WATER AND SANITATION EVALUATION REPORT, TAJIKISTAN.

WATER

SANITATION

HYGIENE EDUCATION

By Peter Wurzel and Mamadgamin Maramov

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1. ACRONYMS.

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<th>Acronym</th>
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<tr>
<td>ACTED</td>
<td>Agency for technical cooperation and development</td>
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<td>CFS</td>
<td>Child friendly school</td>
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<td>GoT</td>
<td>Government of Tajikistan</td>
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<td>HH</td>
<td>Health/Hygiene Education Promotion Programme</td>
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<td>hh</td>
<td>household latrines</td>
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<td>HP</td>
<td>Hand pump</td>
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<td>HLC</td>
<td>Healthy Lifestyle Center</td>
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<td>H₂S</td>
<td>Hydrogen Sulphide test</td>
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<tr>
<td>IFRC</td>
<td>International Federation of Red Cross and Red Crescent Societies</td>
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<tr>
<td>MoH</td>
<td>Ministry of Health</td>
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<tr>
<td>MoE</td>
<td>Ministry of Education</td>
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<tr>
<td>M³/hr</td>
<td>Cubic meters per hour</td>
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<td>Oxfam</td>
<td>Oxfam GB</td>
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<tr>
<td>SCH</td>
<td>Save the Children</td>
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<tr>
<td>SES</td>
<td>Sanitary and Epidemiological Station/Services</td>
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<td>UNDP</td>
<td>United Nations Development Programme</td>
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<tr>
<td>VIP</td>
<td>Ventilated Improved Pit Latrine</td>
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<td>VLOM</td>
<td>Village Level Operation and Maintenance</td>
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2. FORWARD & ACKNOWLEDGMENTS

There is need for a few pointers for some of the terms and abbreviations used in this report and also some of the writer’s idiosyncrasies.

For those who do not have the time (or inclination) to read this evaluation, visual scanning is possible. All important concepts and statements are in bold and particularly important issues also underlined.

For Evaluation Mission read: 'evaluation team', 'team', ‘mission’, 'the writer'. Health/hygiene promotion and education are mentioned so often that in the text it is abbreviated to HH. Some other abbreviations are also shortened; for example the Republican Sanitary Epidemiological Service is abbreviated to SES.

Language was somewhat of a problem in the Kabodyan district. The Mission translator spoke English, Tajik and Russian but not Uzbeck; in several areas the school children only spoke Uzbeck-so the mission had 2 translators-from English to Russian to Uzbeck and return.

The reader will find most percentages rounded off, usually to the nearest 5%. In many UNICEF reports estimates are often quoted to a decimal of 1%; this is meaningless. Where percentages are quoted to the nearest 1%; for example, if 3 schools out of 25 (i.e. 12%) have no water, it is quite correct to quote 12%--these are real numbers physically counted. For the purist, while quoting to 1% as described above is correct, it is still insignificant-the figure of say 19% is actually a percentage of only a sample (in this evaluation a good sample) but as UNICEF likes ‘exact’ (actually ‘in-exact’) figures, they will not be rounded off in all cases.

Much of the brief Overview Section (Section 4) especially geography, economy and social factors were taken from the UNDP publication ‘Water Sector Development Strategy’, 2006.

In Tajikistan the school headmaster is known as the Director-the terms have been used interchangeably in the report.

My sincere thanks to all those who helped make this evaluation so enjoyable and hopefully a useful compendium of UNICEF progress (and failure?) in the Sector.

To Yukie Mokuo, the Head of Office, my thanks for a warm welcome and a succinct briefing on the bigger picture of UNICEF activities. I am indebted to Ruth Leano and Nurul Islam for their interest and concern that all should go smoothly. My thanks to Mamadgamin Maramov; he was my shadow at least 10-12 hours/day, translating and being flexibly accommodating and helpful. Not only that, he often had good ideas.

I am grateful to Ikram Dawronov who provided the institutional memory of the earlier days of this program and detail on the present endeavor, and to Rakhshon Isaev for technical explanations in the field.

My special thanks to Amon Kishakov, the NGO representative who led us through many dusty kilometers to out of the way schools, with good humor and a pressing need to always pay for lunches despite serious argument on my side that we too need to invite him for lunch!! His enthusiasm for HH and his warm (but effective) relationship with all the school directors is a major reason why the HH component is a ‘winner’.
And to the UNICEF office in general, my thanks especially Salohiddin Shamsiddin and Abdualim Buriev for always dealing with my mini requests with such goodwill.

3. EXECUTIVE SUMMARY

Of a total project number of 230 schools in the UNICEF/Ministry of Education WES program, the evaluation Mission visited 65 schools; a sample size more than sufficient to provide data that is statistically significant. The Mission interacted with approximately 1000 children on a question and answer basis.

The supreme irony is that while Tajikistan is endowed with an ubiquitous water supply, both surface and underground, it is the water supply aspect that proved the weakest element in the UNICEF WES school program.

The water supply for the 65 schools visited originates from 4 hydro-geological settings-deep ground water extracted with large electrical pumps augmented with surface water and pumped into a reticulation system; very shallow ground water (up to 8m) suitable for simple suction pumps; deeper groundwater, but still relatively shallow; beyond the capability of the suction pump but within easy range of the community ‘deep’ hand pump (8-25m). In the Sogd region a few schools are supplied from springs.

Rural water supplies in Rudaki, Bokhtar, Kolkhozobod and Vakhsh are still supplied via the old style Soviet era reticulated systems. These supplies are obtained from deep boreholes (<100m), pumped by multi turbine electrical pumps together with an augmentation of surface water. The system is old and has leaks. The electricity supply is intermittent which means during non-pumping periods bacterial growth can take place at the leak points. This, together with surface water augmentation, means that water treatment is imperative. The Republican Sanitation Epidemiological Service (SES) is responsible for filtration and chlorination-which they admit is not routine. The supply is therefore neither secure (quantity) nor safe (quality).

In the districts listed above 80% of Project schools are connected to the central line supply. Because the Health/Hygiene education and promotion program (HH) is so strikingly successful (as is the sanitation component that has focused on pour flush latrines); the Mission’s main recommendation is that UNICEF capitalizes on the successful parts of the program and installs a reliable water supply. Thus far the Project has neglected the provision of a drinking water supply, which means that, where feasible, there should be a community village level operation and maintenance (VLOM) hand pump at each Project school. In the interim, urgent action is recommended to supply the schools with Slow Sand Filters and chlorination satchels and to institute a strict protocol of filtration and chlorination for drinking water.

The water supply of the Kabodyon district relies to a large extent on underground water. Very shallow water (up to 8m) is pumped by low cost household suction pumps. Where the water table is deeper (10-25m) but still shallow community pumps (the Afridev and India MKIII) have been installed. Unfortunately 35% of these pumps are not functioning because they require a minor spare part. There has been no sense of urgency on the part of the WES Section in an area where surface water is scarce.
Water quality issues with potentially serious consequences are discussed in the text. Routine, rigorous monitoring of water quality by the district SES is imperative, and while SES attempt to do so, their meager resources allow only limited bacteriological testing. UNICEF support is essential, whether or not the program is expanded.

The twin pit pour flush latrine is the cornerstone of the UNICEF program. It presupposes a secure water supply. There has been criticism of UNICEF that pour flush latrines have been blocked due to a lack of water. Whilst valid (a one off failure?), the main recommendation of this mission will ensure that such incidents will not re-occur. UNICEF is the only agency to implement ‘wet’ latrines; all other NGOs have opted for pit latrines or a dubious version of the Ventilated Improved Pit Latrine. UNICEF appears to be flying in the face of conventional wisdom. However conventional wisdom can be wrong! This evaluation attempts to demonstrate that.

The remarkable success of the Health/hygiene education and promotion (HH) program as seen by the Mission and acclaimed by others, makes the UNICEF endeavor of installing the pour flush latrine an enlightened policy.

Some statistics on sanitation practices reveal the effectiveness of HH;

- 98% of schools had soap,
- 100% of schools had all cleaning utensils,
- 95% of latrines were clean,

This despite very high student to latrine ratios-the mean is 81 students to 1 latrine. 7% of schools have 90-100 students/1 latrine and 3% have 100-110/latrine.

The new UNICEF strategy of sanitation and hygiene promotion “has adopted a holistic approach to sanitation and hygiene that includes a package of 7 components…..”. Details are found in the text, but the ‘through school’ (in contra distinction to in school) and ‘child to child’ and ‘child to parent’ approaches are the decisive elements.

The enthusiasm for HH seen in all schools visited cannot be measured, but the Mission vouches for intense eagerness to practice good sanitation and personal hygiene habits. A critical aspect of the success of HH is, surprisingly, the hydrogen sulphide test (H₂S). This simple low cost community based water quality assessment method appears to be a real stimulus. 100% of schools had H₂S bottles and used them.

- 71% of children reported the best part of the program was the new latrine.
- 22% of children reported the best part of the program was the HH learning course.
- 7% of children reported a newly supplied water supply was the best. (This 7% came from the southern part of Kabodyan where surface water is scarce)

The figures above indicate that the single most important feature is the recognition that WATER is crucial and drives the HH program. The latrine is liked because of water, “no smell, it’s clean, and I can wash my hands with soap”, etc. Testing the water quality is an important constituent of HH. Water is the key. And that is why the current ‘conventional wisdom’ is in error. The Mission is convinced that without water, the HH program efficacy would be severely blunted.
A look at the expected outcomes of the program and a tentative analysis of success or failure may be useful.

i. Improvement of sustainable water and sanitation facilities in schools and the community;

ii. A mechanism to be in place to ensure sustainability;

iii. Create favorable conditions for improved hygiene practices among teachers, students and their families and reduce morbidity and mortality;

iv. Greater enrolment of girls at schools and their retention at school;

v. Greater participation of students and the community in the Project;

vi. Motivate households to upgrade pit latrines;

vii. Promotion of pour flush latrines to stimulate employment and income generation.

The expected outcomes above in several cases cannot be answered in real terms—sustainability for example can only be answered after ‘the event’, usually well after.

There is absolutely no doubt that, in part, the first expectation has been met—but it is too early to say that it is sustainable. There has been minimal improvement of water supply in the more northern districts.

The Mission has made clear throughout this report that the success of HH activities is driving the program and at its present intensity may well be sustainable. But such predictions have often been wrong. A committed Ministry of Education will have a critical role along with an expanded program endeavor by UNICEF.

It is highly likely that the enrolment and retention of girls in schools has increased. As noted in the text, girls were dominant in all discussion of HH.

Outcome v. has been achieved, as has objective vi. To what degree, the Mission cannot answer. The outreach influence of the program into the community is tangible, but could not be quantified by the Mission.

Outcome vii has not yet been achieved on any significant scale. But were the program to be expanded to include water supply then the potential for income generation would increase. For example, the local hand pump manufacturing community would benefit by increased employment; but it all depends on potential pump numbers.

The Mission considers that there are issues the WES Section needs to address: the need to be more aware of cost effectiveness and cost benefit; a thorough review of the current cost of the latrine which is excessively high; comparative costs of NGO constructed latrines are a factor 2-3 lower (cost differentials between wet and dry are minimal). There is a need to review the spare parts for hand pumps procurement and distribution and recognize that a sense of urgency is paramount in water scarce areas. If the prime recommendation of this Mission is accepted and funds are available, the WES Section must: anticipate the need for low cost drilling techniques; ensure a National Standard hand pump; initiate local hand pump production, and review the design of the pour flush superstructure.

This evaluation offers 18 comprehensive recommendations to the Tajikistan UNICEF office, the most important of which is:
The principal recommendation of this evaluation is that UNICEF and the Ministry of Education capitalize on their success so far with the HH and sanitation components of the WES program and attempt to **expand the school program** in geographical extent, in size and **most importantly in scope**. At present the approach is to install pour flush latrines in selected schools (usually 1 latrine/school and exceptionally 2 if the number of students exceed 600)) and institute innovative HH activities. The critical need to provide a secure/safe water supply has been highlighted in this report. Therefore the program must also **ensure a reliable water supply** at each school, via the hand pump wherever feasible. This does make the program more expensive but the results in the long term will be crucial in improving childrens’ health, and good personal sanitary habits which will filter through to the surrounding community.

This **recommendation is made despite the fact that criticism** has been leveled at the UNICEF/GOT program (along with much praise) as it flies in the face of conventional wisdom which suggests that ‘dry’ latrines’ as installed by the NGOs are the right choice. **The extremely successful HH/sanitation component is based on water and the pour flush latrine.**

Seventeen other recommendations are listed in section 8.

**4. TAJIKISTAN-AN OVERVIEW**

**4.1 Geography, economy, politics.**

Tajikistan is a landlocked country bordered on the east by China, on the south by Afghanistan, on the north and west Uzbekistan and on the north by Kyrgyzstan. It has a rich cultural heritage and gained its independence from the former Soviet Union in 1992.

Tajikistan is a land of mountains; 93% of the country constitutes mountainous terrain part of the Tyan-shan and Parmir ranges. Most of the population lives in the valley range areas where huge irrigation schemes allow cultivation of cotton on a large scale.

Tajikistan is situated in an active seismic zone characterized by frequent earthquakes.

The climate is continental with large variations in temperature range; in the foothills and valleys where most of the population live the annual temperature varies from 6-17 degrees centigrade. Minus 40 is commonly recorded in the Pamirs. The Mean Annual Rainfall is 760mm but with varied distribution in time and place. In the Gissar range it can reach 2000mm. The maximum rainfall occurs in the winter months.

The population of Tajikistan is 6.4 million of whom 28% live in urban areas while the rest are rural. Irrigated agrarian land provides employment to 72% of the population. Tajikistan has the lowest arable land/capita in the Aral Sea Basin (0.1ha/capita) and 0.08ha/capita of irrigated land. A burgeoning population growth will clearly affect food security.

The UN estimates 80% of the population lives below the poverty line, GDP is 160$ per year and unemployment stands at 25-30%.
The administration of Tajikistan is divided between the Sogd Region, Khatlon Region, Gorno-Badakhshan Autonomous Region (Oblast) and Regions of the Republican Subordination as well as the capital Dushenbe.

The economy of Tajikistan is based on the production of hydropower, cotton and aluminum. Despite an enormous potential for producing electricity, the country suffers from an annual production deficit resulting in reduced electric power supply at the time it is most needed - from October-April. A lack of investment has hindered the country in further developing its hydropower potential.

Tajikistan was the third largest cotton producer in the former USSR with 1 million tons; aluminum production constitutes 40% of total industrial production and 80% of total export revenues are generated by cotton and aluminum, making the country critically dependent on global price fluctuations of these 2 commodities.

Direct losses from the civil war in Tajikistan amounted to 7 billion $; there have been huge losses due to the inefficient use of raw material resources and further economic losses occurred as a result of the monetary economic reform in 1995. Further, in the past decade labor productivity has been reduced by 2.7 times. This is not a positive picture.

Yet, the Economic Development Program until 2015 is bold, forward looking and optimistic. The Program has plans for modernization, technical re-equipment, reconstruction and establishment of new enterprises with foreign investment. The immediate priority task for the future though, is to achieve food security.

4.2 Water Resources.

Surface water abounds in Tajikistan. The catchments of the 5 largest rivers occupy 75% of the country. Glacier melting comprises up to 25% of surface water resources and in dry years glacier melt can represent 50% of the flow in the 5 major rivers.

There are 1300 lakes in Tajikistan with a total area of 705 km² but most of them are situated in the Pamir-Alay Mountains at an elevation of 3500-5000m above sea level.

There are 9 operational dams with a total stored volume of 15.3 km³.

Underground water is also abundant in Tajikistan. Significant groundwater reserves are found in all major river basins. The aquifers are vast; an estimate by the Hydromet Agency reveals that the annual safe yield from all ground water reserves is 7000km³. The total volume in storage is 120,000km³. These are huge figures and few countries of the size of Tajikistan have such large reserves. While the safe yield is 7000km³ the current annual withdrawal is 2700km³, approximately 40%. The writer could find no estimate of recharge; the withdrawal volume should always be related to recharge rather then to total storage volume as in the UNDP text. But as these figures have large error margins, it matters not at this stage. 50% of all drinking water in the country is based on ground water. (This figure appears to have a significant variation dependent on the quoted authority!).

A more detailed look at the hydrogeology of the Khatlon region describing the upper formations (important for the WES schools program) and depths to the first water bearing
strata, is described in several publications by ACTED, which clearly will have an important bearing on future UNICEF WES activities, if the recommendations in this report are accepted.

Finally, water consumption (both surface and ground water) in Tajikistan is dominated by irrigated farming (84%); domestic drinking and agricultural supplies (excluding irrigation) (8.5%); industry (4.5%) and fisheries (3%). The potential for further water development is immense.

5. THE EVOLUTION OF THE UNICEF TAJIKISTAN WES PROGRAMME-A BRIEF DESCRIPTION.

UNICEF Tajikistan commitment to the water and sanitation Sector dates from 1996, towards the end of the Civil War; peace was signed in June 1997.

The early years of the UNICEF WES program identified in this report as Phase I (1996-2002) was essentially a response to the emergency conditions pertaining at the time but with prudence, focused on schools; prudent because UNICEF Tajikistan recognised early on that schools were a critical entry point (probably the most critical) for Health/Hygiene promotion and attempts at changing long entrenched hygiene habits by the rural population. The WES global focus on schools dictated by UNICEF WET Section in New York came several years later.

The program, funded by UNICEF was implemented through IFRC and an American NGO, Ecologia. An assessment of 1500 schools took place and the following criteria were defined for school selection a) Incidence of diarrhoea, b) condition of latrines, c) willingness of the school community to provide labour, d) availability of water.

Once a school was selected, in terms of sanitation, the program focused only on improving existing pit latrines, either by constructing a Ventilated Improved Pit latrine or installing in the old pit latrine superstructure, a newly designed concrete slab, with a gentle inward slope, which allowed easier cleaning of the slab. The design was such that cleaning water would run straight into the pit taking surface dirt with it.

If the school was within 100 meters of a central supply a connection was provided and where appropriate, a 250 litre slow sand filter producing 40 litres/hour of potable water was distributed to selected schools.

Health/hygiene education and promotion was carried out by training teachers to train others by participatory methods and using PHAST methodology. The project also produced a book for teachers that related HH messages to formal subjects, biology (disease transmission) physics (water cycle), Zoology (disease transmission) etc. so that teachers teaching those subjects could refer to HH messages and topics during actual curricula classes. With the current difficulties UNICEF has of persuading the Ministry of Education to include HH in the curriculum, this was an astute ‘trick’!

Field implementation consisted entirely of community participation on a voluntary basis supervised by IFRC and Ecologia.
By mid 2002 schools could show improved water supplies and sanitation together with health/hygiene knowledge. An independent evaluation of Phase 1 was carried out, but unfortunately no copies can be found and thus the number of latrines rehabilitated or water points connected cannot be established—a pity. (WES section must keep better records!)

Phase 2 of the program (2002-2007) launched jointly with the Ministry of Education, includes an enlightened approach to the sector which is in line with current UNICEF’s Water and Sanitation philosophy that considers WES investment in schools as one of the most cost effective stratagems in improving general health and nutrition, not only of children but also of the rural community.

To best describe the UNICEF endeavor in the Sector, this Section will emphasize the differences between the 2 phases of the program and 2 parts of phase II, in the past 11 years.

The criteria for school selection in 2002 was reviewed and rationalized as follows: 1) number of students, 2) availability of a reticulated water system, 3) incidence of diarrhea, 4) a fence around the school, 5) degree of commitment from the school community, 6) an NGO working in the area.

In phase II part 1, more water supply options were added; in schools some distance from the main reticulated supply, shallow hand pumps were installed with the caveat that the water was not potable, yet remarkably distribution of slow sand filters was stopped. In addition to shallow hand pumps, gravity flow schemes feeding off tapped springs were introduced as a water supply option.

In 1998 UNHCR introduced into country for emergency use shallow ground water hand pump models (among others the Pakistani Indus pump) which were imported; they served the UNICEF purpose at the time, but as became clear at a later date, it was perhaps a fateful decision because it is now known that shallow ground water in Tajikistan in certain districts is contaminated.

UNICEF soon recognized the dilemma of shallow pumps and introduced the deep community hand pump to Tajikistan for drinking water. This was a major step forward in the Sector but the introduction by UNICEF of 4 different pumps, was a step backwards. (See discussion in Section 7.1)

New advances were introduced, in particular in the realm of health/hygiene (HH) promotion and learning, but also in the decision to construct a totally new (for Tajikistan) low cost design of a rural latrine at each selected school; the Twin Pit Pour Flush Latrine (this evaluation assumes that the principles of the twin pit pour flush are known to the reader although some detailed aspects are discussed in the Sections below). The pour flush latrine requires water, at least 1-2 liters or so, to clean the latrine after use—**that presupposed that the school had a secure water supply.**

The pour flush latrine design (the water seal pan) used in Tajikistan was that of the Indian standard design at the time (2002). UNICEF asked the Water and Sewage Engineering department of the Dushanbe Polytechnic University to modify the superstructure design to include a 0.5m³ water tank (see below a detailed discussion and illustrations) plus an array of 3 taps for hand washing and specific features to cater for gender differences. The boys’ latrine cubicle with two squatting pans incorporated a urinal, while for girls, a small cubicle
which allowed privacy, was placed to the right of the entrance door. In addition the 500 liter tank was installed in the boys Section of the latrine connected to 2-3 taps (and also to 2-3 taps in the girls Section) for hand washing. While increasing the cost marginally, this was a fundamental change and improvement from the standard design.

Early in phase II, UNICEF decided to provide child friendly water points (a series of strategically placed taps at different heights within easy reach, on a small structure {see Plate 2}) in schools that connected to the main reticulated water supply system.

In HH promotion, new printed material for teachers and students, exclusive to Tajikistan, were produced by UNICEF Tajikistan; early copies seen by the writer are very impressive especially as regards the illustrations.

The implementation process of phase II was again heavily dependent on parents and teachers. Parents and teachers were mobilized to dig the pits, line them and actually assist in the construction of the infrastructure of the latrines. The International Federation of the Red Cross (IFRC) was the overall implementing partner/supervisor of the program. The IFRC had a country wide outreach, 4 regional offices, 69 district offices, 12 water engineers and 3800 health promoters.

IFRC health promoters carried out the training in HH education of 2 teachers/selected school while UNICEF was responsible for all printed educational material. In addition UNICEF negotiated that the IFRC engineers would train local masons in latrine construction and mobilize and supervise parent/teacher teams to dig and assist in the construction of latrine superstructures and child friendly water points.

All supplies were the responsibility of UNICEF. Program progress was slow with serious delays as well as construction errors. This was seen by UNICEF as an IFRC failing. Interviews by the writer with IFRC senior management reveal that significant delays did occur, but according to IFRC were caused by delays incurred by UNICEF supply division! The slow progress and differing perceptions of the cause is an important consideration for future planning. UNICEF supply procedure is exceedingly pedantic (the writer’s opinion!) and estimated time frames must take this into account. UNICEF maintains that management personnel at IFRC had no experience of such a program. The use of near-volunteer groups (parents and teachers were paid a nominal amount) was novel (not really as they were used in Phase I) as were the engineering aspects of construction. Newly arrived senior IFRC management staff with little local experience compounded the issues, but as with all such relationships, hindsight dictates that problems existed on both sides. The important aspect is for UNICEF (and IFRC!) to learn lessons from the experience. Nonetheless, schools had advanced water based latrines and a more rigorous HH education program when compared to phase I endeavors.

By 2003 UNICEF can be said to have entered part 2 of phase II (the writer’s categorization)

Phase II part 2 also saw the introduction of a new concept in HH education/promotion that considers a holistic approach to rural sanitation and hygiene education that highlights ‘sanitation in schools and 'through schools’, together with a ‘child-to-child’ hygiene education approach within the school and a ‘child-to-parent’ approach within the community.
The easy to use, low cost community based water quality monitoring technique of using an \( \text{H}_2\text{S} \) bottle, pioneered by UNICEF in India is now well established in project schools. The method forms an integral part of the HH promotion program and plays an important role in the extraordinary success of the HH component of the project.

Implementation of phase II part 2 changed from the old system (i.e. IFRC overall implementer/supervisor) to a tender process for construction companies to construct the latrines and child friendly taps etc. All supplies, as before, were procured by UNICEF with quality control inspections by UNICEF supply Section of suppliers and supplied items. The communities and parents were still involved but now they received more then a nominal recompense and the difficult part of construction was done by a professional construction company.

This brief history of the project tends to spotlight only UNICEF endeavors, however it should be remembered that committed implementing NGOs contributed a great deal to the Rural Water Sector in Tajikistan.

This UNICEF Tajikistan Schools Water and Sanitation evaluation incorporates schools that possess one (or 2) of the alternative water supply systems together with the innovative modification of the pour flush latrine design and the existing HH education endeavor. The current Tajikistan School WES program has been adopted by the Government for expansion as part of the UNICEF Country Programme 2005-2009-hopefully the conclusions of this evaluation will provide an added impetus for such an expansion, which the program deserves.

6. EVALUATION METHODOLOGY.

This is evaluation falls into the Goals-Based evaluation-although it more an evaluation of an ongoing multi parameter major program.

The evaluation needs both subjective descriptions and determination (e.g. how much have children absorbed of HH education?) and objective descriptions (e.g. type of pump, cleanliness of a latrine etc). Then there are the difficult time consuming imponderables, are the latrines being used? If there is soap in the latrine (an excellent start to any sanitation investigation) is it being used, i.e. the utilization focused evaluation.

The key consideration for the writer was a compromise between a detailed investigation of each school and a more cursory investigation to allow a larger collection of data-numbers mean good statistics and therefore more valid conclusions. So this evaluation erred on less detail but a greater number of schools visited.

Apart from numbers, as this is an evolving project, emphasis was placed on the water supply system and how to make it more cost effective.

The effectiveness of the HH education endeavor was more difficult to determine but realistically lengthy discussions with students in each school provided tangible conclusions.

The template questionnaire/checklist used at each school is shown in annex 18. It can be seen that, as noted above, it is a compromise between excessive detail and the need to visit a significant sample of schools so as to have a reasonable amount of data to validate the conclusions. Improved data on the time consuming aspects should be collected in the near
future, by spending several days at each school and counting the individual students using the latrine and noting if the soap volume has decreased. This is a study worthy of an environmental science university undergraduate.

The evaluation team was keen to establish the directors’ (and hygiene teachers’) perception of the water supply, latrine operation and efficacy and HH education. Normally the evaluation team would discuss and question the director and the 2 HH teachers, then spend at least 10-20 minutes with a representative group of children using focus group discussion method (groups varied from 5 to over 100) questioning them on their knowledge of HH topic. An important question to both staff and children was how they thought the program could be improved and if the latrine design requires any changes. Then the mission would physically inspect the water supply and latrines while still discussing problems with staff and children. To ensure that latrines were not being hurriedly cleaned while the (cynical!) evaluation team was talking to the director of the school and the HH education teachers, the team at times asked to visit the latrines first and then have discussions.

Early in the evaluation the writer was confused about the ‘life skills’ component, as was the translator and the wrong questions were asked. Later it became clear that limited life skills are standard in every school; carpentry for boys and dress making for girls. Old, broken down carpentry equipment or no equipment at all, is encumbering life skills endeavors.

Three non project schools were visited by the team to get a sense of what schools are like without a WES intervention.

A university student studying for a higher degree, could be usefully given a mini contract to carry out a multi-variate statistical analysis using the school attendance records comparing attendance of 3 types of schools-the non project school, the UNICEF project school with the pour flush latrine and latest HH promotion practice but with a centralized reticulated water supply system and the project school with the same latrine and HH practice but with a water supply based on the hand pump. It may be that nothing useful will emerge, seasonal temperature factors may mask the effect of good sanitation, HH promotion and a potable water supply, even with excellent statistics and statistical technique tricks—but it is worth an attempt.

Initially the evaluation TOR centered only on the Khatlon region where most of the UNICEF work was taking place. When this evaluation report was completed in draft form UNICEF made the decision to extend the evaluation to the other region where the program was active—the Sogd Region. The evaluation of the Sogd Region took place in May and was undertaken by Mr. Mamadgamin Maramov, co-author of the main report. He used the same techniques as in Khatlon Region. His main findings have been incorporated into the main report and his full detailed evaluation can be found in Annex 19.

Apart from the 65 school visits, the Mission had interviews with some of the major players in the Sector:

Country Director of Save the Children-Annex 3
Country Director and Water Supply Engineer of IFRC-Annex 4
Director of Rural Water Supply-Annex 5
Country Director of ACTED-Annex 6
Senior Engineer UNDP-Annex 7
7. FIELD VISITS, OBSERVATIONS, DISCUSSION AND MAJOR FINDINGS.

7.1 Water supply systems in schools

It is the supreme irony that in a region where both surface water and underground water are ubiquitous and the region is criss-crossed with irrigation canals varying in flow rates from several hundreds m³/hr to several hundred liters/hr, that 45% of all the schools visited reported intermittent or no water supplies (80% in the northern part of Khatlon, 60% in Sogd).

The water supply for the schools visited originates from 4 hydro-geological settings-deep ground water extracted with large electrical pumps augmented with surface water and pumped into a reticulation system; very shallow ground water (up to 8m) suitable for simple suction pumps; deeper groundwater, but still relatively shallow, beyond the capability of the suction pump but within easy range of the community ‘deep’ hand pump and in Sogd from spring water.

The principal water source in districts Rudaki, Bokhtar, Vaksh and Kholhazob is the central line or central reticulation system. Much of the old Soviet constructed regionally wide reticulated system is connected to deep (<100m) large diameter high yielding boreholes with multi stage turbine submersibles. If all schools were fed from such a system there would be no drinking water quality problems. Deep groundwater is invariably an excellent (if not the best) source of potable water. Rarely a potentially dangerous chemical constituent can occur in concentrations greater then the maximum allowable limit-but, as noted, this is rare and now easily pre-determined. But because the pipe system is old and leaks in many places and because

**Plate 1.** A typical high yielding multi stage turbine submersible pump (arrow). The bore hole in which it is mounted is very expensive and deep <80m. The pump can extract several hundred m³/hr-this is an order of magnitude different from the hand pump in most characteristics.
intermittent electrical outages allow outside contaminated water to seep into the pipes, pathogens can grow. If the pipes are empty for several days the empty pipes are a breeding ground for bacteriological growth. In addition, to maximize the efficient utilization of regional water resources, integrated schemes are common where surface water is mixed with the ground water. As soon as river water is mixed with ground water, a mode of water treatment is mandatory. But from reports from the schools visited, it appears that water treatment is only intermittent (confirmed by SES) and the water flowing from the central supply may not be potable. The Sanitary Epidemiological Services (SES) tells all school that if the H2S bottles go black they should boil the water. (For more detail on water quality, see-‘A Rapid Assessment of Drinking-Water Quality in the Republic of Tajikistan’-WHO/UNICEF 2006).

80% of Project schools were connected to the main line or reticulated system in the 4 more northern districts (3 were not connected and 2 hand pumps). In Kabodyan district only 1 school was connected to the central line. The 3 schools not connected had no water at all, let alone potable water. One of the schools paid for a water tanker to deliver water into a storage tank. The rest of the schools had hand pumps.

Plate 2. A Child Friendly Water Point. The water pressure is too low to feed the non-existent taps. They, like many others were damaged or vandalized. Note the strategically placed ‘taps’ in relation to height. Heavy duty self-closing taps should be installed.
Another major source of water for many schools is the water from the widespread irrigation canals. This water is heavily contaminated, often silty and muddy, it comes directly from the nearest major river and cannot and must not be ingested - yet in one school the evaluation mission established that a significant proportion of older pupils did drink this water. Irrigation water is fine for latrine cleaning assuming the irrigation canal flows near the school. At one school the children fetched irrigation water a distance of 300m for latrine cleaning. At 3 schools the irrigation water is left to stand several hours to allow sediment to settle, it is decanted and boiled. They know that boiling should be for 20 minutes, but the Mission could not establish if they really did boil for 20 minutes.

There exists unfortunately in the Khatlon region of Tajikistan a culture that accepts massive water waste. Everywhere, whether in schools or in the villages or towns, pipes are seen discharging moderate flows of water. Taps are virtually non existent. It is

Plate 3. The only drinking point in the school - note woeful water pressure. This supply has not only poor pressure but is intermittent.

Plate 4. A local modification of the child-friendly water point. Holes are drilled into the tube through which the children drink. Hygienically hardly perfect!

Plate 5. Heavy duty self-closing tap, the only one seen by the evaluation mission. Such taps should replace those on the child-friendly points.
perhaps understandable in a region where water is so ubiquitous that waste is prevalent and people don’t react—but nonetheless it is a pity. One reason for such waste are the cheap small taps (where there are taps) which invariably break down. **75% of all taps fitted either to the child friendly water points or the latrine 3 tap array (see below) were non functional.** Heavy duty self-closing taps should be installed.

Only one such tap was seen by the mission—see Plate 5. Surprisingly, in Kabodyan the percentage failure of toilet taps was less-40%. No reason could be established, except perhaps because they were newer?

**Water quality—the H₂S test.**

The bacteriological quality of water is measured in 100% of schools visited by the Hydrogen Sulphide (H₂S) method. **This is an ultra low cost, simple test that detects, qualitatively only, hydrogen sulphide producing bacteria considered to be associated with fecal contamination.** The test was pioneered in India with UNICEF support 20 years ago intended as a yes/no community based water quality check. A small 20ml bottle is filled with the sample water, left to ‘incubate’ for 24-48 hours in an ambient temperature of approx. 37 degrees and if the paper strip inside the bottle turns black, the test is positive and a reasonably reliable indicator of fecal contamination. Nowhere has this test, in the writer’s experience, been put to such widespread and enthusiastic use as in Tajikistan (see Section 7.3 on HH).

**Discussion of Hand Pumps.**

In the Kabodyan district hand pumps are the prime water source and are described following a brief discussion of the major **hand pump (HP) issues that UNICEF Tajikistan should urgently consider.**

The hand pump (HP) is the water lifting device that UNICEF has promoted successfully in the rural setting for decades, it is **super eco-friendly** (after expending energy pumping water one can be certain it will not be wasted; how different when opening a tap which takes no effort and wastage is the norm), low cost and if **properly maintained, reliable.** The Tajikistan experience with the hand pump in recent times has been unfortunate. After UNHCR introduced the shallow Indus suction HP to assist with the emergency in 1998, ACTED installed 3400 shallow HPs between 1999 and 2002. However the extensive Soviet era irrigation projects have contaminated shallow ground water in numerous areas. In addition many of these pumps were not maintained, which allows the Chief Engineer of Rural Water to say that **90% of the pumps are no longer functional.** (see Annex 6 for detailed discussions with the Chief Engineer). It has been a bad experience and in a sense understandably, Government places hand pumps as a last water lifting option. However this is a **flawed policy,** in the writer’s opinion. In 35% of schools the evaluation mission visited, the directors were ‘pleading’ for hand pumps. This was also the case in several communities that the evaluation mission met. The Government’s view of hand pumps, as **obsolete technology, is entirely incorrect,** especially in a country where electricity supplies are so intermittent. The reason for the ACTED shallow hand pump endeavor failing is that by their own admission, there was no properly supervised training program for pump maintenance and in several areas the water was either salty or had a bad taste.

The Village Level Operation and Maintenance (VLOM) pump should be the pump of choice for UNICEF in its potential expanded WES school program. In a new programe **UNICEF**
when installing the twin pit pour flush latrine should also establish an independent secure/safe drinking water supply and in most cases this should be with a VLOM HP. It is true that the program will cost significantly more; but as throughout the mission, there was a perception by the writer (perhaps quite wrong, but there was no discussion of costs) that cost was not a significant factor in the program. **Cost effective WES programs should be the intent**-later discussion below will show that the UNICEF cost of the pour flush latrine is excessively high and should be reduced. The VLOM HP (either the Afridev or the India Mk III, whose design is in the public domain) will need a borehole in many cases, although in Kabodyan ACTED and UNICEF had installed them in relatively shallow (but too deep for suction pumps) hand dug wells. 95% are mounted on hand dug wells. **Boreholes are expensive in Tajikistan, 100US$/m, but low cost, limited yield drilling techniques should be tried by UNICEF with potential dramatic cost reductions.** (see below)

There is a misunderstanding of the term ‘deep hand pump’. Deep, in hand pump terms is 60-70m. But mostly pumps will be set at 30-40m. ‘Deep’ however should not be the focus of the definition, the term ‘community’ should be. **Community** hand pumps are extra sturdy pumps that can provide water ideally to 250 people/day but can cater for 500/day and notably **can be maintained by the community**. They are deep only in relation to shallow HPs which are usually suction HPs up to 8m depth. And hopefully, to provide more clarity, the deep submersible pumps that supply the reticulated system are often in *excess of 100m deep, they are set in specially constructed very expensive boreholes that can yield several hundred meters cubed/hour-on a totally different scale to the ‘deep’ community VLOM HP.

**A crucially important concept in any major hand pump program is the need to standardize on one (or at most 2) hand pumps.** There is no need to emphasize the logic of this-easier training on operation and maintenance (O&M), simpler ordering of spare parts, lower costs in the long run because greater numbers of pumps etc. The **Chief Engineer accepted that standardization is essential; this needs to be done under his chairmanship,** discussion should be held between the NGOs, UNICEF and interested parties, to decide on the most appropriate pump to be the standard and then make that pump the one and only pump that will be installed for school and community use. **Low cost shallow hand pumps for individual household use (or even several households) will of course be exempt this standard.**

**UNICEF Tajikistan should lobby forcefully for the hand pump**-one way that may be effective is for UNICEF to invite the Chief Engineer to see the UNICEF hand pump program in China, so that his somewhat flawed view of hand pumps can be rectified. Or the other alternative is not to alert authority and quietly install HPs. Other NGOs are doing just that. **Oxfam is about to change its water strategy and HPs are a key element** in the new approach. Once the Government faces a fait-a-compli that is evidently successful there is little it can do. The down side of this ‘illegal’ approach is that official standardization cannot be achieved. The writer is fairly certain that option 2, the ‘clandestine’ route, will not appeal to UNICEF Tajikistan management!!

UNICEF imported 4 different hand pumps to Tajikistan, presumably to experiment with several models. The performance of all 4 models should be closely monitored to allow **sensible decisions to be made on the standard** (although only 2 of the imported pumps are **true** community VLOM pumps). The writer would recommend the Afridev to UNICEF Tajikistan, but then the writer admits to be grossly biased in its favor. Several of the better known NGOs in the Sector with HP experience, agree that the Afridev is probably the best
choice. There is little to differentiate the Afridev from the India Mk III; several important parts are interchangeable, but the India Mk. III is 100$ more expensive because the rising main is made of steel rather than PVC, as in the Afridev. The recent admirable report for UNICEF Tajikistan by R. Rosario on the Water Supply in Tajikistan contains detailed discussions of hand pumps and would form a sensible departure point for in-country discussions on HPs.

**Some examples of pumps seen in schools and community centers**

**Plate 6.** Typical community ‘deep’ hand pump-the Afridev.

**Plate 7.** Tajik shallow pump with pressure device to pump water into toilet tank.

**Plate 8.** Tara pump; community pump but not for as large numbers as Afridev and India MK III.

**Plate 9.** The India No. 6 pump-a shallow hand pump.
Another key aspect of a major hand pump project is the importance of local manufacture of the pump. Again, the reasons are obvious. Tajikistan has the capacity and ability. (see Annex 16; a visit to a hand pump factory)

In the Kabodyan district, the project schools are all served by hand pumps except for 1 school which is connected to the central line. In the northern part of the district the water level is high; 2-10 meters and low cost suction pumps are used. These pumps are not community pumps, they usually can serve about 10 households and the maximum depth of water cannot exceed 8m (in theory 10m, but 8m in practice). The water quality must be monitored-see water quality discussion below. The pumps are inserted into casing that has been hammered into the ground to about 10-12m. The ground is soft and sandy; the whole area is formed from coalescing alluvial plains.

Further south in this district, water levels become deeper, although in hydro geological terms still shallow. But deeper means more then 10m and therefore a suction pump can no longer be used. UNICEF has mounted the 2 most important community pumps on the hand dig wells in the area (the water level is still high enough for hand dug wells to be used rather then machine drilled boreholes).

Plate 10. A typical suction pump. These pumps need priming-note the irrigation canal; the danger is that children take irrigation water to prime these pumps. It is properly installed; the platform is solid, the well is protected.

Plate 11. An Afridev community pump mounted on a hand dug well. Note well constructed platform-no danger of surface pollution. The imminent arrival of a ‘universal global’ pump is well illustrated here-this pump has an Afridev head assembly, an India MK II cylinder, Tara pump rising main and India MK III rods!
One of the most disappointing aspects of the Project was the sight of 4 Afridev and India MK III hand pumps lying idle because a 20 cents rubber washer was not available, In any large scale hand pump project, the **spare part question is a key to sustainable operation.** In Tajikistan the spare parts distribution issue has not been tackled yet. For the past 3 years **UNICEF has been responsible for spare parts**-this is as it should be as long as the number of pumps is small and no decision on standardization has been taken. **But to leave 35% of hand pumps inactive in a drinking water scarce area because of 20 cent spare parts is not reasonable.** The spares could have been flown in a small envelope from India or Pakistan by courier for a total of 20$! The **sense of urgency** should be uppermost in any WES Section.

A UNICEF promoted technology that can be important when used in schools and in the **rural setting** (and indeed even in the urban setting) is **Rain Water Harvesting (RWH).** The amount of water collected is clearly a function of the total rainfall and the extent of the school roof area. In moderate rainfall areas (500-1000mm) it is surprising how much water can be collected. It is an essentially simple, relatively low cost technology but it may not be suitable for even trial in Tajikistan, as **most school roofs** seen by the writer are made of asbestos. However in the future it **behooves the WES Section to consider this technique** when new schools are constructed, presumably with non-asbestos roofs.

**Finally water from capped springs is the most attractive method of water supply to schools and the community. It is normally of high quality, secure (assuming the spring flows throughout the year) and relatively low cost.** But uncapped springs are probably not that common any more in Tajikistan and hence they are mentioned last.

The water quality of the Kabodyan is a delicate issue. According to the Republican Sanitation Epidemiological Service (SES) in the District office, ground water from 5-15m should not be ingested according to their standards. However reality dictates that shallow water groundwater is the only available drinking water in the area. While it is true shallow groundwater is contaminated more easily then deeper ground water, **it is still more potable then surface water if closely monitored.** Substantial areas of shallow groundwater in Tajikistan are known to be chemically (in contra distinction to bacteriologically) contaminated. The water in Kabodyan according to the district SES office is **safe,** but is being routinely monitored. As noted below the monitoring is not as rigorous as it should be; SES needs material support.

The central reticulation system too has doubtful quality water, as explained by the senior SES engineer; chlorination when surface water is pumped into the system is intermittent. The schools test the central line water and as long as the paper strip does not turn black they drink the water. As with shallow ground water, there must be a compromise between standards and reality.

**Discussion on drilling low cost boreholes-critical if program will be expanded.**

The UNICEF adage ‘dig before you drill’ should always be followed. The project has done that in areas where it is possible to dig wells-Kabodyan is the best example. Only 1 borehole was **drilled** in this district. Hand dug wells are the major water source.

In the districts where it may not be possible to dig, machine drilling will be necessary to install the community hand pump if the recommendation of this report is followed. A
borehole is generally by far the most expensive element in a rural water supply program—it costs more than the pump, latrine and HH together.

To reduce the cost of drilling a borehole dramatically it is crucial for UNICEF to insist that boreholes are drilled specifically for hand pump yields—that is limited yields of at most 1m³/hr. This is a minuscule yield and as a result the borehole specifications can be relaxed and cost reduced. **UNICEF must not fall into the trap** of accepting the argument: ‘drill a big borehole so that in future the hand pump can be thrown away and an electric pump may be installed’!

UNICEF must draw up the low cost drilling contract specifying exactly what the driller must do, stop at depth X, drill diameter Y, no gravel pack, etc etc. If the Government drilling teams do not agree to drill to the ‘new’ low cost specifications, private drillers will. ACTED is at present keen to try the low cost drilling protocol and close cooperation by UNICEF with ACTED would be mutually beneficial.

The illustrations below will help in an appreciation of the need to be specific—**drill for limited yields**. The 2 ‘monster’ drill rigs shown are expensive to operate, they are designed to drill deep, large diameter, high yielding holes—which you do not need for hand pump yields. The small PAT 301 is probably adequate. ACTED think the slightly larger model is more appropriate.

**Plates 12 & 13.** These ‘mini monster’ rigs are designed to drill deep high producing bores, current costs are 100$/m; this is expensive. Compare the ‘cute’ machine on the left below which in most cases will be adequate.
This is the PAT 301, (plate on the left) used to be owned by ACTED. They found it was somewhat underpowered and there may be a case to procure the model 1 up from this—but still ‘cute’ and small. If a limited yield specification is followed. Cost/m should be a third of the ‘mini-monsters’.

In summary the important conclusions in terms of the water supply in the WES program are as follows: most schools (80% in the more northerly districts of Khatlon) are connected to the central reticulated system based on large electrical pumps (either submersible turbine for groundwater and/or large volume centrifugal pumps for surface water). This supply in most cases is not secure in terms of quantity (electrical outages) and not safe at times as regards quality. An alternative independent supply should be sought-spring gravity flow schemes (as in the Sogd Region where the more mountainous terrain is favourable) or the hand pump where feasible should be installed.

The program can benefit by more deliberation on aspects of cost effectiveness-costs can be reduced if the team is aware of cost issues. If the program is expanded, the single most expensive element will be the borehole-low cost, limited yield, drilling techniques must be tried-ACTED is the pre-eminent NGO in this endeavor in Tajikistan.

Lobbying by UNICEF at the highest level for an acceptance by the Government of the hand pump as a major water lifting system in the UNICEF program is crucial to success, as is the standardization on 1 hand pump, to be inaugurated by the Ministry of Rural Water Works. Capacity exists in Tajikistan to manufacture the pump in-country.

If UNICEF Tajikistan does not see its way to expand the program with hand pumps (the assumption is made that the potential for gravity flow schemes is small) then urgent and rapid action should be taken at UNICEF project schools that do not have a secure/safe supply, to distribute Slow Sand Filters (or other type of filters) and chlorine satchels/tablets and provide comprehensive training on their use so that a routine and strict protocol of filtration and chlorination is accomplished. This action will improve the present situation in Rudaki, Bokhtar, Kholhazobod districts until funds are available to mount an expanded WES school program. (see annex 8 contentious interview with Country Program Manager of Oxfam who maintains that significant funds for the Sector could be mobilized).

In the Kabodyan district where most project schools are served by shallow groundwater the same recommendation (filters/chlorine) is not made. While according to SES standards, the water should not be ingested, it has been, with it appears, no ill effects. The caveat here is that bacteriological and chemical monitoring must take place. The district SES office has bacteriological analysis capability, but meager resources for rigorous sampling and analysis. In addition, as discussed above, there is always the danger (but of slow onset) of chemical pollution from the past large scale soviet irrigation endeavors. Even today huge irrigation projects are evident in the area. UNICEF should support the SES district offices.
with portable water analysis kits so that their capacity to closely monitor water quality (chemical as well as bacteriological) is tangibly improved.

Plate 14. The ‘past’ and the ‘present’. In the background the towering Soviet era 10,000 liter water storage tank that was fed either from surface and/or ground water by large electrical pumps to feed a central reticulated supply, now long inoperative in this area. In the right foreground (arrow) the present technology yielding 700 liters/hr, to a grateful school/villagers

7.2 Sanitation in schools

The switch from the ‘dry’ rehabilitated, or not rehabilitated or the rehabilitated Ventilated Improved Pit Latrine to the ‘wet’ Twin Pit Pour Flush Latrine was an enlightened decision by the UNICEF/GoT WES schools Project. The fact that it was accompanied by a package of innovative health related measures in terms of Health/Hygiene education and promotion made the latrine singularly more effective. It is a step up the latrine option hierarchy; it is culturally appropriate but it pre-supposes the year round availability of water. As so often already referred to-water (not necessarily potable) is omnipresent in the valleys and foothills in Tajikistan. The selection of schools that would become Project schools was based on several criteria (see Section 6), one of the most important of which was the availability of water at or near the school. The Section above dealing with water supplies in schools implies that supplies at many schools were insufficient, intermittent and of suspect quality, but nonetheless nearby irrigation canals and the enthusiasm of the children and staff allowed ALL the latrines visited by the mission to function properly. This is at variance with the reports by Echo, Ministry of Education and M&E Section of UNICEF, who saw blocked pour flush latrines. The issue is discussed below. Further, Save the Children, ACTED and Oxfam have opted for pit latrines, as has UNICEF in the Sogd Region, on the grounds that water cannot be guaranteed.
The modifications to the Indian standard (2002) twin pit our flush by the Project have improved the design. The modifications are to the superstructure only; the installation of a 500 liter steel tank at least 1.5m high inside the latrine. The 500 liters of water held by the tank is used to wash hands in both the boys and girls Section. An exit pipe from the tank holds an array of 3 taps (75% not working) that draw the water from the tank. The tank is filled either by use of buckets (there are steps to allow filling by bucket (see plates 16 &17) or by a hand pump with a pressure valve that pumps directly into the tank (see plate 7). One school filled the tank by gravity flow directly from the irrigation canal which was at a greater height then the top of the tank.

4mm plastic tubing to allow water level inside tank to be seen

500 liter tank, serves both boys and girls cubicles, connected to array of taps.

Steps to allow the filling of the water tank with buckets

Steps for filling water tank

Tubing to show water level inside tank

Valve that now has to be opened & shut as all 3 taps gone

Taps-75% of all toilet taps non functional

Soap, wonderful soap!

The pans illustrated above depict a new challenge for the project. These 2 examples are the cleanest of those seen—however as noted, the mission recorded 95% clean latrines—some were not as clean as above but considered clean because crucially they did not smell. Only a few ceramic pans were seen but they generally were cleaner, probably because they were newer but also a function of the ceramic finish. The Mission will recommend that the Project carry out an inter-comparison study, especially noting children’s’ preferred acceptance.

Excellent illustrations adorn the outside of 85% of the latrines (see below Plate 20). The tank should also carry illustrative HH messages—it is so ideally sited. 75% of all the taps did not work. They were flimsy, low-cost and should be replaced by heavy duty self closing taps. There may be an argument against self closing taps; it limits the water use on washing, which perhaps is not desirable? Yet, they are used on the latest model commercial aircraft, where experimentation on their efficacy must have been intense!! The WES Project team to discuss further—however, self closing taps are appropriate for the child friendly water points.

Plate 20. The illustrations adorning the latrine walls are excellent. A strong recommendation is made to have similar illustrations on the water tank.

Plate 21. A typical non-project pit latrine—this was the best of the 3 visited by the Mission. The smell was appalling.
There has been criticism by ECHO, the Ministry of Education and the UNICEF M&E Section of UNICEF constructing pour flush latrines in schools that either had no water or had such serious water problems that the latrines smelled very badly and were in some cases blocked. This is at variance with the findings of the Mission-95% of schools (seen) were clean, some certainly more then others and minor smells emanated only from 2 schools. While some latrines may not have appeared pristinely clean to the Mission, the ‘dirty’ patches were assumed to be stains because there was no smell which was the prime criterion and thus the latrine was considered reasonably clean.

However the mission must accept this criticism. The critical ECHO report of the Sogd visit (a report first seen by the Mission on 2and of May) is seriously damaging, but clearly valid. However it must be recalled that the prime UNICEF criterion for school selection was the availability of water. The schools selected in Sogd always had water for 2 hour/day in winter in the past. Not only that, the director of each school had to sign an agreement with UNICEF that if the water pressure was low, the school children would manually fill the latrine tank. It does reveal that UNICEF were concerned that latrines had a water supply. However ECHO reports that there were 6 blockages of latrines in 2006/7 in Khatlon (the Mission has not seen the report). Here several of the blockages were due to children not knowing how to use the latrine soon after it was built, others to a lack of water. The lack of water in Sogd is ascribed by the WES Section as a one-off occurrence. It was unexpected and political considerations played a part in the serious electricity shut down in the winter of 2006/7. It is assumed that the same applied to Khatlon.

It appears to have been an untoward incident and as will be seen from this report, the recommendations made here will preclude a similar occurrence.

Following the reporting of blocked latrines, ECHO, presently a major donor of the program, has insisted that from 2007 UNICEF no longer construct pour flush latrines in schools with no secure water supply. This is a good decision even though it is difficult to define a secure water supply. But the ECHO decision that instead, in such schools the pit latrine is to be rehabilitated into an Improved Ventilated Pit latrine is, in the writer’s opinion, a flawed decision.

The policy of spending funds on pit latrines, albeit rehabilitated pit latrines in schools with no water is a questionable action in the light of the acclaimed (by ECHO itself!) HH activity. And the writer is cognisant of the fact that all NGOs are doing the same and that perhaps UNICEF is flying against conventional wisdom? Consider the following 4 points: a) the VIP latrine is in fact not a VIP-the only relationship it has with a true VIP is the use of the pipe-the writer (who spent his working life in Zimbabwe where the VIP was invented) has serious doubts about the current design. The pit latrine is essentially still the old pit latrine with a new better designed slab and a pipe whose effectiveness is doubtful; b) all the UNICEF HH learning material is uniquely designed for the pour flush latrine; with no water in the school, the most successful component of the WES program will falter. c) The H2S bottles that provide a powerful focus for the children in measuring water quality will not used; d) Rehabilitating pit latrines will seriously blunt the HH promotion effect.

A more rational, cost effective approach would be to re select schools that have a secure water supply and spend the rest of the funds on pour flush latrines in these schools. The writer accepts the argument that schools without water represent the neediest children-but even so, it is a bad stratagem. The ECHO insistence on this changed strategy emphasises, in
the writer’s opinion, **the need for UNICEF to seriously consider (if funding is available)** **the whole package—install and guarantee a secure and safe water supply and then construct the pour flush latrine that so aptly complements the outstanding HH promotion endeavour.**

**Implementation.** Up to the end of 2003 as described in Section 6, IFRC was pre-eminent in the construction of the pour flush; they were given the task to implementing the program. UNICEF was responsible for supplies. Their engineers mobilized and supervised the community, they trained masons who together with the community constructed the latrines. The **problems that ensued, serious delays, construction errors** are described in detail in Section 6.

At the beginning 2004 UNICEF **re-considered** the previous implementing strategy in the light of the problems described and opted for a professional construction company. UNICEF was still responsible for supplies and quality control of supplies, but now a **building company** was responsible for the final product. From the **UNICEF perspective UNICEF now had an accountable party answerable for any delays or problems.** Delays are now reduced and implementation progress is better then with IFRC. But several lapses by the contractors were noticed by the Mission, no tubing on the tanks (6 cases), no water outlet by the entrance (3 cases); **a check list should be followed before hand-over to the school.**

**Costs.** Initially costs for a pour flush latrine with the Tajikistan design were about the same; IFRC and the construction company. The cost was approximately **2800$/latrine** which is expensive. **The latest UNICEF estimate of a 4 place pour flush latrine is 4000$.**

The **writer believes that costs can be substantially reduced.** UNICEF already has reduced costs by using mud bricks for the superstructure above a plinth of 800mm of baked brick. Further, in the warmer climate of the south, there is no reason why the 500 litre water tank cannot be mounted outside the latrine and instead of steel be fabricated from plastic. (It may be that plastic is more expensive in Tajikistan?). The argument against placing the tank outside the latrine superstructure is that it will be vandalised; perhaps not, because one of the selection criteria for the project was that the school must have a fence. The writer believes the current superstructure is over designed and needs review.

Comparative costs in Tajikistan for 4-6 place latrines: IFRC: 4 place latrine 900$; Oxfam: 6 place latrine 2800$; ACTED: 6 place VIP 900$; Save the Children: 6 place latrines 3500$. **The NGOs are constructing pit latrines (so called VIPs), the cost differential is small.** Further, in 100% of schools, parents and teachers assisted in digging and construction. **There should be a rigorous UNICEF review of costing details and justification for the high cost.**

The discussion by the Mission with the University Water and Sewage Engineering Department (see Annex 13) reveals that they are in a position to reassess the present design and possibly change it so that the **superstructure is less expensive and more amenable to cleaning.**

**An important finding by the Mission was the exceptionally high ratios of children to latrines.** The often used UNICEF standard I Africa is approximately 25-30 children to 1 latrine. Interestingly Oxfam use 1 latrine/ 60 boys and 1 latrine /30 girls. The histograms
below demonstrate high ratios, e.g. 14% of schools have a ration 1 to 80-90. **Eighty percent of school directors asked for more latrines.**

**Table 1.** The ideal ratio of children to 1 latrine is about 1 to 20-30. (Although Oxfam quote a sphere standard which is different). The table reveals that only 2% of Project school fall into this ideal ratio-the calculation took account of 2 school shifts per day.

**Table 2.** This table shows the number of children/pit. It takes no account of school shifts but only the number of children using the 1 pit, e.g. in 14% of schools 800-1000 children are using the latrine which of course empties into 1 pit. The numbers are very high, yet not a single pit is full after, in some cases, 4 years of the program.

**Little time was left for the Mission to evaluate the outreach effect of the project into the community with respect to the construction and acceptance of individual household**
pour flush latrines. In village Stahanov there was ample evidence of household (hh) latrines. Apparently 200 household latrines had been constructed after the school received their pour flush latrine. When the school latrine had been completed many village people came to see, were impressed and asked for UNICEF support to construct (hh) pour flush latrines. In another village, the mission visited a household which had a pit latrine with a ceramic floor. The mother told of the ‘pressure’ put upon the father by his daughter to install the ceramic floor for easy cleaning. The ceramic floor was clean and confirmation of a conscious effort to keep it clean was the presence of a bucket of water and ladle. The visit was totally un-announced, as were most of the Mission visits.

Water container for cleaning the latrine

Plate 22. Typical household latrine—note low cost superstructure and 30 liter container for cleaning water.

Plate 23. Cleaning the latrine with a hose attached to the outside water container. Note cleanliness of pan. This was an un-announced visit.

The Mission could not establish whether the hundreds of Indian latrine pans distributed to the community have been installed. The outreach effect nevertheless is tangible and in some villages is significant—but the Mission could not quantify it. Clearly too the effect on school children who have had the experience of a clean, non smelly, soap provided latrine going home to a pit latrine must be a retrograde experience.
7.3 Health/hygiene education and promotion (HH).

Of the Triad that constitutes the three principal elements of a water and sanitation program, water, sanitation and HH, it is the latter that is the most important. In the UNICEF WES school program it is HH education that is strikingly successful—the argument follows that if HH is successful the entire program must flourish; and while not entirely true in specific terms—overall it can be looked at as a winning endeavor and despite criticism and the fact the UNICEF is wading against conventional wisdom, here UNICEF should capitalize on the current situation.

In various UNICEF Tajikistan donor appeal concept papers the following quotes are emphasized: “…provision of sanitary facilities, separately for boys and girls creates a girl-friendly environment…”; “…a new strategy on promoting sanitation and hygiene through schools (in contrast to earlier stratagems of promoting sanitation and hygiene in schools…..”,” “….visibility, sustainability and greater involvement of children are the 3 guiding principles……..”. These sentiments are all true when applied to this Project.

The Drinking Water Decade in the eighties and nineties brought to the fore the already well established significance of water supply and sanitation facilities in arresting water borne disease processes. More recent work especially in Bangladesh has highlighted the crucial and pre-eminent role of hand washing with soap after defecation and before meals.

Within the framework of the major UNICEF Tajikistan objectives, the specific objectives of the WES schools project are as follows (edited by the writer):

- Water and separate sanitation facilities in each school;
- Institutionalize dissemination of hygiene messages in the school system;
- Schools as a channel for promoting sanitation and hygiene in the community;
- Enhance creative skills in of children in hygiene promotion;
- Provide at least 1 safe (and secure!) water source in the community, using the most cost effective technology;
- Create/strengthen delivery and credit mechanisms for upgrading the household pit latrine to a pour flush latrine;
- Improve the capacity of all partners to allow better planning, implementation and monitoring of project activities;

The major expected outcomes of the project, again edited by the writer, are/were:

- Improvement of sustainable water and sanitation facilities in schools and the community;
• A mechanism to be in place to ensure sustainability;
• Create favorable conditions for improved hygiene practices among teachers, students and their families and reduce morbidity and mortality;
• Greater enrolment of girls at schools and their retention at school;
• Greater participation of students and the community in the Project;
• Motivate households to upgrade pit latrines;
• Promotion of pour flush latrines to stimulate employment and income generation.

Whether the objectives have been achieved or partially achieved and indeed whether the evaluation results as a whole can elucidate such achievements will be discussed in the next Section. This Section will focus on how HH became so successful.

The mission interacted with approximately 1000 children. At every school except 2 (after 5 pm, all children gone) the Mission related with an estimated average group of 30. At times the groups exceeded 100 while at others the mission only questioned the HH groups. These were generally quite senior students, enthusiastic and in most cases very talkative. Each school (100%) had these groups, called peer group for HH, and there were 6 groups. The 6 groups are each assigned a topic and a day as follows:

Monday: Handling drinking water,
Tuesday: Disposal of waste,
Wednesday: Disposal of human excreta (including infants excreta),
Thursday: Disposal of garbage and animal excreta,
Friday: Home sanitation and food hygiene,
Saturday: personal hygiene.

In general the number in each group is between 5 and 10 students. The teachers, on questioning, spend approximately 15-30 minutes each day outside school hours teaching, discussing, and supervising the HH and the group’s activities on a specific day. Several teachers volunteered to ‘teach’ and discuss HH with the communities on Sunday—in one case this would take 3-4 hours.

The detailed structure of the HH in schools can be found in a UNICEF handbook entitled ‘School Sanitation Programming Tajikistan’; no attempt at a detailed description will be made in this report—rather the focus will be on answers to questions by the Mission to children and staff.

The Mission spent 15-20 minutes at each school with the school children in discussion and a question and answer session. The 2 most common questions put by the Mission were:

a) What was the best thing to come out of this UNICEF program for you?
b) What is the single most important activity to stop the diseases transmission process?

To question (a) the answers were as follows:

71% said the latrine. When asked why—“because it’s clean, it does not smell and there is soap and water to wash hands”.

22% answered that the HH course and the involvement with the topic and other children.
7% answered *water*; not surprisingly that was in schools in the southern part of Kabodyon where water is scarce on the ground but readily available underground at a depth greater then the ubiquitous suction pumps can manage.

To question (b) a range of answers—“personal hygiene”, “cutting nails”, ”boiling water before drinking”, ”washing hands”. This was just a bit disappointing, it seems quite unjust to criticize such a successful component of the program, but the Mission had hoped they would answer ‘hand washing’ as the single most important activity. This is a minor disparagement; at the next sanitation teachers seminar this message will be reinforced and taught as the most pre-eminent message. But hand washing was always mentioned, not at the top of the list by all, but always mentioned.

Generally *girls were dominant in the sanitation peer groups* and were the more vocal and their Section of the latrine tended to be cleaner—but this is a subjective finding by the Mission.

The various methods of passing HH messages, cards, puppet shows, role plays etc were demonstrated to the Mission at various schools; the one puppet show at the only boarding school was quite brilliant.

The Mission soon recognized the central role that the community water quality testing H$_2$S method has in the overall HH activities. There is immense enthusiasm for measuring water quality. 100% of schools had an HH corner with bottles displayed showing various results. The enthusiasm with which this monitoring method of water quality has been received has amazed the writer—who has spent the past decade trying to promote this simple effective technology in Africa. 100% of schools had H$_2$S bottles.

**Plate 25.** HH teacher and 2 of her students holding H$_2$S bottles.

**Plate 26.** HH corner which every school could show. Note H$_2$S bottles on middle right illustrating poor quality bad and good quality water.
The boarding school (only 1 visited) was not connected to central supply. There was no water, the irrigation channel water was left to settle and then boiled. Outside the dining room 3 clean and well kept hand washing basins with valves that are pushed up to let water escape. Every where there was ample soap. As students entered the dining room there was a 40 liter container with boiled water for drinking and a hygienic set up for pouring the water into glasses.

Plate 27. Hand washing before meal.

The plate on the left (Plate 28) shows children demonstrating the pour flush water seal. It was beautifully explained and the Mission felt the children had a real understanding of the water sealing principles of this latrine. Note especially in the background center, the excellent teaching Perspex models of the pour flush latrines, used also to train the sanitation teachers.

Plate 28. Children demonstrating the pour flush water seal.

The play acting was done with a surprising self-confidence by such young students. They knew their lines and put effort into this endeavor. Funny lines brought great hilarity from the surrounding children who clearly have seen this play 1000 times. A puppet play was also demonstrated which as noted above, the writer found outstanding. It is true that the Mission was not treated to such long demonstrations in all schools (in fact 3 schools provided some demonstration) but it was impressive.

Plate 29. Play acting a WES play
Other noteworthy statistics:

- **80% of directors asked for more latrines.**

- **100% of directors said they were ‘very’ happy with the program.**

- **100% of directors agreed that HH should also be in the curriculum,** as did 2 senior District Education Officers. They argued that if accepted in the curriculum it will formalize the HH activities.

- 3 school directors asked that a seat be provided in the privacy cubicle in the girls’ latrine Section.

- 1 sanitation teacher thought the cubicle too small.

In Kabodyan district, **90% asked for furniture** from UNICEF. The schools generally and the furniture was in a very bad state of repair.

In terms of life skills the Mission initially was somewhat confused of exactly what was required of it. Discussions with the first few school directors about life skills were not very fruitful. But after the first few school visits life skill were interpreted by the school directors as **mainly carpentry for boys and sewing for girls,** although some schools ‘offered’ agriculture, computer science, metal works etc. Offered is in inverted commas because **96% of the schools did not have adequate tools and instruments for these subjects.** The subjects were on the schedule but were only taught theoretically. Oddly, life skills are in the curriculum while the all important HH is not.

**Plate 30.** While the numbers are not statistically significant, it matters not, as long as the children understand the reasons for the trend.

**Plate 31.** One more illustration of the H₂S bottles.
In summary—the HH element of the WES UNICEF program is highly successful—but the driving mechanism is the fact that the latrine is water based. The unexpected role of the H$_2$S method plays in allowing the children to measure their own water quality is interesting.

If the recommendation of this report is followed, elementary aspects of filtration and chlorination will be added to the HH program which will hopefully stimulate the children further. **The efficacy of the HH component without water would be seriously blunted.**

From the Mission’s perspective it does not seem likely that the Ministry of Education is prepared to include HH in the curriculum despite all directors’ opinions that it should, as well as senior district Ministry of Education officers. However at present such is the success of the HH activities that it appears that even as an extra curricular activity it will be sustained. The idea of including HH messages in formal school subjects like botany, zoology, physics and chemistry is an attractive option.

![Plate 32. A typical discussion/question time between the Mission and school children—such interactions took place in 90% of schools. It is highly unlikely that the Mission was fooled or misjudged the children’s enthusiasm for the program. It was evident in every school to some degree.](image)

**7.4 The integrated WES schools program.**

Here the Mission will discuss a few features of the program as a whole.

The recommendation that the WES program should be expanded and include all 3 elements of the Triad will make the program more expensive. This in the face of what appears to be conventional wisdom in Tajikistan. The NGOs have been working in the country for many years and all have opted for the ‘dry’ pit latrine. Therefore to suggest an expansion of the UNICEF program that has indeed met criticism may appear somewhat
imprudent. It is also true that this evaluation was carried out at the most favorable time for water accessibility; it should have been carried out in the depths of winter when electricity supplies are especially irregular. Notwithstanding, the Mission believes that the HH component is exciting and influential and as a result there is every chance that the program as a whole will succeed and be sustainable. Recall that the major criticism against the program has been ‘blocked latrines because there is no water’. If the recommendation that the program offer the full package, i.e. water, latrine and HH then the criticism falls away. In any event, the program in Kabodyan that is **95% dependent on hand pumps and hence not on intermittent electricity supplies** cannot be so criticized.

A very approximate and tentative costing for the provision of all 3 elements of the triad in each school is as follows:

In areas that require the drilling of boreholes (see discussion in Section 7.1) and assuming low the cost approach: 6,000$

Areas where digging is possible: 3000$

Hand pump: 400$

Latrines (times 2 to reduce latrine to student ratios) 8000$ (very high- it is the current price)

HH: 1000$.

**Total-18,000$ (rounded off) per school. (these are all generous numbers).**

Assuming of the 3700 schools in the country 3000 are ‘reachable’ we have a **50 million $** program. Such figures may well frighten both UNICEF and potential donors, but of course the program can proceed piece meal and commitment made to x schools at the time. (If cost of latrine is reduced to 1500$, the total becomes **26 million $**)

The key is clearly that water is an imperative-the program, especially HH will not work successfully in parts and will not be as effective without water. A dry pit latrine cannot possibly create the ‘passion’ that the present UNICEF HH activities appear to create. Although, to be fair, a comparative evaluation of the UNICEF ‘wet’ latrine endeavor and the NGOs ‘dry’ latrine activities would be interesting. Cleary too, Government has to be convinced that the UNICEF approach is the right advance in rural water and sanitation in schools.

A look at the objectives of the program and a tentative analysis of success and failure may be useful.

viii. Improvement of sustainable water and sanitation facilities in schools and the community;

ix. A mechanism to be in place to ensure sustainability;

x. Create favorable conditions for improved hygiene practices among teachers, students and their families and reduce morbidity and mortality;

xi. Greater enrolment of girls at schools and their retention at school;
The objectives above in several cases can not be answered in real terms-sustainability for example can only be answered after ‘the event’ so to speak, well after!

There is absolutely no doubt that in part the first objective has been met—but with the qualification about sustainability. The water supplies of the northern districts are not successful in as much schools were wrongly selected in terms of water supply. But by and large, the objective has been achieved.

The second objective is confusing and the writer will not comment—how is such a mechanism defined and what is it? Certainly as the Mission has made clear throughout this report the success of the HH activities are driving the program and at its present intensity there is every hope that it is sustainable. But such predictions have often been wrong. The strong commitment of an energetic well funded Ministry of Education is important in sustaining this program.

The Mission has no data—but it is highly likely that girls’ enrolment and retention has increased. As noted in the Section above, girls were dominant in all discussion of HH.

Objective v has been achieved, as has objective vi. To what degree, the Mission cannot answer. But the parents’ involvement in the schools is impressive and promising in terms of sustainability. In 100% of schools parents and teachers were involved in digging pits and superstructure construction. The PTAs often pay for pump repairs. Soap originally came from UNICEF via an NGO: 15-20 bars/month. When the latrine was built UNICEF donated 400 bars to be distributed monthly—if this is not enough, and it often is not the PTA pay for extra bars.

The outreach influence of the program is tangible but could not be quantified by the Mission. 7 household latrines were visited, 6 were clean and the respondents admitted that the stimulus for the household latrines was the school model or pressure from their children.

Objective vii has probably not yet been achieved on any significant scale. But were the program to be expanded to include water supply then the potential for income generation would increase. For example the local hand pump manufacturing community would benefit by increased employment; but it all depends on numbers.

In summary—while not all aspects of the program are successful (but all rectifiable) in broad terms the program has spawned an unusually vibrant HH activity which in turn virtually guarantees that the program as a whole (the Triad) will be effective.
8. CONCLUSIONS AND RECOMMENDATIONS.

Water supply in schools

- In the districts Rudaki, Bokhtar, Kholhozob and Vaksh 80% of schools are connected to a main line reticulated system (3 are not connected and 2 have hand pumps), in Sogd Region the figure is also 80%. **Electrical outages cause irregular flow patterns** and possible **bacteriological growth** during times when the pipes are empty. The water source for the reticulation system is often deep groundwater pumped by large electrical submersible pumps. In addition, to maximize water resource management, surface water (river water) is pumped to augment groundwater in the piped system. This means that the water requires treatment—filtration and chlorination. SES does not guarantee either, so that water connected to the district wide reticulation system is neither secure nor safe. This in turn means that 80% of schools in districts Rudaki, Bokhtar, Kholhozob and Vaksh and Sogd **do not have regular supplies or guaranteed potable water supplies.** But that does not mean that they do not have some water during each day with which to clean the latrines. Secure and safe refers to potable water. During the time of the Mission surface water was ubiquitous, irrigation canals (in urban and rural settings) crisscrossed the landscape—water was everywhere.

- In the one school seen with a community hand pump in district Bokhtar a reliable stable water supply was obvious. **Maintenance of the pump was good.**

- The child friendly water points are of adequate design, the strategically placed taps at different heights are a good idea, but water pressure was too low for 40% of those points inspected. In 75% of cases the taps were either broken on non existent.

- In some schools irrigation water is the only supply, and while small children bring boiled water from home, older children drink the irrigation water.

- In some of the schools a bent dirty pipe, can be the only water point. (see plate 3).

- The H₂S test is universally (100%) available in schools and is much used.

- Several different hand pump models were seen—a mixture between small household suction pumps and community deep pumps.

- The **hand pump is not high on the list of Government priorities** as a long term holding measure to overcome the period until the central reticulated water supply is rehabilitated.

- The community hand pump (Afridev or India MK III) can very likely be **manufactured in-country.**

- In the northern part of Kabodyon district a shallow water table allows a multitude of suction pumps to be used. While the water does not satisfy the SES standard it is potable and universally drunk.

- The monitoring of the shallow aquifer both for bacteriological and chemical content is critical and district SES offices have meager resources to carry this out.

- The ‘**dig before you drill**’ UNICEF adage is being observed by the WES Section and while expensive, the hand dug wells are well finished off and the platform properly sealed against surface water ingress.

- In the southern part of Kabodyon district where the water level is just below the level of a suction pump capability (still relatively shallow water table) Afridev and India Mk IIIIs are being installed by UNICEF WES mainly (98%) in hand dug wells. As with the suction pumps, **the platforms are well designed and constructed.**
• However 35% of these pumps were non-functional due to an inadequate spare part ordering policy. The missing spare part is a low cost 20 cent washer.
• In the one borehole drilled for an Afridev in this part of the district, drilling costs were very high (100$/m) and in addition steel casing is used. The pump required a borehole because the shallow water in that specific area was contaminated and a hand dug well was not a practical proposition.
• There is no community hand pump as a national standard.
• Rain Water Harvesting is seldom used—most roofs are made of asbestos sheeting
• Low cost drilling techniques are being attempted by ACTED.
• Spring flow gravity flow schemes provide water to some schools in Sogd Region.

Sanitation in Schools

• The modifications carried out by WES Section to the standard (2002) Indian twin pit pour flush latrine are functional and sensible.
• The 500 liter tank is of adequate volume, the 4mm plastic tube allowing the water in the tank to be seen is an excellent idea. The array of 3 taps for hand washing is satisfactory, but the fact that 75% of all taps were broken or non-existent was not.
• The small privacy area in the girls’ latrine was a good idea.
• 98% of latrines had soap.
• 100% of latrines had all the utensils—buckets with water and a ladle, toilet brush and holder.
• 95% of latrines were clean—clean was defined as lack of smell, some latrines were stained but this was probably iron stains rather then fecal stains—smell was the prime criterion. 5% of latrines did smell, in both cases they were boys’ latrines.
• Not a single case of a blocked latrine was seen.
• Supply problems have forced WES to install ceramic pans (from Iran, but available locally) at a cost twice that of the Indian pan. The cost differential between the pans (15 to 30$) is insignificant in the total cost of the latrine (4000$).
• The ceramic pans look cleaner then the Indian pans, but that may be due to ‘newness’. The reduced drop angle in theory requires more water to clean the pan, again insignificant whether its 1 liter or 2 liters. The ceramic finish and reduced friction may in fact reduce the volume of cleaning water required and make cleaning easier.
• The illustrations on the latrine super structure of relevant topics are excellent—15% of latrines had no illustrations.
• The water tank is an ideal site for HH messages. As are the inside walls.
• The construction company has been lax in the finishing of several new latrines about to be handed over—water outlet at entrance (very important) not done; tubes on tanks missing and stairs not properly constructed.
• The latrine doors are flimsy and the wood is bending making locking difficult in some cases.
• To the writer the school latrine appears over designed.
• The household latrines were impressive—low cost and clean with a cleaning water container on the outside of the superstructure.
• To gain more room, the tank in the school latrine could be sited on the outside of the latrine, apparently vandalism is a danger.
• The ratio of students to latrines is very high—far greater then the commonly cited figure in Africa or the Sphere standards quoted by Oxfam, Tajikistan.
• 80% of directors asked for more latrines
• 100% of directors expressed satisfaction with the Project.

Health & hygiene education/promotion

• The enthusiasm of the school children for HH is beyond doubt.
• 71% of students cited the latrine as the best part of the Project.
• 22% cited the HH activities as the best part.
• 7% cited water as the best—but this answer came from schools in the water scarce (on the surface only) southern part of Kabodyon district.
• The H₂S test plays a critical role in the success of HH.
• While washing hands after toilet and before meals was always an answer by all children to the question of which is the most important activity in disease prevention, it wasn’t the preferred answer.
• 100% of schools had an HH corner
• The voluntary time given by the sanitation teachers is 2-3 hours/week, with some also spending 2-3 hours on a Sunday with the community.
• All directors wanted HH in the curriculum; district senior education officials agreed. Ministry of Education in Dushanbe did not agree.
• 50% of schools asked for UNICEF support with HH summer camps and HH student interchange opportunities.
• All schools visited in Kabodyon district asked for school furniture

RECOMMENDATIONS

1) The principal recommendation of this evaluation is that UNICEF capitalizes on its success so far with the WES program and attempt to expand the program in geographical extent, in size and most importantly in scope. Whereas at present the UNICEF approach is to install pour flush latrines in selected schools (usually 1 latrine/school and exceptionally 2 if numbers exceed 600)) and institute innovative HH activities, the critical need for secure/safe water supply has been highlighted in this report. Therefore the program must ensure also a reliable water supply at each school. It does make the program more expensive but the results in the long term will be extremely beneficial for children’s health.

The recommendation is made despite the fact that criticism has been level led at the programme and that possible conventional wisdom suggests that ‘dry’ latrines’ as installed by all NGOs is the correct course for UNICEF. But conventional wisdom can be mistaken? Or be unconventional?

The reasons for this recommendation have been repeated several times in this report—water drives the successful HH component. Without water, the uniquely specific HH program would be severely blunted. A successful HH activity that creates enthusiasm in school children for personal hygiene and good sanitation practices, in turn creates a successful overall program measured by achieved objectives and most crucially, tangibly improved child health indices.
2). UNICEF to lobby the Rural Water Department to accept the hand pump as a major water lifting device. UNICEF to support a visit by the chief engineer of Rural Water Department to a UNICEF hand pump project in China. The hand pump is seen as the key water source for UNICEF to install at each school.

3). UNICEF to lobby the Ministry of Rural Water to make 1 community hand pump (after due discussion under the chairmanship of the Ministry) as the National Standard. This is critical to the success of any large scale (or small scale) hand pump program.

4). In most of the Project schools in Rudaki, Bokhtar, Kolkhozobod and Vakhsh districts a secure/safe water supply does not exist. The time frame for expanding the program and installing hand pumps where feasible is in the order of a year or so; if it materializes! In the meantime the Mission recommends that UNICEF urgently provide Slow Sand Filters and chlorination satchels for these schools together with a strict protocol of filtration and chlorination measures.

5). If the decision is made to expand the program in scope, the borehole which will be required to be drilled to mount the community hand pump will be expensive. The WES Section should liaise closely with ACTED, who are making tangible efforts to reduce drilling costs. Further the WES Section should make contact with local pump manufacturers to initiate an in-country manufacturing capacity.

6). The WES Section to review the supply and ordering procedures. To have 35% of hand pumps in a seriously water scarce area for the lack of 20 cent rubber washers is unacceptable. Hand pump spare parts distribution is the responsibility of UNICEF; it should remain so but the procurement policy should be reviewed so that small 20 cent washers are always available and if not they should be couriered from India. In time, a distribution policy by private enterprise should be initiated.

7). The WES Section to discuss with the Water and Sewage Engineering Department of the University the possible re-design of the pour flush latrine superstructure to reduce costs and facilitate easier cleaning.

8). WES Section to review available heavy duty self closing taps and replace in all latrines and child friendly water points where taps are out of order.

9). The WES Section to be more scrupulous when accepting completed latrines from the construction company. A check list is obligatory to eliminate the errors in construction seen by the Mission.

10). The UNICEF latrine cost is significantly higher then the comparative NGOs costs. In the case of ACTED, the UNICEF price is 4 times greater! The cost differential between ‘wet’ and ‘dry’ should be minimal especially when in 100% of schools parents assisted in digging and construction. A rigorous review of costs (bill of quantities) should be undertaken to justify the very high cost of the UNICEF latrine.
11. An inter-comparison study of the 2 pans (Indian and ceramic) is justified to establish the best option. Ensure that HH messages are inscribed on the water tank and also on the inner walls.

12. In order to stimulate interest and enthusiasm for HH even further UNICEF to support HH summer camps and inter school HH exchange programs. It is a small price to pay to sustain the current high interest in the HH component. 60% of all directors asked for this support.

13. UNICEF to continue lobbying for HH to be included in the school curriculum. In the interim the possibility of including HH messages in formal science lessons should be seriously explored. This is not a new undertaking; it was used in phase 1 of the program in the nineties.

14. Life skills as perceived in local skills are essentially carpentry for boys (some school also offer agriculture, computer science) and sewing for girls. However 98% of schools had no tools or implements to have practical classes. Instead they had ‘theoretical’ classes. (It is odd that life skills are formally in the curriculum yet there is resistance to HH).

15. UNICEF is presently implementing the program with a professional construction company. From the UNICEF perspective UNICEF now has an accountable party answerable for any delays or problems. But several lapses by the contractors were noticed by the Mission, no tubing on the tanks (4 cases), no water outlet by the entrance (3 cases); a check list should be followed before hand-over to the school. There is merit in a review and UNICEF instead implement the program with long established NGOs in the Sector such as Oxfam, ACTED, and Save the Children etc. They understand cost effectiveness, such an important element lacking in the program thus far and have a greater insight into the human aspects of WES then a professional construction company.

16. UNICEF to lobby ECHO to drop it’s insistence of installing rehabilitated pit latrines in rest of the school program, i.e. in schools that have no water-this report argues strongly that this is not cost effective. Instead, reselect schools that have water and install pour flush latrines with the balance of current funds.

17. If the recommendations in this report are followed and filters and chlorination satchels are distributed the HH material should be modified. Sanitation teachers to have a seminar to include experimental teaching aspects of both filtration and chlorination to stimulate the children even further.

18. In the near future the WES section will see 2 staff members out of contact. To retain the current momentum especially in HH, it is critical that UNICEF appoint replacement staff promptly.
9. ANNEXES
## Annex 1

### SCHOOLS VISITED - MAJOR FINDINGS

<table>
<thead>
<tr>
<th>Name of the districts</th>
<th>Name of school/village</th>
<th>School number</th>
<th>UNICEF project school?</th>
<th>Number of students</th>
<th>School water supply</th>
<th>Sanitation</th>
<th>Health/Hygiene promotion</th>
<th>Comments</th>
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<tbody>
<tr>
<td>1</td>
<td>Rudaki</td>
<td>Chawliboy</td>
<td>Yes</td>
<td>410</td>
<td>Central supply-reasonably secure, but no tap-dir says its artesian-gravity fed</td>
<td>Pour flush latrine, clean, used, all utensils available.</td>
<td>Excellent effort by committed staff. Children have good knowledge of HH. How does director know artesian supply and gravity fed-mutually exclusive? Suggested girls’ privacy cubicle too small.</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Rudaki</td>
<td>Gijdalaobod</td>
<td>No</td>
<td>500 (330/170)</td>
<td>Central supply-schedule 4 hrs. Fill 100L barrel for storage. Water not secure.</td>
<td>Pit latrines-very dirty. 2 buildings 1X4 &amp;1X6</td>
<td>No HH promotion</td>
<td>Typical non project school. Reveals how urgent it is to expand program. The state of the pit latrine was inexcusable.</td>
</tr>
<tr>
<td>3</td>
<td>Rudaki</td>
<td>Juibodom</td>
<td>No</td>
<td>1858</td>
<td>Central supply</td>
<td>Pit latrine</td>
<td>The officials did not allow us to see the latrines. A bad sign!!</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Rudaki</td>
<td>Sowkhoz Warzob</td>
<td>Yes</td>
<td>617 (237/380)</td>
<td>Central supply-insecure-electricity on/off.</td>
<td>Double pit, flush latrine-clean, used, all utensils all there</td>
<td>Excellent knowledge of HH by pupils. Liked latrine</td>
<td>Children bring boiled water from home At school they fetch water from irrigation canal to clean the toilet when pipe line off. 20% PTA contribution to toilet.</td>
</tr>
<tr>
<td>5</td>
<td>Rudaki</td>
<td>Chimtepa</td>
<td>No</td>
<td>1020</td>
<td>Central supply</td>
<td>Pit latrine</td>
<td>The pipes/the system is in place but there has been no water for the last 4 months</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Rudaki</td>
<td>Kirov</td>
<td>Yes</td>
<td>599 (365/234)</td>
<td>Central supply-problem, only 2-3 hrs/d. have 36 liter storage-too small insecure supply</td>
<td>Double pit, flush latrine-clean, used, all utensils there.</td>
<td>Excellent knowledge of HH by pupils. Liked latrine</td>
<td>No water after lunch time, so pour flush latrines is used only in the morning. After that pit latrine-unacceptable. Director says quality of line supply good.</td>
</tr>
<tr>
<td>7</td>
<td>Rudaki</td>
<td>Nawobod</td>
<td>Yes</td>
<td>628 (348/280)</td>
<td>Central supply-if electricity-2005 installed suction HP. 7.5m-potable.</td>
<td>Double pit pour flush, clean, used, all utensils available.</td>
<td>Good knowledge by children of HH Liked latrine</td>
<td>Insecure piped supply cause of obtaining HP. They fix it themselves. Children prefer to drink it in summer because it is cooler.</td>
</tr>
<tr>
<td>8</td>
<td>Bokhtar</td>
<td>Stakhanov</td>
<td>Yes</td>
<td>582 (262/284)</td>
<td>Afridev hand pump for drinking, small suction Takij pump for latrine cleaning. Pump beautifully maintained.</td>
<td>Clean, well kept latrines All utensils available.</td>
<td>The perfect model of school ‘in and ‘through’ hygiene promotion. Director obsessed with HH promotion-perfect illustration of how headmaster dictates school success/failure</td>
<td>This school represents all that is excellent in the ‘in school, through school’ policy of HH promotion. The school has reached out tangibly to the surrounding community, shown by the fact that 200 household latrines have been constructed in the neighborhood! Liked latrine</td>
</tr>
<tr>
<td></td>
<td>Location</td>
<td>Village</td>
<td>Code</td>
<td>Has Project</td>
<td>Population</td>
<td>Water Supply</td>
<td>Latrine Status</td>
<td>Health/Hygiene Promotion</td>
</tr>
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<tr>
<td>9</td>
<td>Bokhtar</td>
<td>Gairat</td>
<td>45</td>
<td>No</td>
<td>1050</td>
<td>Shallow hand pump, not potable. Main line supply but insufficient flow</td>
<td>Pit latrine in unacceptable state, dirty, smelly and a serious health hazard. No soap</td>
<td>No health/hygiene promotion, although a PTA does exist</td>
</tr>
<tr>
<td>10</td>
<td>Bokhtar</td>
<td>Kizilshart</td>
<td>30</td>
<td>Yes</td>
<td>447</td>
<td>Main line, a constant supply despite power outages, must be gravity fed.</td>
<td>Reasonably clean broom missing, everything else is available.</td>
<td>Average health/hygiene activities. Hygiene teacher recently resigned</td>
</tr>
<tr>
<td>11</td>
<td>Bokhtar</td>
<td>Lenin</td>
<td>17</td>
<td>Yes</td>
<td>842</td>
<td>Main line, intermittent chlorination</td>
<td>Clean, well kept. Soap, broom, etc present</td>
<td>Good HH promotion, children knowledgeable and enthusiastic liked latrine</td>
</tr>
<tr>
<td>12</td>
<td>Bokhtar</td>
<td>Kirov</td>
<td>25</td>
<td>Yes</td>
<td>600</td>
<td>Tara hand pump. Well maintained in good order.</td>
<td>Clean, well kept</td>
<td>Good HH promotion Liked latrine</td>
</tr>
<tr>
<td>13</td>
<td>Kholhozobod</td>
<td>Chapaev</td>
<td>40</td>
<td>Yes</td>
<td>654</td>
<td>Central supply with no problems!</td>
<td>PF Clean, used, all utensils available, 2 shifts</td>
<td>Good knowledge of HH by children</td>
</tr>
<tr>
<td>14</td>
<td>Kholhozobod</td>
<td>Kommunizm</td>
<td>36</td>
<td>Yes</td>
<td>980</td>
<td>Central supply-good quality but intermittent-not secure.</td>
<td>PF. Clean, used, all utensils. 2 shifts.</td>
<td>Excellent student knowledge of HH. Liked latrine</td>
</tr>
<tr>
<td>15</td>
<td>Kholhozobod</td>
<td>Pravda</td>
<td>28</td>
<td>Yes</td>
<td>738</td>
<td>Problem with water before UNICEF. Installed 2 HP Tajik. Use 1 for drinking other with pressure adapter to toilet tank</td>
<td>Clean, used, all utensils available. 2 shifts</td>
<td>Good knowledge shown by children. Liked HH</td>
</tr>
<tr>
<td>No.</td>
<td>Village</td>
<td>School</td>
<td>Grade</td>
<td>Yes</td>
<td>Population</td>
<td>Remarks</td>
<td></td>
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<tr>
<td>16</td>
<td>Kholhazoobod</td>
<td>Uzun</td>
<td>23</td>
<td>Yes</td>
<td>375</td>
<td>Intermittent central supply. Child friendly taps. Young children bring boiled water. Insecure supply. Clean, used, all utensils available. Excellent knowledge shown. School won a HH competition. Teachers adamant that UNICEF should support regular competitions and active students given incentives An award winning school. Very sensitive to quality of central supply. Doctor encourages children to bring boiled water. Doctor has serious mistrust of central supply - insists that intermittent supply encourages bacterial growth during dry periods and water unsafe. Not secure supply. Liked HH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Kholhazoobod</td>
<td>Kholhозобод (center)</td>
<td>1</td>
<td>Yes</td>
<td>1028</td>
<td>Intermittent central supply, even when flowing poor pressure. Drinking water from home. 1 PF, not enough, when no water use pit latrine. Reasonably clean. Use 2 bars soap/d. Good knowledge of HH by children. Did not receive enough HH printed material from UNICEF, require more Liked latrine High numbers pupils &lt;1000). Despite this pits now 3 years old have not been changed-not a single pit yet full in all schools to date.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Kholhazoobod</td>
<td>Leningrad</td>
<td>3</td>
<td>Yes</td>
<td>262</td>
<td>Big problem-“no safe water”. Use irrigation canal and boil. Never had safe water. Oct-March no water canal dry. In crisis get tanker and pay for it Despite water problem maintain that PF latrine even operational during winter. Clean, used, utensils available. Good knowledge by children of HH. Suggest incentives for toilet care and UNICEF to sponsor inter schools competition to retain HH enthusiasm Liked latrine First tanker school. Critical situation. However have large storage pool (&gt;50m) Which they fill when irrigation water available.</td>
<td></td>
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<tr>
<td>19</td>
<td>Vaksh</td>
<td>Sokhtmon</td>
<td>39</td>
<td>Yes</td>
<td>738</td>
<td>Central line broken—even before pressure low. Installed 2 shallow HPs. 8 m and 12 m. drink from deeper one. Other for toilet cleaning clean, used, utensils available. Asked for larger cubicle for girls. Only 1 latrine for large number. 2 shifts. Good knowledge. Utensils available. Have run out of H2S bottles. Asked for competitions to stimulate both children and teachers Liked latrine. Despite known contamination in many areas of shallow water this is OK. Passed by SES. However ‘danger’ of shallow water illustrated by fact that at 12m water potable, at 8 m it is not. 1 deep HP would solve problem.</td>
<td></td>
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</tr>
<tr>
<td>No.</td>
<td>Vaksh</td>
<td>Hawaskor</td>
<td>Boarding</td>
<td>yes</td>
<td>748 (268/480)</td>
<td>No water at all. Irrigation water for toilet and when boiled for drinking. Young children bring boiled water from home.</td>
<td>Clean, used, all utensils in place. Huge stress on toilet despite 2 shifts.</td>
<td>Good knowledge by children, young and older.</td>
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</tr>
<tr>
<td>21</td>
<td>Vaksh</td>
<td>Vaksh</td>
<td>Boarding</td>
<td>yes</td>
<td>204 (123/81)</td>
<td>Central supply-quality? Led to 3 outlets. Intermittent. All Water boiled. They know it should be 20 minutes—but do they?</td>
<td>Exceptionally clean, used, all utensils available.</td>
<td>The most enthusiastic HH school seen by the writer. The puppet show was outstanding. As in every school the teachers and headmaster dictate degree of enthusiasm and success.</td>
</tr>
<tr>
<td>22</td>
<td>Vaksh</td>
<td>Chukurak</td>
<td>56</td>
<td>Yes</td>
<td>1208 (408/800)</td>
<td>Central supply-not sufficient-water not secure. Children drink it.</td>
<td>High populations for 1 PF latrine-old design, yet still reasonably clean, all utensils available. 3 shifts.</td>
<td>Good knowledge by children.</td>
</tr>
<tr>
<td>23</td>
<td>Vaksh</td>
<td>Vaksh (center)</td>
<td>1</td>
<td>Yes</td>
<td>1688 (923/765)</td>
<td>Water not secure—huge school population. Central line intermittent but clean and they drink when flowing.</td>
<td>1 pour flush reasonably clean and utensils available. Also pit latrine with 4 holes/gender. This is bad.</td>
<td>Knowledge despite high numbers good. Interacted with at least 50-60 children, all ages and all displayed HH knowledge. Liked latrine</td>
</tr>
<tr>
<td>24</td>
<td>Vaksh</td>
<td>Oqkaza</td>
<td>24</td>
<td>Yes</td>
<td>946 (410/536)</td>
<td>No water, only irrigation channel—decant and boil for drinking. Stored in 36 liter container-too small.</td>
<td>1 PF for 900 children in 2 shifts. Clean, used, utensils in place</td>
<td>Good knowledge by children—another instance where the evaluation team interacted with at least 100 children. Liked latrine</td>
</tr>
<tr>
<td>No.</td>
<td>Location</td>
<td>Type</td>
<td>No.</td>
<td>Yes/No</td>
<td>Code</td>
<td>Total (Min/Max)</td>
<td>Observation</td>
<td>Details</td>
</tr>
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<tr>
<td>25</td>
<td>Vaksh</td>
<td>Andrey</td>
<td>11</td>
<td>Yes</td>
<td>711</td>
<td>291/420</td>
<td>Central line but not enough throughout year-clean-staff say it is chlorinated. Pressure fluctuates. Have shallow Tajik HP in reserve not potable. 1 PF for 711 children-2 shifts. Despite that clean, used, all utensils available</td>
<td>Good knowledge by children. Liked HH</td>
</tr>
<tr>
<td>26</td>
<td>Vaksh</td>
<td></td>
<td>20</td>
<td>Yes</td>
<td>854</td>
<td>274/580</td>
<td>Connected to water line, appears to be gravity-not electric-they drink from it. Use Tajik HP for irrigation. Boys smelly, no place for soap. Girls OK-all utensils available. Girls do not use cubicle.</td>
<td>Good knowledge shown by children of HH. Liked latrine</td>
</tr>
<tr>
<td>27</td>
<td>Kabodiyon</td>
<td>Komsomol</td>
<td>8</td>
<td>Yes</td>
<td>847</td>
<td>300/547</td>
<td>2 shallow HPs. Both 8m, checked every 3 months by SES-before piped. now broken</td>
<td>Special large design-4 pits, 8 toilet cubicles. Clean, used utensils available. 2 shifts.</td>
</tr>
<tr>
<td>28</td>
<td>Kabodiyon</td>
<td>Boshkala</td>
<td>11</td>
<td>Yes</td>
<td>1310</td>
<td>980/370</td>
<td>4 shallow Hips. All at 12m and all good water. They test every month. Before piped-after construction of latrines UNICEF put in shallow HPs.</td>
<td>In this school unlike school 8, they have 2 X4 latrines. Under new ECHO policy and funding. Clean, used, utensils available</td>
</tr>
<tr>
<td>29</td>
<td>Kabodiyon</td>
<td>Mehnatobod</td>
<td>49</td>
<td>Yes</td>
<td>674</td>
<td>345/329</td>
<td>2 shallow HPs-8m &amp;12m, tested by school every 2 months-ok. 1 pump 10 years, other 3 years-UNICEF. Normal (1X4) pour flush. clean, used, utensils all available.</td>
<td>Good HH knowledge by children. Liked latrine</td>
</tr>
<tr>
<td>No.</td>
<td>Village</td>
<td>School</td>
<td>Grade</td>
<td>Questioned</td>
<td>Population</td>
<td>Well Type</td>
<td>Pumps</td>
<td>Pump Depth</td>
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<tr>
<td>30</td>
<td>Kabodiyon</td>
<td>N. Khisraw</td>
<td>2</td>
<td>Yes</td>
<td>750 (428/322)</td>
<td>Central supply-good, all year round-4 hours/day in winter, 24 hours/day in summer. Also 1 shallow HP for toilet.</td>
<td>Clean, used, all utensils available.</td>
<td>Good HH knowledge by children.</td>
</tr>
<tr>
<td>31</td>
<td>Kabodiyon</td>
<td>Shahob 1</td>
<td>18</td>
<td>Yes</td>
<td>335 (187/148)</td>
<td>No water-2 shallow HPs. Both not potable. Both at 8m. 20 years old and 2 years old. Serious-see comments. Children bring from home</td>
<td>Not clean, but told this was old pan/water seal, looks dirty, is not in reality, but did smell. All utensils available.</td>
<td>Good HH knowledge by children.</td>
</tr>
<tr>
<td>32</td>
<td>Kabodiyon</td>
<td>Shohgaraw</td>
<td>1</td>
<td>Yes</td>
<td>284 (142/142)</td>
<td>1 shallow HP-8m, 1 year, before HP electric pump, UNICEF installed. Quality ok.</td>
<td>Ceramic pan-low slope-therefore need more water, very clean. Ran out of plastic pans. From India. All utensils available</td>
<td>Very good knowledge. Liked latrine.</td>
</tr>
<tr>
<td>33</td>
<td>Kabodiyon</td>
<td>Shahob 2</td>
<td>17</td>
<td>Yes</td>
<td>770 (344/436)</td>
<td>Shallow HP-15 (water level)-pump is suction. PTA pay for repair.</td>
<td>Clean, used, all utensils available,</td>
<td>Good knowledge of HH by children liked latrine.</td>
</tr>
<tr>
<td>34</td>
<td>Kabodiyon</td>
<td>Khushchanor</td>
<td>21</td>
<td>Yes</td>
<td>674 (333/341)</td>
<td>2 shallow HPs. Old for toilet, 8m, new by UNICEF 8m-both good water quality.</td>
<td>Clean, used, all utensils available</td>
<td>Good knowledge. Liked HH</td>
</tr>
<tr>
<td>No</td>
<td>Village</td>
<td>School</td>
<td>Pupils</td>
<td>Volunteer</td>
<td>Well &amp; Quality</td>
<td>Knowledge of O&amp;M</td>
<td>Latrine</td>
<td>Notes</td>
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<tr>
<td>35</td>
<td>Kabodiyon</td>
<td>Doke</td>
<td>23</td>
<td>Yes</td>
<td>948 (492/456)</td>
<td>Water problem-1 shallow HP-good quality but not enough-children bring from home. Before had well and bucket! Depth 17m??ASK</td>
<td>1X8 design. Clean, used, utensils available.</td>
<td>Good knowledge. Liked latrine</td>
</tr>
<tr>
<td>36</td>
<td>Kabodiyon</td>
<td>Doke School Gymnasium</td>
<td>2</td>
<td>Yes</td>
<td>250 (219/31)</td>
<td>Shallow HP. 12m. 2 years old-a new school. Good quality</td>
<td>New toilet-3 weeks old. Clean, used, all utensils available. Mirror in boys toilet.</td>
<td>Excellent knowledge considering this primary school. Liked latrine</td>
</tr>
<tr>
<td>37</td>
<td>Kabodiyon</td>
<td>Kizilkuch</td>
<td>26</td>
<td>Yes</td>
<td>356 (178/178)</td>
<td>Water problem, Afridev-not complete-in hand dug well. (Shallow HP casing forced down) also central supply but no water 6 months of the year. Boil irrigation water. Afridev because awl too deep. WL 11m, Afridev 15m. Children bring from home</td>
<td>Clean, used, all utensils available.</td>
<td>Good knowledge of HH. Like HH.</td>
</tr>
<tr>
<td>38</td>
<td>Kabodiyon</td>
<td>Chirick 1</td>
<td>31</td>
<td>Yes</td>
<td>720 (307/413)</td>
<td>2 non functional community pumps-an Afridev and India MKIII. Both awaiting rubber washers!! This is bad. Get water from community HP 300m in village. I not working 1 month, other 2 months.</td>
<td>Clean, used, utensils available. Want more.</td>
<td>Good knowledge. Liked latrine</td>
</tr>
<tr>
<td>No.</td>
<td>District</td>
<td>Village</td>
<td>Reg.</td>
<td>No. of Pupils</td>
<td>Pupil Gender</td>
<td>No. of Wells</td>
<td>Type of Pump</td>
<td>Use of Water</td>
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<tr>
<td>39</td>
<td>Kabodiyon</td>
<td>Chirick 2</td>
<td>32</td>
<td>Yws</td>
<td>417</td>
<td>(194/223)</td>
<td>India MKIII</td>
<td>Clean, used, all utensils available</td>
</tr>
<tr>
<td>40</td>
<td>Kabodiyon</td>
<td>Kalinin</td>
<td>35</td>
<td>Yes</td>
<td>370</td>
<td>(170/200)</td>
<td>India MKIII-rubber washer, 17.5m Collect water from Afridev in village 400m. Irrigation water for toilet.</td>
<td>Not so clean, smelly, no reason, used, all utensils available.</td>
</tr>
<tr>
<td>41</td>
<td>Kabodiyon</td>
<td>Kizilittifok</td>
<td>38</td>
<td>Yes</td>
<td>753</td>
<td>(408/345)</td>
<td>Afridev on well. So much used cone of depression down. Must deepen well.</td>
<td>Clean, used, all utensils available</td>
</tr>
<tr>
<td>42</td>
<td>Kabodiyon</td>
<td>Okhunboboev</td>
<td>20</td>
<td>Yes</td>
<td>185</td>
<td>(49/126)</td>
<td>2 shallow HPs. Both good water, 1 HP UNICEF 2 years ago, other 21 years old.</td>
<td>Clean, used, all utensils available 2 shots despite low numbers.</td>
</tr>
<tr>
<td>43</td>
<td>Kabodiyon</td>
<td>Arabkhona</td>
<td>7</td>
<td>Yes</td>
<td>611</td>
<td>(284/327)</td>
<td>Afridev-3 years old. No problems despite community using pump.</td>
<td>Clean, used, all utensils.</td>
</tr>
<tr>
<td>44</td>
<td>Kabodiyon</td>
<td>Yangiobod</td>
<td>10</td>
<td>Yes</td>
<td>239</td>
<td>(114/125)</td>
<td>India MKIII. Non functional-water problem. 2 months. Spare parts.</td>
<td>Clean used, all utensils available.</td>
</tr>
<tr>
<td>45</td>
<td>Kabodiyon</td>
<td>Podstansiya</td>
<td>45</td>
<td>Yes</td>
<td>571</td>
<td>(246/295)</td>
<td>No water-India MKIII. Not working 2 months. Latrine new-not yet used-utensils not available.</td>
<td>Good knowledge of HH. Liked water</td>
</tr>
<tr>
<td>46</td>
<td>Gafurov</td>
<td>Obchi, Kilacha</td>
<td>71</td>
<td>Yes</td>
<td>552</td>
<td>(316/236)</td>
<td>They have a WSS in school. Water comes from irrigation channel to the system in school. Were chlorinating in the past Not stable</td>
<td>Very old. 2 pit latrines, with 12 holes (6/6), one was built in 1963 and 1 for teachers later (2 holes). They are in a very bad condition.</td>
</tr>
<tr>
<td>No</td>
<td>Location</td>
<td>Village</td>
<td>Age</td>
<td>Water Source</td>
<td>Water Quality</td>
<td>Sanitation Status</td>
<td>HH Education</td>
<td>Remarks</td>
</tr>
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<tr>
<td>47</td>
<td>Gafurov</td>
<td>Gafurov</td>
<td>19</td>
<td>Centralized, comes from borehole. Good quality. Normally have 2-3 hours a day.</td>
<td>The pit latrine is in terrible condition. It is not only dirty but also dangerous to use, because of the old wood on the floor. No hand washing facilities exist.</td>
<td>The 2 teachers had training on HH last week. Will start working with children in September.</td>
<td>They don’t have good understanding about UNICEF project. Received all the materials for HH education and soap. Sometimes the community buys water. 1 track 20-35 somoni.</td>
<td></td>
</tr>
<tr>
<td>48</td>
<td>Gafurov</td>
<td>Gafurov</td>
<td>58</td>
<td>Centralized, available all the times. No problem with quality and quantity. The pipes are old. They repaired some but not enough resources for all.</td>
<td>Good superstructure of pit latrine 8/8 holes, the pit is filled up. The pit will be cleaned and the superstructure reconstructed.</td>
<td>Had a seminar last week. Received the training materials. Will start in September.</td>
<td>The toilet was dirty and smelly. No hand washing facilities near the toilet.</td>
<td></td>
</tr>
<tr>
<td>49</td>
<td>Gafurov</td>
<td>Gafurov</td>
<td>32</td>
<td>Centralised, available all the times, even during winter, good quality. Taps are broken; water is running all the times. The WSS was installed 35 years ago.</td>
<td>Have 2 old pit latrines (8/8&amp;2/2) 3 toilets inside the building are closed and not functioning. The superstructure is OK. No hand wash facility and no water.</td>
<td>Last week they had training on HH. Received the training materials. Will start in September working with children.</td>
<td>The WSS system is old and the pipe needed to be replaced. They said that the pipes 35 years old. The water line is just 20 m away, so there is good opportunity to connect it to the system.</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>Gafurov</td>
<td>Kistakuz</td>
<td>5</td>
<td>Water comes from borehole. Good quality. Not available all the times. For hand washing they use irrigation water. The WSS is old.</td>
<td>2 pit latrines, dirty. Soon will be building new one. No hand washing facility in toilet. The second latrine is wooden and old and needs to be replaced.</td>
<td>The HH teachers last week had training and received the materials.</td>
<td>The construction company brought all the materials for reconstructing the toilet. The children said we like the HH education because we find it very important for being healthy.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gafurov</td>
<td>Kistakuz</td>
<td></td>
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</tr>
<tr>
<td>51</td>
<td>Gafurov</td>
<td>Kistakuz</td>
<td>4</td>
<td>yes</td>
<td>1258 (649/609)</td>
<td>Centralized WSS, comes from a borehole in community. Quality of water is good. The existing WSS will be replaced soon by local water supply organization.</td>
<td>The old pit latrine is in very bad condition. Very dirty and smelly. Reconstruction of pit latrine is going on. The pit will be emptied and the old wall removed.</td>
<td>The HH teachers last week had training and received the training materials. Water is not available all the times and they buy transported water 1 track =35 somoni. (10 USD approximately) They have a borehole in the schoolyard but not allowed to use by SES. 7 m deep only and it is shallow. The quality is not good.</td>
</tr>
<tr>
<td>52</td>
<td>Gafurov</td>
<td>Kistakuz</td>
<td>34</td>
<td>yes</td>
<td>1913 (997/916)</td>
<td>Have water from boreholes, available all the times. Good quality. The pump is repaired.</td>
<td>1 big pit latrine with 24 holes. Currently reconstruction is going on.</td>
<td>Last week had seminar, received all the materials. The children will start in September. They have electricity all the times. The pipes are old and broken. The director is going to talk to constructors to put a line to toilet for hand washing and cleaning the toilet.</td>
</tr>
<tr>
<td>53</td>
<td>Gafurov</td>
<td>Yowa</td>
<td>68</td>
<td>yes</td>
<td>125 (65/60)</td>
<td>Spring water comes down by gravity. Good quality and available all the times. Reduced during winter time, but enough for drinking, washing, hand and cleaning.</td>
<td>A pit latrine 2/2. Old, dirty and smelly. The toilet needs basic reconstruction. Comparably remote place. Have hand washing facilities</td>
<td>The only school that didn’t send their teachers for hygiene education seminar. The spring water comes down by gravity for 5km. Inside the school one water point, no taps and hand washing facilities. Did not received HH materials</td>
</tr>
<tr>
<td>54</td>
<td>Gafurov</td>
<td>Yowa (Karimov)</td>
<td>10</td>
<td>yes</td>
<td>1428 (684/744)</td>
<td>Have water from 2 boreholes. Most of the time they have water. Some problem in winter, because of electricity. Going to install 3 water points.</td>
<td>Have 3 pit latrines: 1 for bois, 1 girls and 1 for teachers. No hand washing facilities and soap is not available.</td>
<td>Seminar was last week and they received all the materials. Will start working with children in September. Right now they are repairing the system jointly with PTA. They have access to two boreholes and would have good quality water soon.</td>
</tr>
</tbody>
</table>
## POUR – FLASH LATRINES

<p>| 55 | Gafurov | Uchbog | 48 | Yes old | 378 (218/160) | Use spring water. Plenty of irrigation water that can be used for cleaning the PFL. The amount of spring water is reduced during winter, but still enough for drinking, hand washing and PFL cleaning. <strong>Available all the times</strong> | For this building (they have 2 latrines) <strong>1 pour-flash latrine (PFL)</strong> and <strong>1 pit latrine</strong>. Water comes from spring and irrigation channel. The PFL was locked, because most of the children are out of school | The children have good understanding of prevention of diseases. But first comes boiling of water not hand washing | To the quest what kind of toilet do you prefer the director said pit latrine. Sometimes the water gets frozen during winter time They have HH education from UNICEF and have from ACTED. Have some drawings and picture from UNICEF and ACTED |
| 56 | Gafurov | 44 | Yes old | 658 (322/336) | Centralized WSS. Good quality. The system is in good order. Not enough during winter. Creates problem sometimes to use the PFL | Have 3 latrines. <strong>1 PFL 4/4</strong> Water is a problem. Currently they use the pit latrine. The PFL was closed. The pit latrine is dirty and smelly | Were listed all seven part of HH education | We prefer the pit latrine. We don’t have water all the times, the director said. Have PTA |
| 57 | Gafurov | Kuabishev | 30 | Yes old | 859 (399/460) | A big borehole and deep, Soviet type. Plenty of water and good quality, but depends on electricity. The borehole is used by the community as well | Have 2 latrines <strong>1 PFL</strong>. When the PFL is closed they use pit latrines currently. They said that will open the PFL in September | They are continuing with HH. The HH ‘corner’ was removed because of summer holiday | To the question what kind of latrine do you prefer the director said; “We like PFL’s even maintenance is little bid difficult”. They are modern, clean, no smell and they have hand washing facilities |</p>
<table>
<thead>
<tr>
<th>No.</th>
<th>Village</th>
<th>District</th>
<th>Age</th>
<th>Yes/No</th>
<th>No. of boreholes</th>
<th>Location</th>
<th>WSS</th>
<th>Water quality</th>
<th>Water availability</th>
<th>Health &amp; Hygiene</th>
</tr>
</thead>
<tbody>
<tr>
<td>58</td>
<td>Gafurov</td>
<td>Cultobod</td>
<td>46</td>
<td>Yes</td>
<td>360</td>
<td>Community borehole in the village</td>
<td>Centralized WSS, from community borehole in the village. Good quality. The WSS is in a good shape. The director assured that water is available all the times, including wither time</td>
<td>2 latrines 1 PFL. Problem with water. The toilets are dirty and smelly. Water gets frozen. The only school complained that we had a case when the PFL was blocked.</td>
<td>The HH teachers were absent</td>
<td>The PFL was locked for summer time. There was a lot of dirt inside the pan. The director and the pupils said; “We like PFL”, our pit latrine is very dirty and very difficult to clean it. No water is available inside.</td>
</tr>
<tr>
<td>59</td>
<td>Gafurov</td>
<td>Isfisor</td>
<td>36</td>
<td>Yes</td>
<td>561</td>
<td>community borehole, around 50 m deep, have WSS inside the schoolyard, old. Good quality water. Have a reservoir to keep water. Some problem during winter.</td>
<td>2 latrines 1 PFL. Water is a problem. Some times we bring water from village to fill in the tank in toilet. Sometimes we use the pit latrine when water is not available.</td>
<td>Hygiene corner was available, the children have good knowledge of disease prevention</td>
<td>A hand pump in schoolyard would be very good. Problem with water in winter They have 4 boreholes in the village</td>
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</tr>
<tr>
<td>60</td>
<td>Isfara</td>
<td>Matpart</td>
<td>65</td>
<td>Yes</td>
<td>336</td>
<td>Community borehole</td>
<td>WSS doesn’t exist. Water is a problem in school and community as well. They use transported water. Quality is not good. SES advised to boil water before drinking/hand washing.</td>
<td>2 pit latrines. 1 for boys 1 for girls. Reconstruction of pit latrine is going on. The teachers are participating actively in latrine reconstruction but not the parents. They are paid</td>
<td>Had a seminar for teachers. The teachers and the children are active as it is in Khatlon</td>
<td>Electricity is a problem during winter The children had good knowledge of HH and prevention of water related diseases. They want water for hand washing, paper in toilet and hygiene kit in, for cleaning the toilets</td>
</tr>
<tr>
<td>61</td>
<td>Isfara</td>
<td>Chilgasi</td>
<td>36</td>
<td>Yes</td>
<td>1073</td>
<td>Use irrigation water. The community has WSS but there is no water. Have a reservoir for water and bring water from river. Not stable and not safe for health</td>
<td>Have 2 pit latrines. Both of them are dirty and not in good condition. Dirty smelly.</td>
<td>The HH teachers both went to Russia and the new teacher is not aware about HH education.</td>
<td>Received H2S bottles but currently out of stock. No check result was available.</td>
<td></td>
</tr>
<tr>
<td>62</td>
<td>Isfara</td>
<td>Isfara (the town)</td>
<td>57</td>
<td>Yes</td>
<td>492</td>
<td>Have water every day for 3-4 hours. They collect water in a reservoir. Sometimes they buy water. The WSS is old, taps are broken. Electricity creates additional problem</td>
<td>Have 1PFL. When there is no water in the pipe we take it from reservoir for PFL. Complained that the seats/holes are not enough and too small. No space for the bucket with water</td>
<td>Repairment is going on and the HH corner was taken in the store. The children were out of school</td>
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<td></td>
<td>Isfara</td>
<td>Lohuti</td>
<td>2</td>
<td>yes</td>
<td>806 (469/337)</td>
<td>Centralised. Not enough water during winter. Have the WSS, but old and broken. Quality is good (checked with H2S bottles)</td>
<td>Have 2 toilets. <strong>1 PFL was locked</strong> and they were using the pit latrine. To clean the PFL we use irrigation water.</td>
<td>The children have good knowledge of HH. They now the importance of hand washing</td>
<td>They have the HH corner/desk. Currently it is removed to a classroom, because of summer holidays</td>
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</tr>
<tr>
<td>64</td>
<td>Isfara</td>
<td>Nuhul</td>
<td><strong>69</strong></td>
<td>yes</td>
<td>548 (313/235)</td>
<td>Centralized. Good quality in school and not good in community (checked with H2S bottles). <strong>Available all the times</strong>, no problem. Have 3 water points in school.</td>
<td>Have 4 latrines. <strong>1 PFL.</strong> The PFL is in good condition, used and clean. Water and hand washing facility and soap are available and used.</td>
<td>HH is going on every morning. The children have good knowledge. H corner is available.</td>
<td>They checked the quality of water with H2S bottles. This is one of the schools that said firmly WE WANT PFL. It can be a little bigger.</td>
<td></td>
</tr>
<tr>
<td>65</td>
<td>Isfara</td>
<td>Nawgilem</td>
<td><strong>43</strong></td>
<td>yes</td>
<td>335 (139/196)</td>
<td>Have a hand pump in school that is broken. Use transported water for drinking. Water from the HP was salty. A water reservoir is available where water comes from river through a channel by gravity. The quality is not good.</td>
<td>They had and would have a <strong>pit latrine</strong>, because of water problem. Currently constructing a new pit latrine. The old one was dirty, smelly and with no hand washing facilities.</td>
<td>Two weeks ago had a seminar. Will start working with children in September</td>
<td>The director asked to install a hand pump in the school yard</td>
<td></td>
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</table>
### Annex 2
### List of people met

<table>
<thead>
<tr>
<th>Name of the Organisation</th>
<th>Name of people</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1</strong> ECHO</td>
<td>Zafar Teshaev</td>
<td>Senior Programme Manager</td>
</tr>
<tr>
<td><strong>2</strong> ECHO</td>
<td>Adam Vinaman Yao, Ph.D</td>
<td>ECHO Correspondent for Central Asia</td>
</tr>
<tr>
<td><strong>3</strong> Save the Children</td>
<td>Pervez Shaukat</td>
<td>Senior Programme Manager</td>
</tr>
<tr>
<td><strong>4</strong> Save the Children</td>
<td>Mawzuna</td>
<td>Health Project Manager</td>
</tr>
<tr>
<td><strong>5</strong> IFRC and Red Crescent Societies</td>
<td>Shawkat Ismailov</td>
<td>Water and Sanitation and Organisational Development Programme Manager</td>
</tr>
<tr>
<td><strong>6</strong> IFRC and Red Crescent Societies</td>
<td>Elena Lapina</td>
<td>Programme Coordinator</td>
</tr>
<tr>
<td><strong>7</strong> ACTED</td>
<td>Steven A. Zyck</td>
<td>Country Director in RT</td>
</tr>
<tr>
<td><strong>8</strong> ACTED</td>
<td>Thomas Wildman</td>
<td>Wat/San project manager</td>
</tr>
<tr>
<td><strong>9</strong> Healthy Lifestyle Center</td>
<td>Sharipov</td>
<td>Director of HLC, Tajikistan</td>
</tr>
<tr>
<td><strong>10</strong> Tajikselkhozvodoprovodstroy (Ministry of Water Supply)</td>
<td>Sharipov Gulmamad</td>
<td>Chief Engineer</td>
</tr>
<tr>
<td><strong>11</strong> School no. 43 in Bokhtar</td>
<td>Boboev Sadruddin</td>
<td>Hygiene Promotion teacher, deputy of the director, trainer</td>
</tr>
<tr>
<td><strong>12</strong> Local NGO “Sitorai Najot” UNICEF Local NGO partner</td>
<td>Kishakov Amon Juraevich</td>
<td>Trainers HH</td>
</tr>
<tr>
<td><strong>13</strong> Hukumat of Vaksh District</td>
<td>Saodat Anwarova</td>
<td>Deputy Chairman</td>
</tr>
<tr>
<td><strong>14</strong> Vaksh District’s Department of Education</td>
<td>Talbakov Golibsho</td>
<td>Education Officer</td>
</tr>
<tr>
<td><strong>15</strong> UNDP Community Wat/San programme</td>
<td>Rustam Faiziev</td>
<td>Senior Engineer</td>
</tr>
<tr>
<td><strong>16</strong> Oxfam GB</td>
<td>Peter Pichler</td>
<td>Country Programme Manager</td>
</tr>
<tr>
<td><strong>17</strong> Republican Sanitary and Epidemiological Services</td>
<td>Pirnazar Shodmonov</td>
<td>Head of the Department</td>
</tr>
<tr>
<td><strong>18</strong> Polytechnic University, Department of Water and Sewerage</td>
<td>Dawlatmirov Jangibeck</td>
<td>Head of the Department</td>
</tr>
<tr>
<td><strong>19</strong> Ministry of Education</td>
<td>Mirzoev Mirmahmad</td>
<td>Coordinator for Wat San for schools</td>
</tr>
<tr>
<td><strong>20</strong> Kabodiyon District’s Department of Education</td>
<td>Mirkhojaev Abdujalil</td>
<td>Head of the Department of Education</td>
</tr>
<tr>
<td><strong>21</strong> Kabodiyon District’s Department of Education</td>
<td>Egamberdiev Egamboy</td>
<td>Deputy to the Head of the Department of Education</td>
</tr>
<tr>
<td><strong>22</strong> Enterprise LLC Furkat (Dushanbe)</td>
<td>Mahmadov Tohir</td>
<td>Director of the Enterprise</td>
</tr>
<tr>
<td><strong>23</strong> SES Konibodom (district)</td>
<td>Ermatov Husain</td>
<td>Head doctor of district’s SES</td>
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Annex 3

**Interview: Save the Children**-Dr. Perez Shauna.

Very keen to join UNICEF as partner in the WES program. We discussed latrines, says pit latrine the Tajikistan standard in schools.

They have installed hand pumps (does not know which type). In fact he says they have expertise and capacity in all 3 elements of the Sector.

He is in full agreement that 1 hand pump be made the standard for Tajikistan.

Their twin pit latrines cost as follows: 6 units=3500$, this does not include the cost of the community input upon which they correctly insist. It is a high cost. .

Director did not ‘like’ pour flush-he maintains that because the latrines have to be cleaned there is a tendency to lock the latrines so as not to clean them again. I am not at all convinced this is a valid argument but it merits further investigation.

We will meet the water staff later in the evaluation visit...

Annex 4

**Interview International Federation Red Cross** - Shawkat Ismailov and Elena Lapina

They have special expertise in gravity flow-at cost of 4-20$/capita

Writer asked if any problems with UNICEF during their association-response: problem with was late supplies. UNICEF responsible for supplies which IFRC allege was always late. This is not a new issue with UNICEF supplies-WES team to factor such delays into schedules

IFRC pour flush latrines-their costing 900$/6 units) 1 building. Including slab. UNICEF 4 cubicles-4000$

Cost can be reduced by 50% if use mud bricks or cement blocks, UNICEF now using mud bricks except 800mm plinth with burned bricks which is a good compromise.

While implementing for UNICEF, IFRC used ‘brigades’ of parents to dig pour flush pits-1 engineer responsible for 12 brigades. They have 69 district offices-they paid parents a small amount.

Their 2 health officers were trained by UNICEF in HH education; they in turn trained their district health workers who in turn trained the teachers.

IFRC informed that ACTED-French NGO funded 3500 hand pumps in Khatlon Region, not a success, water quality a problem and pumps not maintained. These are suction pumps so water level not more then 7m. Recently a meeting held to discuss pumps-criticism that pumps too small (depth, polluted water?) and capacity for 10 households. They either dug well or jetted-no drilling.
Said there are private drillers here.

They like the pour flush but of course must have water-IFRC say that it could be a standard.

Pit latrines-pits not lined, concrete on bottom with holes-only totally sealed if water level high.

Annex 5

Interview-Chief Engineer Rural Water Supply Department. Sharipov Gulmamad

Difficult interview-does not like hand pumps-relates them to high rainfall (i.e. need high rainfall to allow them to function) and insists that they are an ecological hazard- cause land subsidence. Both assertions are absolutely wrong; the hand pump is one of the most eco friendly water lifting devices-one can be sure after exerting an effort to pump say 5 liters of water the person who pumped the water will not waste a single drop. How different from turning a tap and not caring about the water coming out. And rather ironically the waste of water seen with pipes that have no taps is colossal.

He insists that for a village of 300 households (6.5/hh) it is much cheaper to drill 1 deep b/h and insert a submersible pump-says it’s power consumption only 2-6kwh to pump 4000 liters. This may be true under certain circumstances but electricity if a problem then the HP is more desirable. True, one will have to drill 8-9 boreholes which even with the relaxed parameter limited yield borehole will be more expensive but the water supply will be more reliable both in terms of quantity and quality.

He quite rightly pointed out the advantages of gravity flow schemes but also liked drawing water from rivers. Generally in the rural areas this is a bad option, the water needs treatment-if one can guarantee daily chlorination it is a possible option but not as fool-proof as the hand pump.

He noted that ACTED had installed 6000 shallow hand pumps of which 90% are not functioning. I am not sure about the 90% but he was wrong about the number-they had installed 3454 shallow hand pumps.

I finally brought up the point of the need by Government to standardize on one hand pump for Tajikistan. The advantages of such standardization are immediately apparent and he agreed this would be a sensible move but only after again making the point that hand pumps should be the last water supply option.

Clearly it is imperative that UNICEF discuss with him further the advantages of HPs and how schools and the community appreciated them. I would strongly recommend that UNICEF send him to China to see how critical hand pumps are in the rural setting.
Annex 6

Interview: Country Director ACTED- Steven Zyck.

Saw country director-water man on Monday. Keen to be partners in WES endeavor. ACTED is probably the largest NGO in Tajikistan-have 17 engineers including drilling engineers and 3800 hygiene promotion workers.

They have expertise and capacity in hand pump installation, gravity flow schemes, drilling, HH promotion.

They are active in 3 regions, one of a few NGO’s working in Badakshan Murgab district

He confirms that they installed 3454 shallow hand pumps and 300 deep hand pumps. They bought a PAT 301T drill-this proved to be underpowered for the geological formations they were drilling in and they presented it to a local NGO. They have plans to procure another larger powered drill. Probably a mistake—they may not be aware of the relaxed parameter drilled hole specifically for limited yields—we will discuss with the water team next week.

Annex 7

Interview: UNDP- Rustam Falziev, Senior Engineer.

This was an interesting discussion. UNDP think ‘big’. Their water program is essentially the rehabilitation of moderately large community schemes. See illustrations below. They provide water, are not involved in sanitation but interestingly have a HH education team. They focus on deep boreholes and the distribution system and also on gravity flow schemes.

When I mentioned that their supplies (not gravity flow schemes) are dependent on intermittent electricity supplies, Rustam was ready with an answer-clearly poor electricity supplies are factored into their approach.

1). They ensure that significant storage reserves are always available.

2.) the community is warned always to keep sufficient drinking water for just such an eventuality.

The HH teams reinforce these messages.

A novel technique is the use of filtering canal water by constructing a filter bed below the canal floor and pumping the filtered water, after chlorination, into a main supply.

He does not like shallow hand pumps but accepts deep hand pumps are a useful lifting device. He had most exciting news—the deep hand pump, (he was not sure if the India Mk.III or Afridev) is being manufactured in Tajikistan.
Note large scheme, storage tower and pump house-this is relatively high tech.

Annex 8

Interview: OXFAM-Peter Pichler, Country Prog. Manager.

Very interesting insights by the Prog. Manager. Oxfam shifting to a new strategy, hand pumps, eco-san (a radical departure from normal and brave to attempt this innovative technology) organic farming. They also intend to lobby for a unified operation and maintenance approach—at present no-one knows who is responsible and O&M is seldom carried out efficiently.

Peter asserts that the NGOs in the sector are looking for a leader (it should be UNICEF, but it is not; UNICEF ‘leads’ the sector monthly co-coordinating meeting, but such issues apparently as O&M are not discussed and it is not the leadership the NGOs a looking for). The NGOs all have different approaches, no coordination is taking place, UNICEF is not perceived to cooperate with the implementing NGOs. Further he asserts that all the NGOs are looking for funds so that they implement in the Sector, but these are not coming into the country because UNICEF does not lobby their cause. According to Peter there are several major donors (e.g. DFID) who have no implementing capacity and who would like to channel funds into the sector through an international institution—UNICEF should be that institution, but according to him, it is not.

There are some excellent NGOs who would admirably implement the WES program for UNICEF—but with limited funds the Sector cannot advance.

He spoke with conviction and compelling passion and while critical of UNICEF, he was objective.

It behooves the management of UNICEF Tajikistan to meet with the high capacity, well established, technically competent NGOs and discuss this further. If indeed funds are waiting to enter the country to be channeled into the sector—let UNICEF make haste in bringing them here.

Clearly this was quite a contentious discussion—I can only report back to UNICEF on my perception of the discussion.
Annex 9

Interview: Project Manager, ACTED-Tom Wildman.

This was the best interview I had. This man is an absolute asset to Tajikistan and the Sector. He is knowledgeable, enthusiastic, and keen to reduce costs.

We spoke about the approximately 3500 shallow hand pumps that they installed. They installed the Pakistani Indus in response to the IDP emergency and the drought between 1998 & 2002. These pumps were for refugees and to relieve the drought. The Indus is a cheap suction pump which breaks down every day BUT a 6 year good can repair them-indicates a good pump!

He is in full agreement that one of the most important actions to take in the Sector and sooner then later is to standardize on 1 hand pump—a message I have tried to get across the minute I stepped off the plane!! He favors the Afridev (as do I). But which pump should be decided by a round table conference of all interested parties chaired by the Ministry of Rural Water. Despite the Chief Engineer’s suspicion of hand pumps, he did agree that standardization on 1 pump was a logical action to take.

We discussed drilling costs—very high in Tajikistan if they engage a commercial driller for a 40m hole 40000US$—i.e. 100US$/m. That includes casing and screening to 40m and the pump. However if they drill with their own drill the cost is around 48US$/m but that does not include drill servicing or amortization on the drill rig. But half the cost is impressive. I found it very encouraging that he was so enthusiastic to cut drilling costs and open to every idea I presented. The borehole (if a hand pump is to be used) is the single most expensive element of a hand pump based water supply—so cutting costs is crucial. They use PVC casing which is a step forward from steel casing which we heard was routinely used here.

His gut feeling of the degree of shallow ground water contamination in the Khatlon region would be 40-50%. The large Soviet farming enterprises are the probable cause with fertilizer making its way into the upper groundwater layer. Shallow HPs must be considered as producing non potable water. Deep hand pumps (Afridev, India Mk III whichever is chosen as standard) should be vigorously promoted.

ACTED would, I believe, be an excellent partner to implement the UNICEF WES school program.

Annex 10

Interview: Republican Healthy Life Style Center—director Dr. Azizullo Sodirovich

I asked if he would support us in having HH in the general school curriculum. He said he has been ‘fighting’ the Ministry of Education for 3 years to have just 1hr/week of the topic. To no avail.

The Center have mounted a special program (Valeology—I have not heard of the term before defined as: Vale" means "health" in Latin. New science based on traditional sciences (genetics, biophysics, biochemistry, physiology) and non-traditional methods (Yoga and
others). Its subject is diagnosis and correction of human health.

This is taught in Russian universities only and Russian scientists are still arguing whether it is a science. They plan to run the course for 6-8 hrs/year. It is a broad program which includes HIV and much HH education. Ministry of Education will not agree to include this topic in the curriculum. In Russia the course is included in biology lessons. The Center staff will be going to a workshop in Ukraine on Valeology where some staff members will be trained. The director is sure the Ministry of education here will change its mind.

He said he was very satisfied with the UNICEF HH program and has seen results in the field. So impressed are they that they too intend to make schools the entry point to reach community for their plans in HH education-through schools (PTAs)

**He agreed the student to latrine ratio was far too high.**

Says he personally is great proponent of hand pumps-he thinks Ministry of Water do not like hand pumps because vested interests dictate that they build large water supply schemes,

**Annex 11**

**Interview: Republican Sanitation Epidemiological Services**-Pernazar Shodmonov, Head of Department.

SES began working with UNICEF in 2004. The head of Department agrees the quality of water is not as good as the Tajikistan standard demands, for various reasons, finance, technical problems, equipment, intermittent electricity etc.

**They like the H₂S bottles.** I asked how the Department reacts to a black bottle. Strictly speaking the Department should immediately check the sample bacteriologically and chemically and they are responsible to determine the source of the contamination. BUT, the bacterial measurement equipment is at the district laboratory and the sample must be measured within 2 hours of being collected. (This is a very conservative figure). In addition only the regional centers have chemical measurement capacity. A virtually impossible situation, few samples will reach the district laboratory in 2 hours. Then there is the reporting difficulty-from the school to the laboratory. In theory SES will come to the school, in practice perhaps not! However if SES does locate the source of contamination it is the responsibility of the Government water department or the community to fix it.

In Soviet times they had mobile laboratories to measure in the field and would easily do 300 measurements a week-now they do 30.

The standard in Tajikistan calls for bio/chemical measurements to be taken at major water sources 4 times a year-it is not done.

The writer asked if portable bio/chemical measuring kits would ensure that school bio/chemical measurements would be rapidly done. The answer was affirmative and one of the recommendations of this evaluation is that UNICEF provides these kits to SES district
offices/laboratories where the WES school project is active. There are many precedents for this action.

Annex 12

Interview: ECHO-Adam Vinaman Yao  ECHO Correspondent for Central Asia & Zafar Teshayev, Sr. Program Officer.

The mission visited ECHO essentially as a public relations gesture-they have provided major funding for the WES program.

I gave them my initial impressions (16/4/07 after 2 field trips only) -they agreed with the conclusion that the software package was working well. They raised the point that they have seen pour flush latrines in schools that appear to have no water-we must look into this.

I emphasized that in such schools there was need for a hand pump-a twin (or single) pit pour flush pre supposes that the school has a secure water supply. Often a hand pump will provide such a supply.

I discussed the Government’s reluctance to accept the hand pump as a major tool on the Sector-the chief Engineer especially suggests they should be the last line in the supply options. They both thought that standardization on 1 hand pump was a logical move and were in full agreement.

Adam Vinman correctly pointed out that now that the Soviet era is over technocrats must adapt to a new mind set-while he may think the hand pump is a step back in technology options, in fact for the next decade or so it should be seen as the major low cost water system option. I suggested that one of my recommendations would be that UNICEF Tajikistan send the Chief Engineer to Pakistan/India to learn about hand pumps-they thought China was more appropriate. Adam agreed that this should be a recommendation of the evaluation, together with the need to convince the Chief Engineer that what may appear ‘old’, ‘backward’ technology; it is not.

Annex 13

Interview: Water Supply and Sewage Engineering Department, Polytechnic University- Dawlatmirov Jangibeck, Associate Professor and Head of Department.

The mission visited the University Department to discuss design changes made to the pour flush latrine by one of Department’s Professors. The Professor involved had died recently and no-one knew of his work. The mission asked the current Head if they were in a position to look at the design features of the present latrine and make suggestions for changes that would lower the cost of the latrine and make it more amenable to cleaning. In the text of this report the writer makes clear his opinion that the latrine appears over-designed. Mr. Jangibeck said this was no problem, they have experience of designing latrines and especially they are focused on ecological aspects. The suggestion would be for WES section to go with all the drawings to discuss possible design changes.

Quite by chance the discussion turned to drilling and we were told that they have a drilling capacity. The technical university teachers have a number of drilling rigs and operate as a
private drilling company. The prices quoted are very attractive-35$/m or even cheaper depending on the geology. This is good to know.

Annex 14

Interview: Ministry of Education-Headquarters-Mr. Mirzoef Mirmahmad, Coordinator of WES activities/projects in schools.

To the question ‘Is the Ministry happy with the UNICEF WES program and what changes would they like to see’? His response as follows: very happy with the program but there are a few problems. The prime one was the fact that starting in 2007 UNICEF are implementing the program in 5 districts intervening in 37 schools which have either no water or water problems. Further since 2002 UNICEF have worked in 15 districts in 300 schools that all have water problems. The interview was on 23 April-by now this is the same conclusion reached by the evaluation mission (not so specific with numbers but the principle that work is going on in schools where it should not!). However the UNICEF response is that the 37 schools will not all have pour flush latrines, the donor has now insisted that schools with water problems must have pit latrines. UNICEF has built pour flush in 8 of the 37 schools, there 8 have a secure supply, the others will get a VIP latrine rehabilitation-the pit latrines already in the schools will be rehabilitated and modified to become VIP latrines-of limited VIP effect.

He thought the design of the latrine ‘perfect’.

He would like MoE staff to monitor Project schools and asks if UNICEF can support this. He himself for example can only see 3 schools every 6 months-such rare visits cannot give him the correct impression of progress (or lack of it!).

His perception is that HH activities are declining both in schools and national level. The mission enquired how he came to say this? It seems to be based on the fact that UNICEF is not supporting a summer camp in 2007. This is a flawed conclusion. To equate no summer camp as a measure of HH activity is naïve.

The Mission brought up the topic of including HH promotion in the curriculum. His response was that he has had at least 20 meetings on this issue. He pointed that the Hygiene/Health related subjects are going on by teachers and schoolchild successfully as an out of curriculum activities so there is not need to include them in the curriculum. Basically, 15 other subjects are competing for inclusion in the curriculum; he cited an example of Focus, and the program of the Ministry of Emergency Situations who would like their topic to be included. He did point out that this package did contain much of the HH promotion material-however this is not a satisfactory answer.

This issue should be deal with at Nurul’s and Yukie’s level; it needs sustained, intense advocacy.

Annex 15

Interview: Kabodiyon District Sanitary and Epidemiological Services Office, head of the office Ermatov Husain
SES considers 5-15m to be ‘shallow’ water and according to SES standards this water should not be ingested. Hand dug wells are sometimes chlorinated in an effort to improve the supply. An estimate from the director is that 90% of this shallow water is ‘bad’; 10% ‘good’. Yet, standards may be one thing, reality is another-and the shallow water is drunk all over district

They have bacteriological analysis capacity, but meager resources to collect samples, pay for reagents etc, and would welcome support. There is no question that they dutifully call at all schools to check the water, but there was confusion as to the meaning of check. It appears they do not check in the laboratory a reported black bottle by the school. Their input is to tell the school not to drink the water or to boil the water.

10% of this area are connected to a central line-90% have shallow hand pumps. Anything pumped from shallow hand pump they say should be boiled-but we know that this does not happen because at most schools bottle does not turn black and they consider it fine for drinking.

There is a real need in this area of intense irrigation to analyze for nitrogen because of the large past irrigation activities and fertiliser seeping into the upper aquifer.

Issue of boiling versus chlorination-cheaper? More effective?

They have nice equipment, a sophisticated autoclave, several ovens but are very short of reagents and can only analyze a ‘few’ samples/month.

I would recommend strongly that UNICEF provide Hach (or other make) kits to each laboratory where the project is on-going to allow the project to be closely monitored for both bio and chemical content. There can be systematic errors in the H_2S bottles, e.g. poor quality batches, and all need checking.

To be discussed further with SES headquarters but, both at the highest level and the district level, they agree such a move would substantially increase their capacity.

Annex 16

Visit to Hand Pump Factory Mahmadov Tohir Director of the Enterprise LLC Furkat

One of the cardinal factors in a successful community/school hand pump water supply is the production of the hand pump if possible in-country.

The visit to LLC “FURKAT: revealed that Tajikistan will be able to produce either the Afridev or India MKIII. The owner of the factory visited had HTN drawings from 2002-if UNICEF initiated local production then the latest SKAT drawings must be followed. Mr. Tohir Mahmadv agreed that independent pre delivery inspection was essential. He could not give an estimate of the minimum number that would allow him to make a production run. This will need negotiation but the start-up local production process in Pakistan by UNICEF could be followed. 4 companies were selected after an independent inspection of their potential. They were offered an exaggerated price/unit for 200 units each working strictly to the SKAT specifications. The high price /pump were thought reasonable because of extra
expenses on a first run and also to encourage the companies to produce the pump. Throughout production they were scrutinized. They were then offered another production run each of 200 pumps at a lower price and then subsequently they were free to bid for a UNICEF/Government tender. Prices of pumps plummeted from 500$ to 148$ (17 years ago). Critical of course is the number of pumps to be produced per annum in Tajikistan, which in turn will depend on whether UNICEF expands its program, if the NGOs expand and if a pump is made the official standard community pump.

The factory space was large but the equipment old and in poor state. But then often amazing production runs are seen from such factories. The owner alleged that the capacity of his factory was 5000 units/year. That is a large figure and the writer doubts that even half that capacity will be required for the next decade.

However the mission is convinced that local production of a ‘standard’ community hand pump is possible in Tajikistan-potential numbers will dictate whether production is viable and the final price/unit.

Annex 17. Disclaimer and CV of Peter Wurzel.

This report does not necessarily represent the views of UNICEF Tajikistan; it represents the work and views of the UNICEF Evaluation Mission (Peter Wurzel), his findings, conclusions and recommendations.

CV of Peter Wurzel.

1963-Fellow, I.A.E.A.


1968-P.hD. Nuclear Hydrology.

1972-77-Professor of Hydrology, University of Rhodesia.


1987-1996-UNICEF staff member in WES sections: Pakistan and Mozambique.

Annex 18. Template of Questionnaire.

WES EVALUATION 2007-CHECK LIST FOR TAJIKISTAN SCHOOLS

Date………..

District/School name…………………………………project/no project

Type of water supply-is it community managed?

If HP-type, age, how O&M, depth of pump, users out of school? History of failure,

H₂S bottles epidemiologist-water quality

Latrine type/HH latrine?

Number of students in school- total…………………m…………f…………

Number of latrines Girls-any changes to latrine design? 
Boys-any changes to urinal?


Clean? Used?

Student peer gp established? PTA established?

Education materials? a) A hand book on school sanitation 
b) A training module for school teachers 
c) Set flash cards 
d) Snake and ladder game

Orientation of school directors? Life skills?

Health checks on children?

Check on children’s HH knowledge

School equipment by UNICEF?

Were parents involved in digging pits?

Which NGO implemented? Comment on quality of construction
Annex 19.
EXTENDED WES EVALUATION REPORT, SOGD

1. Acronyms

WSS – Water Supply System
PFL – Pour Flash Latrine
PTA – Parent-Teachers Association
SES – Sanitary and Epidemiological Station/Services

2. Sogd Region – an Overview

The Sogd Region is located in northern Tajikistan, bordering on the Uzbekistan regions. One of the principal Central Asian waterways, the Syrdarya, flows through the Sogd Region and many important international roads and railways cross it. Its population is more than 1,956,300 of which 26.2% live in cities and towns and 73.8%, in rural communities. Administratively, the region is divided into 14 districts and 93 sub districts (Jamoats). The climate of the Region is continental. A relatively cold winter is abruptly followed by a rainy spring that, with equal promptness, gives way to a dry summer with no rainfall for months. Unstable air temperatures are typical for the autumn. The topography is incredibly uneven and varies, from a height of 2000 m above sea level, to terraced flood plains along the Syrdarya, surrounded by the hills Isficor, Aqbel and Spetau. At the same time there are Ice Age mountain lakes, having good quality water deposit like the Alpine Lake Iskander-Kul.

3. Water supply in schools

Not any activity was planned to provide water to schools in Sogd, except water for pour-flash latrines for washing hands and cleaning the latrines.

In majority of the targeted schools visited in Sogd Region, Gafurov and Isfara districts, water comes from centralized water supply system. The system is connected to the big water treatment facilities, boreholes or springs. It is largely depends on electricity and pumping equipment, except springs in 2 schools where water comes down by gravity. A real problem is electricity during winter time. Quality of water in such a system is quite good and there was no complains about it.

The second source of water supply is borehole inside the schoolyard that gives good quality water to the schools. All of them have pump and depend on electricity lines. Providing electricity to such a pump is priority and it is connected in some cases to a special line that provide water to hospitals and other important community institutions.

The third source of water in Sogd schools is water from springs. The spring water in school is good quality. The amount of water is reduced during winter time but still enough to cover such demands like drinking, hand washing and cleaning the pour-flash latrines.

The last source of water supply in Sogd schools are irrigation water and water from river. Mostly waster from these sources used for cleaning purposes but in a few communities, 3 to 5 mostly in Isfara district it was found they use it for hand washing and drinking. This water
can be contaminated not only bacteriologically, but also chemically. Officially such water is not allowed to use for drinking and washing hands but no guarantee that it will be not used. The only way to prevent the community to use contaminated water is to provide them with good quality potable water.

Only one hand pump was found in one of the school in Isfara, which was broken and was not used for a long time. The director of school said that this place is very high compare the level of water in the river and getting water with hand pump is not easy here. The water we had from this hand pump was very salty and not good quality. Such water can be used for cleaning purposes only.

8 directors of schools from 20 visited assured that they don’t have problems with water supply when there is electricity. The WSS of school is connected to the central line of the community water supply system. When the system is centralized and serves the community where the population number is big, electricity to such a system will be not cut off, even during winter time.

In most of the schools the WSS are old and as mentioned above the taps are broken or there is no tap at all, so whenever water is available it flows down to a drainage outlet or other places. The WSS in schools were not repaired for a very long time after breakdown of Soviet Union. There are just a few schools (2 from 20), where the directors said that they reconstructed the WSS system in their schools.

The territorial/district’s SES is regularly attending the schools and checking quality of water mostly for bacteriological contamination. Most of the schoolchildren interviewed know that, if the water comes from irrigation canal, river or other open sources, it should be boiled. When we asked about the most important message to prevent disease, they said “Boiling water” – Hand washing was second.

According to the deputy of Gafurov District’s SES they have a good laboratory and staff to perform bacteriological and basic chemical analysis to test quality of water. The problem is old equipment and lack of reagents/chemicals for making analysis. The second problem is transportation of samples from remote villages/fields to the laboratory. Not enough fuel for vehicles

**Quality of water and H2S bottles**

The majority of schools receiving water from centralized system had no complain about the quality of water. Only some of them particularly schools in Isfara had no centralized water supply and were using water from river or irrigation channel were the water is not adequate quality.

Only the ‘old schools’ where pour-flash latrines were build, have mentioned that the children did quality testing of water in schools and community. In two schools in Isfara district they mentioned that quality of water taken from centralized system in school was good. But the water they had from river and irrigation channel was not good and the bottles were black. They recommended to boil the water before using.

**4. Sanitation in schools**
The initial plan was to build/reconstruct 30 latrines in Sogd, including construction of pour flash latrines. Building pour-flash latrines was found inappropriate in Sogd because of existing problems; water supply is not stable in schools and community, the water supply system in most of the schools are old and broken, electricity supply is not stable in winter time and available only for 2-4 hour a day and cold weather in some places (water gets frozen). Later these plans were changed and according to the new plan 8 VIP latrines will be constructed and 14 existing latrines will be reconstructed in two districts, Gafurov and Isfara.

**Pit latrines**

The existing pit latrines are in a terrible condition. Most of them are really dirty and smelly; the walls are broken and plastering is in a bad condition. In some of the schools the latrines are wooden including the floor. They are not only dirty but also not safe for the children to use. The roofs and the doors are broken and need to be replaced. A serious problem is the pit. More then 50% of them are filled up and need to be cleaned (pumped out). The construction engineer and directors of schools are struggling to clean up the pits. They agreed with a local government company and soon will start to clean up all the latrine pits, before the reconstruction will start. All these latrines would be replaced or reconstructed by UNICEF partner the construction company in June month. In some schools the pits are dug. The pit would be cemented/plastered hermetically where the ground water level is high. If the content of the pit goes out to the soil around the pits, the ground water will be contaminated. SES will not allow constructing or using such latrines. It will makes the environment (in this case the ground water) contaminated

This is important to note that none of the existing pit latrine was found to be clean; all of them had bad smell, pieces of paper, flies, urine on the floor or around the holes and so on. To keep clean such latrines, when there is no regular water supply and hygiene promotion is in place, very difficult.

This condition clearly shows - how important is to have pour-flash latrines where water is available and hygiene education is as good as it is in Khatlon. This will keep the environment clean, reduce water and sanitation related diseases and influence the community to copy what is done by UNICEF, WES project in schools.

No hand washing facilities was found inside or near the pit latrines in most of the schools.

**The pour-flash latrines (PFL)**

From 20 latrines assessed in Sogd 9 were PFL’s. The PFL were build before the year 2006 with the old WES project. The evaluation was carried out in June month when most of the schoolchildren were out for summer holiday. Only senior schoolchildren were attending school, because of examination and also most of the school teachers taking exams and participating in repairing the school building and classrooms. Because of it most of the PFL’s were locked, not cleaned every day and were not functioning. The schoolchildren and teachers were using the pit latrines.

In some schools the PFL were not cleaned because they are not using it at summer. They were dusty, because the windows are open, but there was no smell and flies.
Some schools have from 2 to 4 latrines. When the PFL is out of order or there is no water they use the pit latrine.

The taps for hand washing were broken in more than 60% of the PFL. From 9 in 3 latrines soap was available. Water was available at the time of visit in 5-6 of them. In 2 of them the plastic pipe showing the volume of water inside the tank were broken.

One of the PFL had a reservoir to keep water outside of the latrine, close the latrine wall. The director said when there is low press in the pipe and it doesn’t go up to the tank inside the latrine we carry up water from this reservoir.

To the question if the PFL was blocked during the last year only one answered that they had a case when the pan was blocked by a piece of soil and paper.

Most of the tanks inside the latrines are filled by the pumps from centralised WSS. In some of school latrines they are filled with a bucket when the centralised system doesn’t function.

In some of the PFL ceramic pans are installed. All were clean, but were not used at least for the last week. The pan, the floor and hand washing taps were dry. The space around the pan inside the cubic is convenient for cleaning and water flow, so it can go down to the pan.

Most of them have a hole under the door frame without installing pipes to let out water after cleaning the latrine floor. Two of them had not holes or outlet pipes.

All of them had hygiene messages and picture on the wall to illustrate the use of latrines and prevention of diseases.

NOTE: some schools have 3-4 latrines. For example; school number 10 in Gafurov district has 3 latrines. School number 48 has 2 separate building and 2 latrines for each building, 1 pour-flash with 4 seats and 1 pit latrine with 2 seats.

**The ratios of children to latrine seats in Sogd (Gafurov and Isfara districts)**

The ratio of schoolchildren to latrine seat is lower in Sogd compare to schools in Khatlon. (see annex 2). The ratio varies from 20 to 138 children per seats. The average ratio for 20 schools checked equals to 65 (in average for 65 schoolchildren 1 seat in the school latrine is available). The average was calculated as a sum of all child ratios to latrine seats divided to 20. 20 - is number of schools visited. In Khatlon this ratio was 80-90 children per seats.

The girls in Isfara asked to build latrines separate for girls from boys. The latrines for boys/men can be build in the opposite side or corner from girls/women’s. A good idea, taking into account the existing culture of people in Tajikistan and probably most of countries in Central Asia.

**5. Health and Hygiene (HH) education and promotion in schools**

Unfortunately end of May and June months are not the best time to make assessment of health and hygiene education in schools. Most of the schoolchildren and hygiene teachers were out from schools for summer holiday. In most of schools the teachers and some schoolchildren were involved in repairing the school building and classrooms. The hygiene
messages, drawings, hygiene corners were taken out from the wall and other materials were not available at the time of visit.

In spite of the inconvenient time we arrived in school we were able to find some hygiene materials in schools and conducted several interviews with the schoolchildren of senior classes that had examinations and the hygiene teachers. The picture of these interviews, the hygiene corners and messages on the wall of latrines are available.

The overall situation with hygiene education in Sugd is good. More than 50% of school-teachers were found in schools and some more were found in the village and their homes to discuss the issues. Approximately 150-200 students and 20-25 hygiene teachers were interviewed. In every school were the PFL’s were build the peers group were organised. Every group has from 10 to 20 members. The group spends every day, before the lesson starts, from 10 to 30 minutes to spread the hygiene messages.

In the ‘old’ schools, where the pour-flash latrines were constructed, the knowledge of children on health-hygiene and disease prevention was good, particularly in Isfara district. It was something the same as in Khatlon. The only difference is that the children and the teachers are not as enthusiastic as they are in Khatlon, but have a good understanding of the subject.

The second part of schools where construction and reconstruction of pit latrine is going on, particularly in Gafurov district the hygiene education process was delayed. They started organising seminars just a week before the evaluation took place in Sogd. The hygiene teachers received all education materials and stationary and will start working with children of their schools in September.

To the question “What is the single most important activity to stop the diseases transmission process?” the answer was “Boiling water”. Washing hands was second. If we take into account that in some villages the children and community members are using water from unprotected water sources like river and irrigation channels, giving priority to boiling water against washing hands, making sense. Other answers were, keeping closed water storage containers, washing fruits, using refrigerators to keep food products, cutting nails and so on.

Different methods and tools were used to pass the hygiene messages by school children using child to child approach. They are; discussions question and answer, story telling, puppet show, songs and drama.

All school children, hygiene teachers and school directors said we like the WES programme and ready participate in the project activities in future.

6. The community

In two schools having PFL the teachers asked if UNICEF can support them or the community to build the PFL in their houses. After we had discussions with some people in targeted villages, regarding PFL’s, they said that they are aware about it and some of them said they saw it in school. It is a good idea - they said - to build the PFL at home if they are provided with materials. They can not afford to buy materials by themselves to build the PFL’s.
100% of targeted schools visited having pour-flash latrines or pit latrines have Parent-Teachers Associations (PTA)

Some director of schools and teachers think that construction of latrines just responsibility of UNICEF and the construction company. They ask for payment if someone (a teacher or community member) will participate in construction of latrines.

7. Conclusions

Water supply
Most schools in Sogd are connected to the centralized system that are connected to the big water treatment facilities, boreholes or springs, depending on large electrical pumps

Other water sources, unprotected in Sogd are rivers and irrigation channels. Such water is not good quality and officially not allowed to use for drinking and hand washing

Water is a real problem in Sogd and without proper water supply, promoting clean latrines and hygiene education would be very difficult or not possible in some instances

The water supply systems in most of the school are old and broken. Some of them were not used for the last 5-10 years, except 2 of them.

The district’s SES is attending the schools and checking quality of water, depending on availability of chemicals and transport mode for delivering the samples

Latrines

The existing pit latrines are in a really terrible condition. None single pit latrine was found to be acceptably clean. All of them are dirty, smelly, have no hand washing facilities and some of them are not safe to attend. The latrine floors are wooden and broken. The children can fall down in the pits. The pits in most of the pit latrines are filled up and need to be cleaned. This condition clearly shows the advantage of pour-flash latrines where water is available, it is clean, no smell and no flies. This will keep the environment clean, reduce water and sanitation related diseases and influence the community to copy what is done by WES project in schools.

Currently 8 pit latrines will be constructed and 14 reconstructed in Gafurov and Isfara district. Not any pour-flash latrines will be build, because of the existing problems (availability of water, maintenance and cold climate in some places). However the option of building PFL’s should be not totally removed from the WES project if secure water supply is provided and it is not so cold that water gets frozen inside the latrines.

In most of the schools the PFL’s were closed, because of summer holydays. They were acceptably clean, no smell and no flies.

The girls in Isfara asked to build latrines separate for girls from boys. The latrines for boys/men can be build in the opposite side or corner from girls/women’s.
Some schools have from 2 to 4 latrines. In these schools when the PFL’s are out of order or water is not available the children and school staff use the pit latrines.

In more than 60% of school latrines the taps are broken and need to be replaced. In 2 of them the tanks had no plastic pipes. Soap was available only in 3 of them. But we think that it is because the latrines are not used.

The WSS in latrines were closed and the tanks were not filled though 5 PFL’s had water in the tanks.

Only one PFL had a case when it was blocked by a piece of paper and soil.

Most of them had hygiene message and pictures on the wall telling how to use the toilets and prevent diseases.

**Hygiene – health education**

The overall situation with hygiene education in Sugd is good. In spite of the inconvenient time we arrived in school we were able to find some hygiene materials in schools and conducted several interviews with the schoolchildren and teachers. Approximately 150-200 students and 20-25 hygiene teachers were interviewed. In every school were the PFL’s were build the peers group were organised.

In the schools where construction and reconstruction of pit latrine is going on, the hygiene education process was delayed. The seminars were organised just a week before the evaluation. The hygiene teachers received all education materials and stationary and will start working with children of their schools in September.

The community likes the PFL’s and were interested to build them in their houses if materials provided.

In all 20 schools we attended the PTA’s were organised, long before the WES project was launched.

**8. RECOMMENDATIONS**

(Most of the recommendations can be the same as it was made for Khatlon)

- Water supply is a real problem in schools in Sugd. The water supply system in most of schools should be replaced or at least reconstructed.
- Where there is no stable water source an option of installing hand pumps should be sought
- Support the territorial SES to check the quality of water in schools regularly
- H2S bottles should be distributed to schools and if a negative results is found it should be reported to the districts’ SES
- In 90% of schools in Sogd the latrines should be at least reconstructed or a new latrine should be build.
- Hand washing facilities should be installed inside or outside but very close to the latrines to allow children wash their hands after attending the toilets.
- The taps in the pour-flash latrines should be replaced. Important to buy good quality taps, not like the ones were installed before.
- Renew the hygiene messages and pictures on the latrine walls, because they were put on the wall 2-3 years ago and currently not in a very good shape
• Build more latrines to reduce the latrine per child ratio, if it is possible taking into account the schoolgirls opinion in Isfara district of building latrines separate for girls from boys
• Increase the size and number of seats in latrines as it was suggested by director of schools and hygiene teachers
• Organise hygiene education activities as it is done in Khatlon, paying particular attention to the methods and tools used when spreading the hygiene messages
• Select appropriate partners and hygiene teachers to increase the effectiveness of the hygiene education process
• The PTA’s and community members should be involved more actively in the ‘school life’ and WES project activities, particularly in construction of latrines and copying the WES activities to the community

Annex 1

LIST OF PEOPLE MET

<table>
<thead>
<tr>
<th>Name of the Organisation</th>
<th>Name of people</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Department of Education Gafurov District</td>
<td>Tursunova Dilbar</td>
<td>Head of the Department of Education</td>
</tr>
<tr>
<td>2 Department of Education Gafurov District</td>
<td>Shuhrat Gafurov</td>
<td>Representative of the DoH for WES project in Gafurov district</td>
</tr>
<tr>
<td>3 Department of Education Isfara District</td>
<td>Tuchtaev Haidarkhuja</td>
<td>Head of the Department of Education</td>
</tr>
<tr>
<td>4 Department of Education Isfara District</td>
<td>Abdulloev Ajubjon</td>
<td>Representative of the DoH for WES project in Gafurov district</td>
</tr>
<tr>
<td>5 Construction company “Furkat”</td>
<td>Abdusattor</td>
<td>Construction Engineer</td>
</tr>
<tr>
<td>6 SES of Gafurov district</td>
<td>Abduloeva N</td>
<td>Deputy of the head doctor</td>
</tr>
</tbody>
</table>
Annex 2.
Child to seats/holes ratio

<table>
<thead>
<tr>
<th>Name of the district</th>
<th>School number</th>
<th>Total number of children</th>
<th>Number of latrines</th>
<th>Number of seats in latrine</th>
<th>Child to hole/seats ratio</th>
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<tbody>
<tr>
<td>1 Gafurov</td>
<td>71</td>
<td>552</td>
<td>2</td>
<td>14</td>
<td>39</td>
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<tr>
<td>2 Gafurov</td>
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<td>827</td>
<td>1</td>
<td>6</td>
<td>138</td>
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<tr>
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<td>660</td>
<td>1</td>
<td>16</td>
<td>41</td>
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<td>2</td>
<td>20</td>
<td>62</td>
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<tr>
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<td>1065</td>
<td>2</td>
<td>16</td>
<td>67</td>
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<td>2</td>
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<td>80</td>
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<td>1</td>
<td>4</td>
<td>31</td>
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<tr>
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<td>3</td>
<td>28</td>
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<td>4</td>
<td>12</td>
<td>32</td>
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<tr>
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<td>3</td>
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<tr>
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<tr>
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<td>18</td>
<td>20</td>
</tr>
<tr>
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<td>561</td>
<td>2</td>
<td>14</td>
<td>40</td>
</tr>
<tr>
<td>15 Isfara</td>
<td>65</td>
<td>336</td>
<td>2</td>
<td>8</td>
<td>42</td>
</tr>
<tr>
<td>16 Isfara</td>
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<td>1073</td>
<td>2</td>
<td>20</td>
<td>54</td>
</tr>
<tr>
<td>17 Isfara</td>
<td>57</td>
<td>492</td>
<td>1</td>
<td>4</td>
<td>123</td>
</tr>
<tr>
<td>18 Isfara</td>
<td>2</td>
<td>806</td>
<td>2</td>
<td>12</td>
<td>67</td>
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<tr>
<td>19 Isfara</td>
<td>69</td>
<td>548</td>
<td>1</td>
<td>4</td>
<td>137</td>
</tr>
<tr>
<td>20 Isfara</td>
<td>43</td>
<td>335</td>
<td>1</td>
<td>8</td>
<td>42</td>
</tr>
</tbody>
</table>

The average of child to seats/holes ratio in Sogd is 65
The average was calculated as total sum of child to seats/holes ration divide by 20.
20 – is number of schools visited
Annex 3
WES EVALUATION CHECK LIST FOR SCHOOLS IN TAJIKISTAN (updated)

Date………… Num of checklist_________ Num of School _________________

Name of district and village___________________________________________________
Number of students total __________ boys_________ girls __________ # of shifts ______

Water supply
1. Type of water supply in school. (central system, shallow water, if it is secure in the sense
   of quantity and quality) Is it community managed?

2. If Hand Pump -type, age, how Operation & Maintenance, depth of pump, users out of
   school?

3. History of failure,

4. H₂S bottles 5. epidemiologist-water quality (SES check)

Latrine type/HH latrine?

6. Number of latrines 7. Girls/Boys-any changes to latrine design?


9. If the pan was blocked during the last year and how many times

HH education, PTA and community participation
10. Student peer gp established? (enthusiasm)? If it is gender balanced PTA established?

    school teachers c)Set flash cards d)Snake and ladder game

12. The best thing they perceive from this programme (water, latrines or HH)

13. The most important message to prevent disease you have got from HH sessions

14. Orientation of school directors?

15. Check on children’s HH knowledge

16. Health checks on children?

17. School equipment by UNICEF

18. Were parents involved in digging pits?

19. Which NGO implemented? Comment on quality of construction

20. If any community members is building the same (pour flash) latrine at home