	-	3
5	Water quality tests conducted before rehabilitation	1,660	668	450	2,778
6	Water quality tests conducted after rehabilitation	1,660	720	975	3,355
7	Community meetings/sessions conducted	-	75	65	140
8	Rehabilitation of WSS PHED	7	-	-	7
9	Training of PHED staff on chlorination	132	-	-	132

F. IEC materials development

Information, Education and Communication (IEC) materials (designed to serve as a reminder for all family members to adopt hygienic practices) were distributed to the female members attending an awareness session. Women (including both young mothers and older female family members) were seen as a critical point within the family, and given cultural roles, were best placed to affect behaviour change in other members. The main IEC materials included household calendars and 5litre SODIS bottles with SODIS stickers, especially designed calendar for religious leaders and ‘danglers’ for shops particularly medical stores or those selling soap. The household calendar consisted of simple instructions and pictures intended to serve as daily reminders for women to treat their drinking water and pay attention to their hand hygiene. In follow-up sessions it was discovered that the women felt pride in being the ‘owner’ of the calendar, and often displayed it near their beds to allow them to check whether they had missed anything during the day. Additionally, the SODIS bottles provided were used immediately by the women after the training session – our first follow-up revealed that 90% of the participants had used the bottles right away for purifying their water. The SODIS bottles became the default storage utensils for clean water. In the cases where the bottles were damaged, the women were informed and prepared with easily available alternatives that could be used.

Calendars for the religious leaders were designed using verses from the Quran that supported the project’s messages. No images were used, given religious sensitivities, and the messages were designed to strengthen the leaders’ knowledge of water and sanitation issues in ways that would enable them to support their communities. The leaders mentioned these messages in Friday sermons while preaching about cleanliness. It was confirmed by our staff that went for the prayers in the mosques on Fridays.

Figure 5: Examples of IEC materials



The flip charts used for conducting the session with men and women were purposefully different. For instance, on men’s flip charts pictures depicting men and boys were used alongside messages that reinforced men’s responsibilities in the house. Similarly, the flip charts used with women related to their responsibilities in the household and were illustrated accordingly.

For schools the project designed a student activity book along with poster boards for display in the classroom and the SDC “Operational and Maintenance” manual for teachers and students were introduced to enforce the importance of taking care of their school themselves. Students also received two SODIS bottles with stickers and a ‘character’ notebook with stickers.

For shops the projects had ‘danglers’ that could easily be hung-up near shop entrances. These contained messages and pictures highlighting the importance of buying soap and reminding patrons to obtain soap when shopping for other grocery items.





5. Project Outcomes

End-line surveys carried out at the end of each year revealed that women noticed a change in their families' behaviour following the intervention. Children reported washing and air drying their hands, a noticeable decrease in the number of diarrhoea cases was reported, and women shared how they were regularly using SODIS bottles to purify drinking water for the entire family during implementation period. Community lady health workers also found the trainings informative and played a supporting role in spreading awareness in their communities. The project team observed that more wells were covered properly after the use, and that the well area was kept clean. Ropes and buckets also appeared to be cleaned and kept out of reach of animals and children for about 52% of the wells.

In addition to anecdotal evidence, improvement in water quality was demonstrated empirically by testing the wells before and after cleaning and rehabilitation. The project involved community activists in the process of rehabilitation, cleaning and dewatering to ensure that they could assist community members perform post-emergency cleanings as necessary. Men within the community reported that they had learned how to chlorinate their wells and corroborated how due to water purification and healthy sanitation habits, the incidence of diarrhoea in their families had been reduced by 50% , citing reduced household medical expenditures as an outcome.

Water quality analysis showed that following the floods, dug wells had become highly contaminated. Prior to rehabilitation only 17.56% of dug wells were deemed safe in Hasanzai and Katozai. Following rehabilitation and chlorination, 52% of the rehabilitated wells were safe for drinking by the end of the project. To maintain the sustainability of the intervention, there is a need for regularly monitoring dug wells, while also increasing awareness among the community members about well maintenance. The design and construction used by the project team provided a significant amount of protection from external contamination as well.



Figure 6: A rehabilitated well

The 'hard component' of the project intended to affect several aspects of sanitation and hygiene behaviours that included four key areas:

- 1) Access to facilities, special focus on safe drinking water
- 2) Drinking water storage and handling
- 3) water source protection
- 4) Knowledge and treatment of water with focus on SODIS
- 5) Hand washing practices



A. Data

1. Reduction in water borne diseases:

The baseline to end-line comparison for Phase I and II shows a significant reduction in the ratio of water borne disease as a result of the project's interventions.

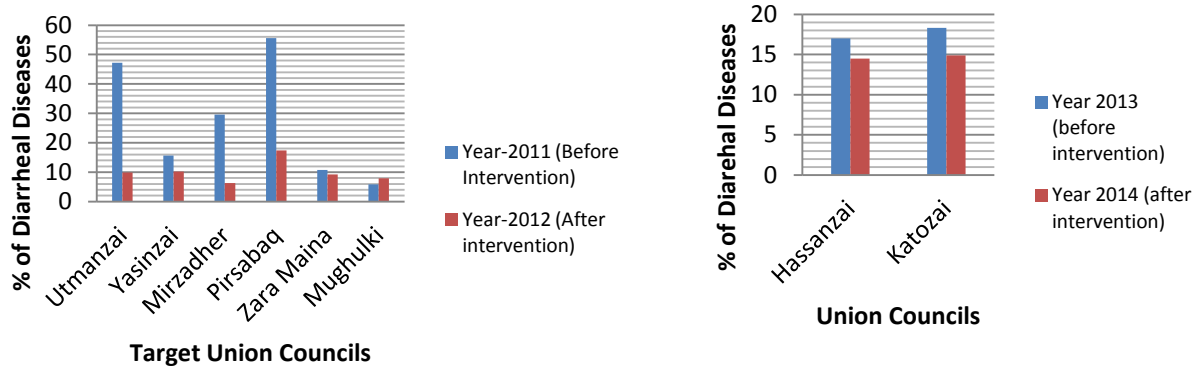


Figure 7: Diarrheal Diseases by UC

At the baseline study, it was reported that over 86% of households spent between Rs. 500-10,000 during the rainy season on cures for diarrheal diseases. More than 38% of households had spent over Rs. 2,000 per month, on average. This is a considerable amount spent by families on a single disease, especially given the fact that the majority of households earn up to Rs. 50,000 annually. According to the end line results, almost half of the respondents claimed to have witnessed a significant decrease in diarrheal diseases amongst household members since the project intervention. Moreover, survey results indicate that medical expenditures of households did decrease during this time period, with over 92% of households spending less than Rs. 2,000 of medical expenditures in the final month.

Although over 95% of the households in Katozai and Hasanzai understood that diarrhea could be caused by bad food quality or dirty water, hardly 3% of the households were aware that diarrhea is also linked with hand washing practices. Post-intervention, the results changed slightly, with more respondents now aware that dirty hands (18%) are a cause of Diarrhea. When asked if there was any change in the health of the family members, 49% in 2012 67% 2013 from 9 targeted UCs of Charsadda and Nowshehra reported the decrease in the ratio of diarrhea, whereas 51% in 2014 from Hasanzai and Katozai responded decrease in diarrhea. According to data collected from basic health units (BHUs), in Hasanzai and Katozai, the ratio of water borne diseases reduced from 11% to 9.5% between 2013-2014. This was the summarized health data in the overall villages of the targeted union councils while the project was intervened in the targeted villages only.

2. Improvement in water quality:

The project activities indicate a significant improvement in water quality of rehabilitated dug wells. The wells were tested for E.coli bacteria before and after rehabilitation and the analysis in each phase reveal a marked improvement in water quality. Wells rehabilitated in 2012-2013 were retested in 2014 and of the sample size of 5% (i.e., 225 wells) 31% were still safe and providing clean drinking water to the users.

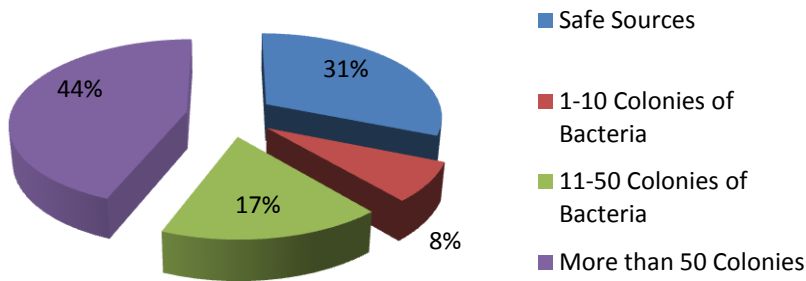


Figure 8: Current Status of Water Quality in Old UCs of District Nowshehra and Charsadda (follow up of water quality in old UCs)

Water testing in current target UCs (Hasanzai and Katozai year 2014) was carried out in different stages of the project. 450 wells were tested before and 750 at different stages after rehabilitation. The analysis shows that the contamination level decreased significantly after rehabilitation. Bellow graph shows that before rehabilitation only 17% of the wells were providing safe drinking water to the users whereas after rehabilitation the tests were carried out at different stages which show that even after 7-9 months 52% of the sources were still clean and providing safe drinking water. .

The reasons for slowly getting sources contaminated again are different for diff household like less distance between the well and the latrine, small compound having chicken and goats around. Having garbage and washing areas closer to the wells. Project tried to educate people to keep all the hazards away from the water source but they had limitations like small compounds, financial limitations to construct another latrine etc. In the follow up visits people said now they are aware of why and how their water can get contaminated and will care of the distance between the latrine and the well next time they will construct the facilities.

Figure 10: Water Testing Before Rehabilitation (Hasanzai and Katozai) 2013

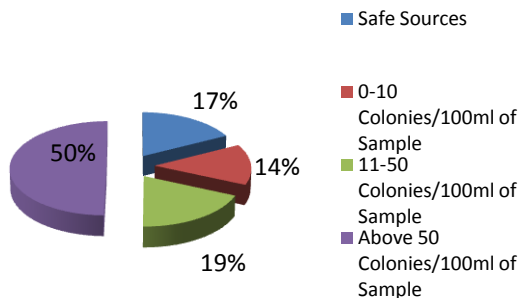
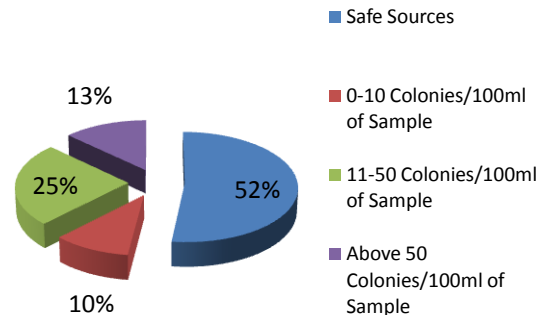


Figure 9: Water Testing after 7-9 months of Rehabilitation (Hasanzai and Katozai) 2014

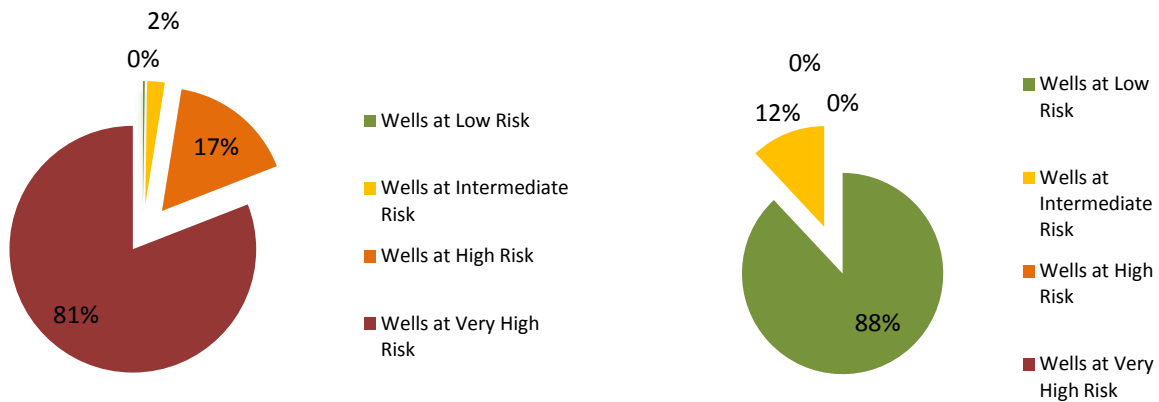




3. Risk Scores of Dug Wells Before and After Rehabilitation:

Sanitary risk survey was also performed at household level before the rehabilitation of dug wells and compared with the situation after rehabilitation. It was observed that the wells after rehabilitation were significantly protected from recontamination if properly handled by the owner.

Figure 11: Risk scores before and after rehabilitation



4. Access to Facilities:

The project interventions made a significant impact on the access to facilities for communities in Charsadda and Nowshehra during 2012. The survey results indicate a sharp increase in access to clean drinking water (from 2% at the start of the project to 83% at the end).

However, the respondents felt that access to other facilities such as drainage, latrine and water had been reduced. There could be a variety of reasons attributable to this, including the fact that the condition of these facilities during baseline inspection had poor ratings and, over the year the facility may have deteriorated completely. The data could also indicate behavior change i.e., increased awareness of basic necessities accompanied by a dissatisfaction with existing options. Clean drinking water was introduced to the community, and the soft component empowered the community to make a distinction between non-potable water and clean water. Previously, the water fetched by women within the

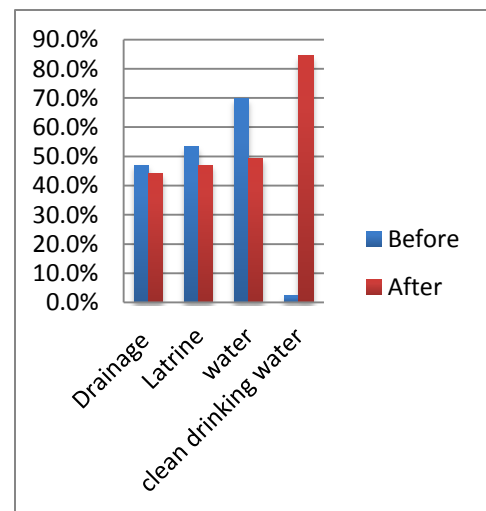


Figure 12: Access to Facilities



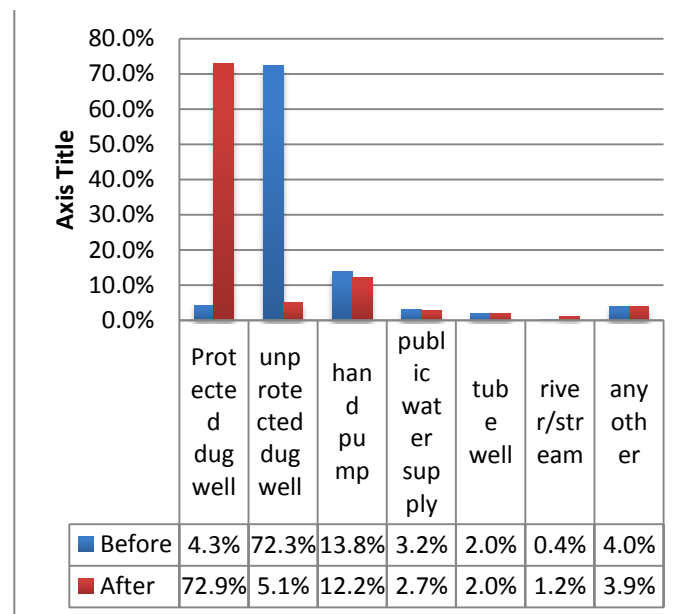
household was used for all purposes, including drinking, latrine use, and the minimal hand-washing. After increased awareness, water resources have been divided. As a result less water clean water may be available for other tasks.

Likewise, decreased access to other facilities such as drainage and latrine could indicate an increased awareness of what a proper drainage and latrine facility comprises of and the basic right to have one at the household level. When asked about the impact of available facilities on respondent’s lives, 98% women very clearly said these facilities have excellent positive impact on their lives since they are saving time, better health, feel sense of security and main impact is that their men start thinking to provide facilities to women and children.

Figure 13: Sources of drinking water

5. Sources of drinking water:

Provision of access to clean drinking water was one of the main objectives of the project. According to the baseline surveys conducted, before the project intervention, about 73% of the respondents claimed that unprotected dug wells were the primary source of drinking water for the households, whereas only about 4% of the households had access to protected dug wells. After the project intervention, these figures changed significantly with nearly 73% of respondents stating that they had access to a protected dug well as their primary source of drinking water.



6. Water storage:

In addition to contamination at source, another point for water contamination is during the fetching and storage process. Per the baseline data, water was usually stored in water coolers (27%) and Jeri cans (14%) for drinking purposes. About 4% of the respondents claimed to use lidless containers to store drinking water. Post-intervention, lid container users increased to over 8%, and water cooler users increased to almost 65%, indicating a clear shift to healthier initiatives at the household level.

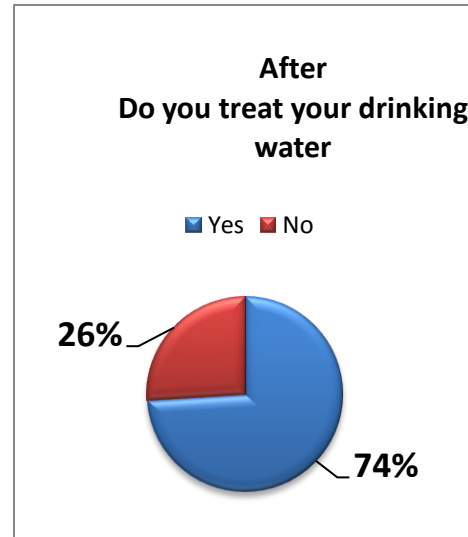
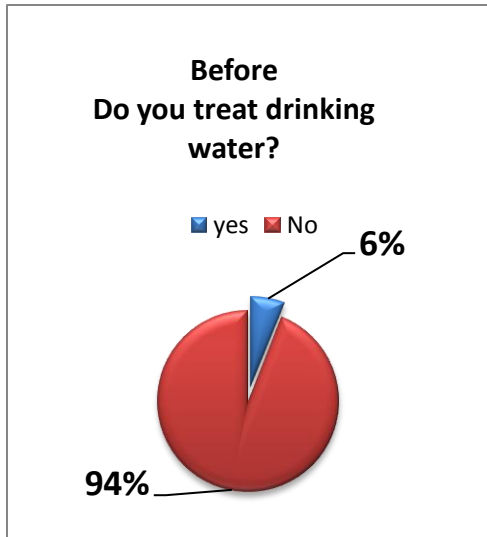
7. Cleaning of drinking water storage:

Clean water can also become contaminated when stored in an unclean water container. Before the intervention, drinking water storage containers were typically cleaned within a week, with around 53% of households washing containers on a daily basis, and a further 43% washing once a week. About 3.6% of the respondents had claimed to have washed their containers only once a month. After the project intervention, this figure dropped down to 1.2%, whereas about 90% of households now claim to be cleaning their drinking water storages on a daily basis, if not once a week. It was observed during the baseline that most of the people draw their drinking water from the container by dipping the glass or



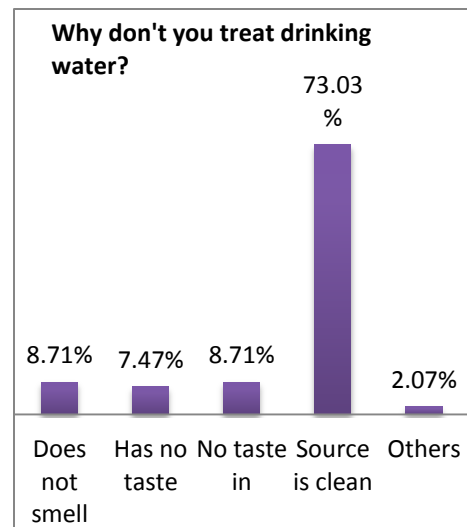
mug. During the end line observation it was noticed that most of their water containers have been changed to coolers or lid containers. People are mostly using taps for drawing water from the containers or using long handle scoop.

8. Treatment of drinking water:



People do not generally treat their drinking water except when someone gets sick and doctor advises him/her to drinking only treated water. They they start boiling until the patient recovers. In the baseline survey before the intervention, 94% of respondents claimed to not treat drinking water before drinking. When asked why they did not do so, it was learnt that the majority of the households believed that their source of water is believed to be clean. This was a major misconception at the time of intervention which was noted during the baseline studies. Low literacy levels and awareness levels meant that the households were not even aware about the difference between clean drinking water and regular water. One of the major misconceptions that project staff had to deal with was the notion that all moving water is pure to drink. Around 25% of the respondents believed that it is not necessary to treat the water because it is colorless and odorless, which is also not correct.

After the intervention, the responses improved. Around 74% of households now claim to be treating their drinking water. The 26% of households that do not indulge in this activity believe that their source is clean, which is a possible reason after the rehabilitation of household wells. Judging the water by its color has been completely eliminated, whereas judging depending on the smell factor has increased probably owing

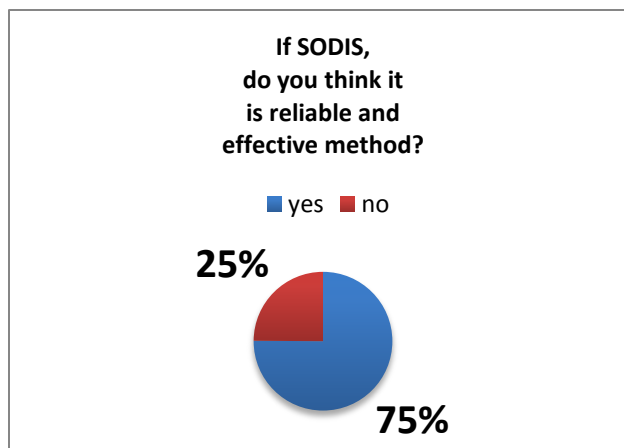
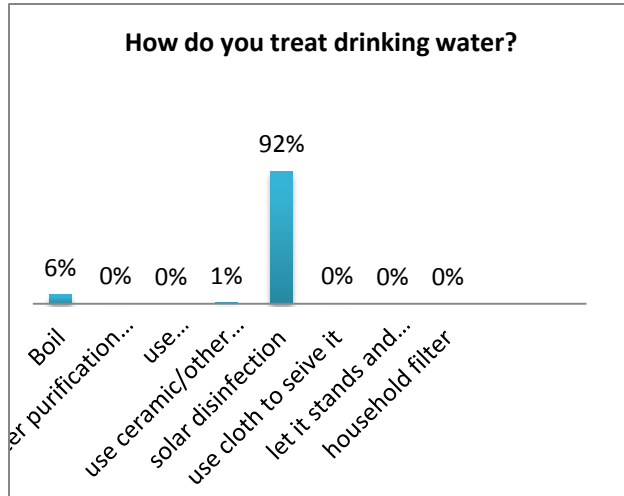




to the change in taste/smell due to chlorination of wells.

9. Methods of water treatment:

Before the intervention people were only aware of boiling method of water treatment but they did not really practice it. After the intervention, around 92% of the households claim to be using SODIS techniques to purify water, and 6% boil it. 75% of the respondents believe that SODIS is an effective and reliable method to treat drinking water. **It is to be noticed that high % age of treating their drinking water was just after 4 months of the trainings. It was observed that as the time goes on, the ratio of practices decreases.** It was also observed that people continue SODIS treatment until they have bottles but once the bottles break, people stop treating their water. Very few families follow the instructions about the alternates for replacing the bottles with Coke and Pepsi bottles. This was why, during the follow up sessions, the project team emphasized replacing bottles (e.g., with empty soda containers) and helped community members find replacements in their houses immediately.



10. Hand-washing and drying practices:

In the baseline only 7% of the respondents claimed to use soap for hand washing at critical times; by the end line 93% claimed to have started using soap after the intervention.

When asked about the technique they use to dry their hands, prior to the intervention, over 95% of respondents used towel or some other form of fabric with only 5% used air-drying techniques. After the intervention, over 86% are aware of the benefits of air-drying and use it more often. Only about 14% respondents still use some form of fabric to dry hands.

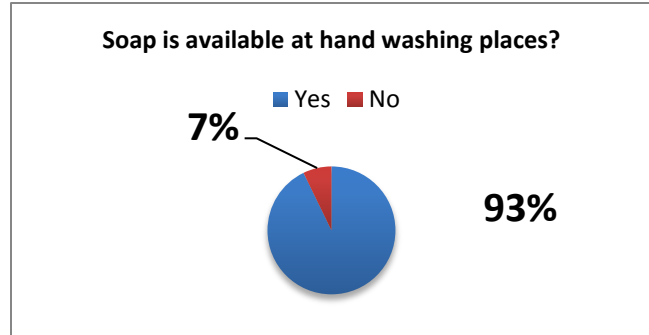


Figure 14: Changes in behavior – using SODIS and soap



Moreover, observations on the availability of soap indicated 93% of households as having soap at hand-washing places.

The experience working in different UCs and villages of the targeted districts was somewhat similar in terms of the acceptance and adoption rates.





B. Challenges

One of the major challenges the teams faced during project intervention involved community misperceptions. For example, well chlorination process was rejected by certain communities due to the smell and the misinformation that chlorine would reduce fertility. Although the team held community sessions to sensitize members on the importance of disinfection and also shared the before and after water quality analysis results with the community, several members remained hesitant about shock chlorination and well cleaning. In such cases, the team had to find other approaches to decrease or mask the scent; which seemed to appease these members. Kharakai proved to be one of the most difficult villages to work with regarding this issue. Five community sessions were conducted and community elders, Imams and teachers were also involved in the activities. Following the continued lack of buy-in, the project team decided with the community to disinfect and dewater the wells on a case by case basis.

Another challenge was that in many households the latrine/septic tank is adjacent to a shallow well, thereby increasing the chances of recontamination of well water. The project could not do much to resolve this problem, but awareness raised by the team may help communities keep a more appropriate distance when they construct new facilities.

A third challenge is that in most government schools children have no access to latrine and drinking water facilities. Lack of proper toilet facilities is compounded by the absence of water and soap in with which children could practice safe hygiene practices.

Water quality analysis shows that the dug wells were highly contaminated before rehabilitation which were became safe after rehabilitation and chlorination. The rehabilitated wells were tested for water quality at different stages and it is observed that the ratio of contamination gradually increased with the passage of time (see figure 15). In this scenario the team extended the focus on community awareness regarding protection of water sources and safe handling of drinking water containers.



Water quality status in different stages of year 2014

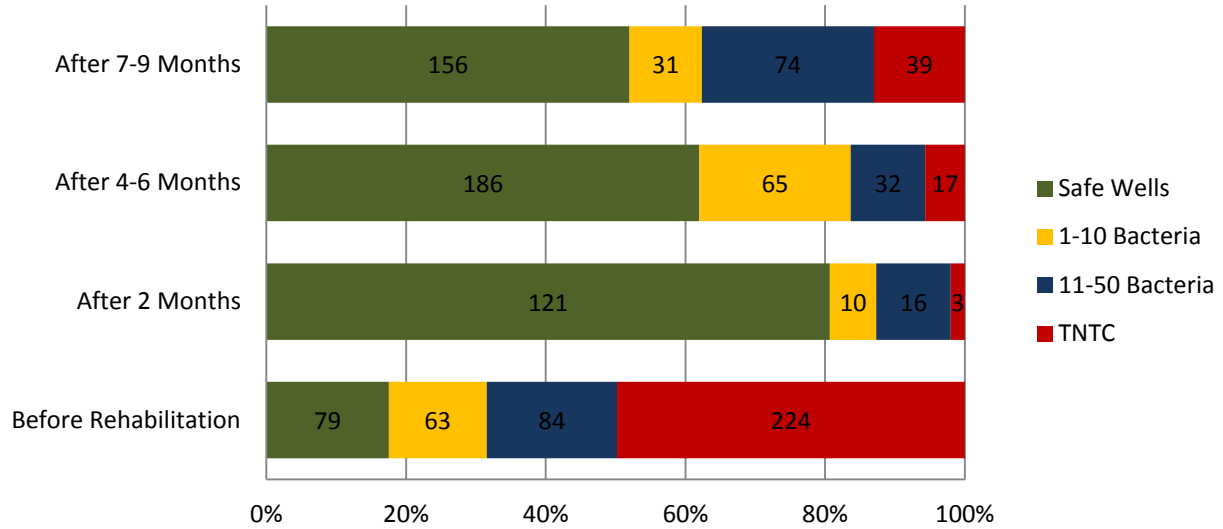


Figure 14: Graph showing water quality status of UCs Hassanzai and Katozai in different stages of year 2014

Recontamination after completion of water project

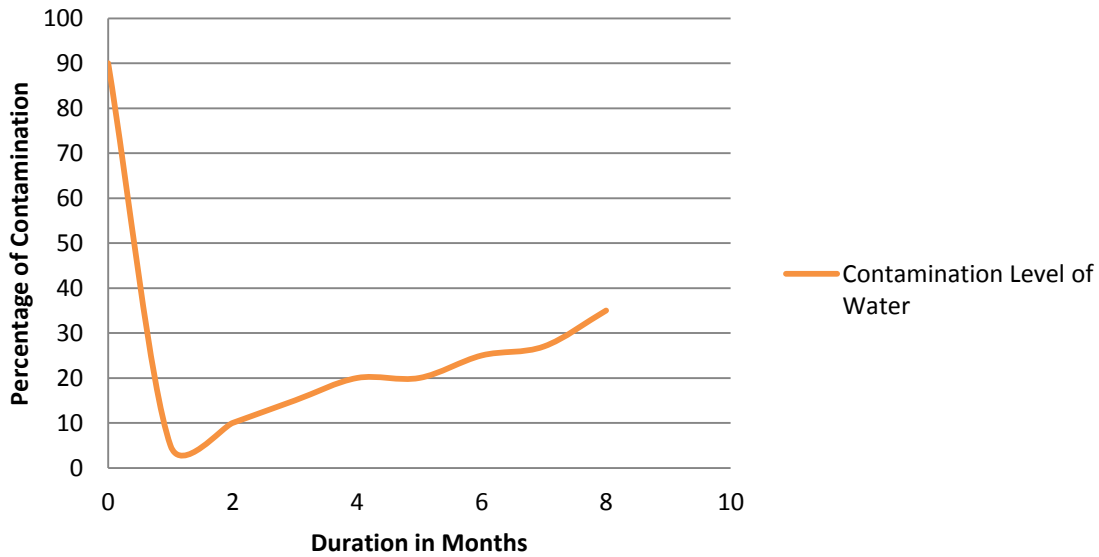


Figure 15: Graph showing recontamination after completion of water project



6. Lessons Learnt and Recommendations

Our experience yielded several lessons that may prove instructive when designing and implementing future projects. These include:

1. Importance of integrated behaviour change approach: In sanitation projects, goals tend to focus on the number of latrines constructed or the number of people given access to sanitation facilities. Yet, the behaviours that determine whether new facilities actually result in health benefits are rarely incorporated as a part of the project. Research shows, and our experience underscores that when water and sanitation projects do not take account of individual and community behaviours, the expected health benefits are not fully realized. At the same time, lasting behaviour change is difficult to achieve and requires considerable time and resources, especially in regions where literacy levels are low and poverty is high. As such, it is important to study and understand the drivers and motivational factors behind certain habits.
2. Adopt a 'whole community' approach: a holistic approach should be adopted as behaviour change is necessary not only at the community level, but needs to be advocated for and supported by decision makers as well. All stakeholders – from politicians and government officials to field workers and community activists and leaders– must be encouraged to participate and reinforce the messaging provided around water, hygiene and health. Furthermore, the inclusion of CRPs in project activities was a positive experience. It allowed the project team to have an entry point within the earlier UCs and ensured that with minimal support, the CRPs could continue to spread the messages within their communities beyond the life of the project. Lastly, involvement of religious leaders alongside the CRPs proved critical in both facilitating dialogue with the community as well as ensuring the physical security of the project team and the project's infrastructure inputs.
3. Children as effective change agents: Based on the effectiveness of activities targeting school children during Phase I, the project prioritized working with teachers, PTAs and students in Phase II. This helped ensure that the students would be provided with a supportive environment for practice. School teachers especially played an important role in the implementation of activities. They participated with great zeal during the WWD and GHWD events, and integrated safe water and hygiene activities within their routine classroom instructional practices. However, even the most enthusiastic teachers benefited from follow-up and coaching sessions, which served to increase accountability and clear misconceptions. Having teachers on board and well-prepared meant that they could continue to spread the message beyond the life of the project. Since the training of school teachers needed to take place during school vacations or at other times when school was not in session and required permission from the education authorities, it was important for the project team to plan accordingly. The Monitoring sheets for students also needed to be customized based on teacher feedback, and data collection/analysis standardized to ensure that student behaviour during the academic year and during school vacations could both be accurately captured. Overall, the experience with private schools was not as effective, and after initial attempts, the project focused solely on public schools.
4. Importance of flexibility and customization: After closely observing the behaviour of the targeted households and students within the first phase, the team decided to re-develop some IEC material and training material. Poster size was increased along with font style and size, and more pictures were added for greater visibility and appeal with children. The quality and durability of the adhesive stickers used on the SODIS bottles was improved. Similarly the team



customized the hard component in Kharakai in response to community concerns about the impact of chlorine on fertility.

5. During the project implementation in 2012, it was observed that the community has wrong perceptions regarding chlorination and needed proper sensitization before starting the activity in the households. Community mobilizers were hired in the hard component team who were having the responsibility to sensitize the community through village elders and imams before starting the hard component activity in the field. In this way the activity of shock chlorination was carried out efficiently and the target was achieved on time.
6. The design of the wells rehabilitation was made easy and adoptable for the community in order to sustain the civil work in future. Local masons and labour were hired for the rehabilitation of wells and latrines while the community activists were also involved in the activity. This led the community to adopt techniques for improving wells water through protection from septic and drainage contamination.
7. during the wells rehabilitation two lids were provided to well owner, the one having small hole which is placed on well above the concrete ring while the 2nd one is placed on the first lid which can be opened easily while fetching water from well. At the start of wells rehabilitation project the bigger lid was not fixed on the well which might recontaminate the wells through leakages especially during the rain. Due to this reason the design was changed and the bigger lid was fixed on the wells through cement so the chances of leakages were eliminated. A metal lid or a large pot can be a good option and long lasting solution.
8. The civil work was performed throughout the project period and sometimes it was too difficult to continue the field activities especially during the extreme heat in summer and also in Ramazan. To tackle the situation, work plan was flexibly designed and the rehabilitation activities were mostly planned in the normal season in order to avoid any difficult situation for the field staff.
9. It was observed during the field visits that the household using bucket and ropes for fetching water from wells having more chances of contamination of wells by handling it un-hygienically. If more emphasis is given in the future to install hand pump or electric motor on the wells to avoid contamination from the surroundings, this will increase the sustainability of the intervention (despite the fact that this installation is expensive become more expensive due to repair and maintenance).
10. The dewatering kits are available which were used during the project; activists were also trained on cleaning of wells as they were involved in the process. The kits will be handed over to the activists (village based committees) who will be used for wells cleaning.



7. Success Stories

a. “The water and hygiene projects have changed my life.”

“I like the taste of SODIS purified water and I am also healthier since I started drinking this water; which I purify every day for myself as well as help my mother to SODIS for other family members. This project has changed my life and increased my interest in class.”



Amjad is a class 5 student studying in a remote school of UC Katozai; bordering with Mohmand Agency of FATA. Before the project intervention, Amjad attended school to appease his parents, but did not enjoy school because he felt the teachers were insulting. Amjad rarely cleaned himself before school and sometimes even came to class without shoes on. He often sat in a corner playing.

On Feb 20th 2013, the JIPL team entered the school with a behavior change intervention. Amjad was among the students who actively participated in performing and demonstrating hygiene and safe water practices. His fellow students and teachers were surprised to see him taking interest in the activities, and doing well.



The project team worked with Amjad’s teacher to adopt a participatory learning approach based on the individual needs of the students. JIPL team members also conducted home visits to further reinforce the necessity for hygiene and clean water practices within the home.



Due to the new-found encouragement exhibited by his teachers, Amjad has become the epitome of a neat and clean student. He now takes interest in his studies and demonstrates hand washing and safe water practices to the other students by carrying a SODIS purified water bottle with him in school. Whenever his teacher asks for a volunteer to show proper hand washing techniques to the students, Amjad is the first to participate.

b) “I love SODIS purified water”

“I drink SODIS purified water at school as well as at home. Now my other siblings are also following me. First, my mom did not listen to me but now they are following me. It is also my responsibility to remind my father to buy soap when he goes for groceries.”



Fatima Gul is a 6 year old, class 1 student at Government Public School Jalha at Charsadda, where her father is one of the teaches.

The project did not target class 1 and 2 for the behavior change activities simply because children of this age are too young to adopt behavior modifications and communicate them to others; therefore Fatima was not directly part of the program. However, when the JIPL team came to work with other classes at her school, Fatima was curious about what was going on and observed the activities from a distance. When she got home, Fatima talked to her father who explained the use of SODIS and proper hand washing methods that he had learned from the JIPL team.

Since then she started utilizing SODIS as well as proper hygiene practices. Seeing her, the other students of her class also started doing the same.





When project staff returned to the school for their follow up, Fatima came running to show the team that she was successful not only in washing her hands, but also in completing the SODIS sheet at the end of every day.

c) “I never thought clean drinking water would be so important in our lives.”

Within Talha’s family, there was such a noticeable improvement in their health that they even became SODIS advocates with Talha teaching his fellow students about clean water and hygiene practices.



Talha and Nadia are class 3 students in UC Agra of Charsadda. Their father is a small farmer and they are two of eight children from a poor family. In 2010, their house became filled with contaminated water due to the floods. The family was sick regularly, and although over time their health started to improve, the kids were still absent from school often during a month because of diarrhea.

When the project team came to the school in January 2013, teachers were asked to select the students who were most frequently absent due to illness. Talha was one of the students selected.

The JIPL team members went to Talha’s house where they met with various family and community members to present project activities. After listening to the hygiene presentation, various individuals voiced their concerns and questions about the water sitting in the sun or the SODIS bottles melting. Once





their concerns were addressed and they were convinced the members readily agreed to use the SODIS bottles. The community religious leader, who was present during the meetings, even highlighted safe water and hygiene issues in a sermon.

In our follow-up visit, we observed that Talha and his family were routinely practicing hygiene and safe water behaviors. According to his teachers, since the intervention began, school attendance for both Talha and his sister had increased and they were both more focused and interested in school.

d) “I am Proud that I was able to help my family stay health

Umar Farooq is a class 4 student of GPS Tarnab UC Hasan Zai. He is an actively promoting safe drinking water and hygiene practices within his school as well as his village.



Umar comes from a family with 5 children. When talking about his experience, he states that he has always viewed diarrhea as a common health concern within his family and neighborhood. With his father being sick twice a month, he takes note that everyone focuses on visiting a doctor rather than trying to determine the causes.

“One day a team came to our school and selected our class to participate in behavior change activities. They started interesting games with us. For example, water that looks clean still can be contaminated. This made us curious to learn how, and then we went through 10 different activities where we learnt the water contamination cycle, water purification methods and hand hygiene.

Every day I went home and I talked to my family members about what I had learnt in school from the behavior change intervention activities. All my family members got interested and asked me if we were also victims of unclean water?

One day when I went to school I got two SODIS bottles along with training on how to properly use them. I came home and immediately started purifying my drinking water. The first day was exciting for all of us in the family and everyone wanted to try the water



from my bottle. The next day, I told my teacher that everyone in my family wanted to drink purified water using the SODIS bottles, and that two bottles were not enough for everyone in the family. Teachers told me to use empty transparent bottles (such as empty Coke/Pepsi bottles).

Umar has reported that since his family started using SODIS purified water; they have seen a dramatic improvement in the health of his family members. He states that their visits to the doctor have reduced and that the largest noticeable change is in his father’s health since he has not been sick in a few months. Additionally, his family has also become quite strict with their hand washing practices. They all work together to remind one another to use soap; especially after the toilet and before the meals.

e) Shazma

Shazma is a determined young girl from the Government School in Haseenabad who took the project’s training and acted to make a difference in her family. Shazma shared hygiene related messages with her parents and siblings and taught them the proper procedure of washing hands. She used the project’s trainings to relay the information to her family illustrating information retention and high productivity of our methods. She reassured us that her parents accepted the new information because she mentioned that her teachers conveyed this information to her.



Shazma related how she fills white plastic bottles with water and keeps it under sun for eight hours on a flat surface. She said when it is cloudy; she leaves the bottle out for two days. Since using SODIS, Shazma claims to have seen a considerable reduction in sickness in her family.

f) SOAP Usage in Haseenabad Government School

During random visits to different classrooms at the Government School in Haseenabad, the JIPL team noticed that in each classroom were one or two pieces of used soap. This was a great achievement because in the past the soaps would usually be *unused*. This observation reassured us of significant changes in the attitudes, beliefs and practices of the teacher and school children.





g) Akhtar Ali

Akhtar Ali, a promising 4th grade student, shared his experience with the project team mentioning that before our intervention he did not value the importance of cleanliness. He noted that he would be dirty and acknowledged that this likely caused him to feel ill regularly with stomachaches and diarrhea. Now Akhtar Ali feels much better about himself and rarely gets sick, adding that washing hands and drinking clean water improved his medical conditions and that this positive development in turn, helped him commit to an overall behavioral change.

Akhtar Ali added that he keeps plastic bottles filled with water under direct sunlight on a level field for eight hours and then lets it cool down before he drinks it. He said that at first his parents and siblings did not believe in this process but when they saw his health conditions improve with SODIS water they adopted these practices and changed their behavior as well.



h) 5th Grade Class Teacher; Daud

Daud, trained by the soft team, carries out the hygiene related activities and messages to school children and to a wider audience that includes other people in the community. Daud confirmed that a high interest was shown in hand-washing by all school children. He said, "I achieved success because I related hygiene related messages to our religion. I conveyed to the target audience that our religion gives the same message and in order to adopt cleanliness we should carry out the following activities and life style." He said the secret behind the behavioral change lies in an activity-based approach, supplemented with visual aids by the trainers. Daud suggested that the cartoons should be provided so that they can repeatedly show them to the school children and create a constant recall in their mind.



i) Head Master- Inam

Inam was very positive about the whole project and wholeheartedly applauded the effort put into this initiative. Inam expressed his view that the girls in his school were more interested compared to the boys. He believes that girls are more dedicated and productive with SODIS because they responsible for carrying out most household chores. Inam also added that soap is used on constant basis in his school, although they provide extra bars at personal cost but even these are still





finished quickly.

Additionally, Inam said that he has implemented all the activities in his own house. His family read all the activity books with great interest, bringing significant behavioral change on family level.

j) GEEDARHU SCHOOL, UC AAGRA



(Potatoes on the left are black while the potatoes on right are the clean ones)

Geedarhu School is one of the newly targeted schools, where the teachers are freshly trained on hand-washing and cleanliness. Upon our arrival, we noticed that they had carried out the potato exercise two days earlier. This showed that the teachers were illustrating the importance of hygiene through activities. The potatoes were segregated into two different groups, one washed while the other group of potatoes was left dirty. Visually witnessing the unwashed potato turning black helped the students recognize the concept. Overall, the 4th grade students were highly aware and understood the hygiene related messages.



k) Story of Fazal Haleem of Village Sukkar

Story of Fazal Haleem

Mr. Fazal Haleem of village Sukkar was not willing to rehabilitate and shock chlorinate the well inside his house because he was in the view that chlorine is a harmful chemical and can decrease the fertility of human. He was afraid of the bad smell which will remain for several months after Chlorination. After discussing these in a community meeting, IRSP team explained the importance of water disinfection and its impacts on water quality by showing the water testing result having bacterial growth, he among all the participants were convinced for chlorination.

Now Mr. Fazal Haleem is a very active member of village committee and assisted IRSP team during wells cleaning Process.

l) Story of Village Ambadher

Village Ambadher is a small village of UC Daulatpura. The community members were not willing to clean and shock chlorinate their wells due to wrong perception regarding chlorine compound.

After realizing the importance of wells cleaning and chlorination, 10 members from village Ambadher contacted IRSP team for cleaning and chlorination as they were left due to their refusal. IRSP team was working in the next target village, 2 members were sent to village Ambadher where chlorination was performed on the demand of the community members.



m) Risk assessment form:

S.#	Specific diagnostic information	Risk	
		Before Intervention (Yes/No)	After Intervention (Yes/No)
1	Is there any latrine within the MSD (30m) of the well?		
2	Is the nearest latrine on higher ground than well?		
3	Is there any other source of pollution within 30 meter?		
4	Is the drainage poor, causing stagnant water within 2m of the well?		
5	Is there a faulty drainage channel? Is it broken? Permitting pond?		
6	Is the wall around the well is inadequate, allowing surface water to enter the well?		
7	Is the concrete floor less than 1m wide?		
8	Is the wall of the well inadequately sealed at any point for 3m below the ground?		
9	Are there any cracks in the concrete around the well which could permit water to enter the well?		
10	Are the rope and bucket left in such a position that they may become contaminated?		
11	Does the well require a cover?		
12	Does the installation require fencing?		
Total Risk Score			

Contamination Risk Score:

9-12	very high risk
6-8	high
3-5	intermediate
0-2	low