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Building Knowledge and Awareness on Sustainable Sanitation Solutions in Tajikistan

Final Evaluation Report

Prepared for EQUIDEV

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Figure 1: Construction of Decentralised Wastewater Treatment System in Faizobod



Table of Contents

Acronyms and Abbreviations	4
Executive Summary	5
Introduction	8
About this report.....	8
Project background	8
Water and Sanitation in Tajikistan.....	8
Decentralised wastewater treatment systems	9
The assessment.....	9
Terms of reference.....	9
Commencement	10
Deliverables	10
Evaluation Approach.....	10
Approach.....	10
Methods	11
Findings	13
Relevance	13
Coherence	15
Effectiveness.....	16
Efficiency.....	19
Impact	20
Sustainability.....	23
Partnerships with Academia.....	25
Conclusions	25
Recommendations	26
Annex 1: Terms of Reference	28
Annex 2: List of key informants	36
Annex 3: WASH Fit Results	37

List of Figures

Figure 1: Construction of Decentralised Wastewater Treatment System in Faizobod.....	1
Figure 2: Trends in water, sanitation and hygiene services 2015-2022	9
Figure 3: Recorded cases of Diarrhea 2021-2024.....	21
Figure 4: Recorded Cases of Hepatitis A 2021-2024.....	21

List of Tables

Table 1: Field visits undertaken.....	11
Table 2: DEWATS: Construction period and duration.....	19
Table 3: WASH-FIT scores tested at DEWATS facilities	23

Acronyms and Abbreviations

BORDA	Bremen Overseas Research and Development Association
BOD	Biological Oxygen Demand
CAPEX	Capital Expenditure
CAPMANEX	Capital Maintenance Expenditure
DEWATS	Decentralised Wastewater Treatment Systems
JMP	Joint Monitoring Programme
MoHSPP	Ministry of Health and Social Protection of Population
SDC	Swiss Agency for Development and Cooperation
SDG	Sustainable Development Goals
SES	Sanitary Epidemiological Service
SOP	Standard Operating Procedures
SUE KMK	State Unitary Enterprise
TAU	Tajik Agrarian University
TTU	Tajik Technical University
WASH	Water, Sanitation and Hygiene
WWT	Wastewater Treatment

Executive Summary

This report

This is the final evaluation report for the project entitled *Building Awareness and Knowledge of Sustainable Sanitation Solutions in Tajikistan*. The project was implemented by EQUIDEV, Oxfam Consults and BORDA between 2022 and 2024. This evaluation was undertaken by a team of four independent consultants and the rapid review was undertaken between mid-August and mid-October 2024.

Background

The Tajikistan WASH (water, sanitation and hygiene) sector is at a crossroads. There is high disparity between urban and rural areas with more remote and sparse populations lacking access to improved, safe and accessible water and sanitation services on-site or near their premises. Sanitation coverage in Tajikistan also lags behind water supply access, and those responsible for the provision of sanitation services need to ensure there is consideration for all aspects of the sanitation chain – capture, containment, removal, treatment and safe disposal. This is required within institutions (such as hospitals, health care facilities and schools) as well as across communities. Technology options also need to be appropriate and a good fit for the rural/local context so they can be operated, managed and sustained.

In response to these particular challenges this project had four main elements. The first element of the work was to work closely with government to increase knowledge and understanding of appropriate wastewater treatment technology options for rural sanitation across Tajikistan. The second, was to undertake a comprehensive assessment of Decentralised Wastewater Treatment Systems (DEWATS) in Tajikistan with a view to upscaling. The third was for EQUIDEV to plan and implement a new DEWATS in Faizobod, while also supporting the construction of another four DEWATS in four districts across Tajikistan. This was achieved with the support of BORDA. These treatment systems aim to improve the surrounding environment and safe disposal of wastewater at selected hospitals, and serve to demonstrate the benefits of this technology in Tajikistan. DEWATS have been applied worldwide to fill the gap between on-site sanitation systems and larger centralized wastewater infrastructure. They are a technology option that is considered appropriate because of their low operation and maintenance demands and recurrent costs. The fourth project element was to enhance education of DEWATS by setting up a teaching module at the Tajik Technical University. This approach meant the project had a much wider focus than simply installing new infrastructure and it attempted to support a comprehensive system wide approach.

Methods

The evaluation used a mix methods approach consisting of a literature review, interviews with key informants, visits to five districts to see the DEWATS systems in action and further Focus Group Discussions.

Key findings from this review

On the positive side,

1. DEWATS are highly relevant to sanitation and wastewater treatment needs in rural Tajikistan and the intervention by EQUIDEV, Oxfam Consults and BORDA is highly appreciated by rural hospitals and government authorities.
2. In general, the project has been implemented well and the DEWATS facilities are effective in reducing smells, odours, and preventing contamination of the natural environment around district hospitals.

3. EQUIDEV, Oxfam Consults, and BORDA appear to have undertaken the work in a cost-effective manner, maintaining modest support services with some of the supervisory work undertaken remotely.
4. The project has collaborated widely with government counterparts at national and local government levels, and has engaged with academia. The relationship with academia and introduction of a DEWATS module on the teaching curriculum are appropriate and should lead to wider appreciation, knowledge and expertise in DEWATS technologies.
5. The project has in our judgement, led to significant impacts in promoting this new technology for central and local government, hospitals and academic partners that have been involved. Baseline health data provided by the respective hospitals suggest the project has also had a positive impact on health, although this would require further analysis to substantiate any claims made. Key informants have highlighted observed improvements in sanitary conditions around the hospital buildings.

However,

6. The failure to improve water supply and sanitation facilities (toilets and hand washing services) within hospital buildings was an important omission by the project, with direct implications for people's health, dignity and bringing about improvements in hygiene behaviour.
7. The project also needs to refocus its efforts to ensure the project interventions will be sustained. Much of the initial focus has been on the design and construction of the physical DEWATS infrastructure. More work is required to ensure the respective hospitals can establish effective systems for operation and maintenance, which requires the introduction of Standard Operating Procedures (SOPs) and weekly checks. This is a known gap that requires continued attention and support. It also needs to be championed by either EQUIDEV and BORDA alongside the mandated government authority.
8. Chemical water quality analysis has not provided definitive proof of the effectiveness of the treatment systems visited, which means it is not possible to measure improvements in wastewater across the sanitation chain. This is due in part to gaps in operation and maintenance as well as capability constraints within testing laboratories.
9. Hospitals clearly require additional step-by-step guidance for operation and maintenance. The current guides need further clarity. For example, how often should sludge in the septic tank be measured and what is the method to be applied? Furthermore, does the inspection chamber facilitate ease of access? These are relatively simple steps to correct but it should not be assumed they will happen automatically if there are known short-comings in the current operating regime.
10. Overall there is strong evidence that the modified WASH-FIT assessment tool requires more time before it is embedded and applied routinely by hospitals and Tajik institutions. This is required so there is a systematic approach to maintaining operation and maintenance records. There are clear gaps in monitoring wastewater and the surrounding environment.
11. Water quality testing results remain unclear and it is uncertain the extent to which routine laboratory testing of wastewater will take place. Simpler methods should be considered for observing environmental impacts (such as photos) and for measuring wastewater quality. This means using turbidity analysis against a pre-printed scale as a measure of Biological Oxygen Demand (BOD)¹.
12. The DEWATS teaching module is due to commence in Q1 2025. It will be important to monitor the uptake of this course and to see how this influences the development of DEWATS planning, design and construction (and learning) across Tajikistan.

¹ Von Sperling, M (2020) A simple field essay for detecting departures from expected performance in small-scale, remote or rural wastewater treatment plants, Water Science and Technology, IWA Publishing.

13. The key message is that there are known weaknesses across the sanitation chain that need to be addressed, otherwise they risk undermining the performance of DEWATS at district hospitals, which in turn may affect the up-scaling of this important technology.

Conclusions

“The project has had a positive impact and initiated forward momentum on the issue of rural sanitation by showing that DEWATS is an important and effective solutions to advance towards safely managed sanitation”. The Government of Tajikistan has been actively involved in the project and fully understands the benefits of this technology, as well as the need to place the spotlight on the issue of rural sanitation within institutions and communities. The main findings from this evaluation, however, does show that more attention is required to improve water supply and sanitation services within hospital buildings. Improvements in basic facilities was not considered within this current project. Furthermore, additional comprehensive inputs are required by EQUIDEV, BORDA and local government to address routine operation and maintenance issues that were identified. Effective systems are not yet in place and corrective follow up work is required to address known issues. This is required as a matter of urgency. The analysis also indicates that more support is needed to integrate the DEWATS teaching module into wider sector planning for sanitation, so that graduate students can apply their knowledge in practice in support of the sector.

A way forward

In light of the foregoing we have provided 11 important and practical recommendations. In summary, we recommend that EQUIDEV, Oxfam Consults and BORDA continue to support the development of Operation and Maintenance (O&M) plans and the adoption of SOPs and monitoring systems. We recommend there is a focus on (a) costed O&M plans that can be applied in practice, (b) simplifying water quality testing methods, (c) undertaking substantial performance monitoring and offering ongoing external support to these systems under development, and (d) conducting further learning periodically and documenting the findings. Improving water supply services and toilet facilities within hospitals also need to be included in future work and is a significant omission.

Introduction

About this report

This is the evaluation report for the **'Building Knowledge and Awareness on Sustainable Sanitation Solutions'** project (hereafter referred to as 'the project') in Tajikistan. This project was implemented by EQUIDEV from the 01st December 2022 to 30th November 2024, working in partnership with Oxfam Consults and BORDA (Bremen Overseas Research and Development Association). It was funded in part by the Swiss Agency for Development and Cooperation (SDC) and the Lions Club's in Germany and Switzerland. This project evaluation commenced in late August 2024 and was concluded by the 15th of October 2024.

Project background

The project's overarching aim was to improve the health of people in Tajikistan. This was to be achieved by promoting and educating people on decentralised wastewater treatment systems. The two project outcomes were first to provide safe sanitation services at medical facilities for staff and patients; and second to ensure relevant state institutions (government and academia) actively promote DEWATS technologies.

At output level the key project deliverables were:

- To construct operational DEWATS facilities in 5 rural districts.
- To ensure that responsible (mandated) authorities having the knowledge and capacity to run the DEWATS facilities sustainably.
- To ensure the evidence base for the introduction of DEWATS in Tajikistan is created.
- To advocate and provide training and capacity-building for key stakeholders (such as central and local government Ministries, Departments and Agencies, State Sanitary and Epidemiological Surveillance Units, Universities, and Architecture and Construction Committee.
- To revise the Tajik Technical University's (TTU) curriculum so that it includes a module on DEWATS and contributes to the revision of standards and norms.

Water and Sanitation in Tajikistan

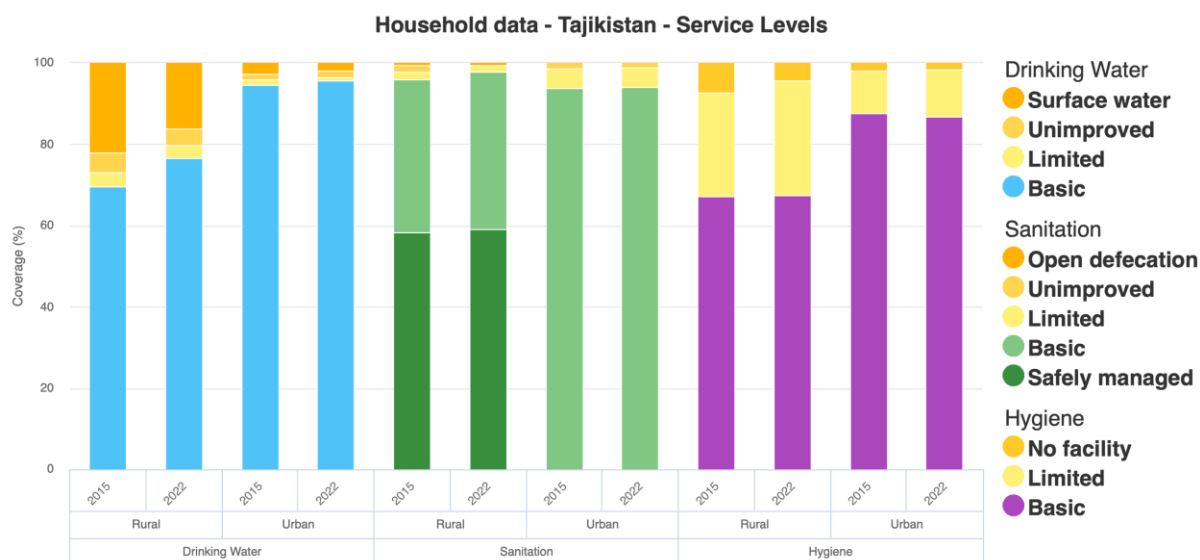
The Tajikistan WASH sector is at a crossroads. The country is not on track to achieve its Sustainable Development Goal WASH targets by 2030, and there is high disparity in water and sanitation coverage between urban and rural areas. Progress on sanitation and hygiene services has also lagged behind water supply coverage.

The most recent data from the Joint Monitoring Programme (JMP) of WHO and UNICEF reveals the current situation in Tajikistan. The general picture of trends is illustrated graphically below in Figure 2. For example, in 2015, approx. 70% of the rural population had access to a basic water supply with 22% reliant on unprotected surface water sources. In 2022, after a seven-year period, 77% of the rural population had access to basic water services with 16% still using unprotected surface water sources. In contrast, around 96% of the urban population had access to basic water supplies in 2022.

The picture for sanitation is more concerning. Progress for extending sanitation coverage in rural areas has virtually stagnated and implies that coverage is struggling to keep pace with population growth. 58% had access to basic sanitation in 2015 and this changed by just 1% up to 2022. Progress in urban areas has also stagnated but remains around 94% coverage. Improvements in hygiene services has also been slow in both urban and rural areas which further implies services are struggling to keep pace with population growth. When the

performance of these services is considered alongside issues of functionality and sustainability the picture is likely to be worse still. Although there have been some gradual improvements, there is clearly a need for increased forward momentum and the issue of scaling up and sustaining sanitation services is pressing.

Figure 2: Trends in water, sanitation and hygiene services 2015-2022



Decentralised wastewater treatment systems

Efforts to improve access to sanitation services must also address all aspects of the sanitation chain, which includes safe disposal and treatment methods. The DEWATS concept has been applied worldwide to fill the technology gap between on-site sanitation systems and larger centralized wastewater infrastructure, and as an appropriate technology to develop the local and national wastewater sector. However, achieving sustainability in sanitation is often not just a matter of technology. It is also linked to the local capacity to set the right legal, institutional and financial framework, as well as the local capacity to plan, install, operate and monitor wastewater infrastructures. With this in mind, the proposed project intended to build the foundation for the implementation and operation of decentralized wastewater systems and the scaling up of the DEWATS concept.

The assessment

Terms of reference

The terms of reference for this assignment (Annex 1) stated as its core purpose 'to assess the effectiveness, efficiency, relevance, impact, and sustainability of the project'. In describing the objectives of the evaluation, EQUIDEV stated that the evaluation should be guided by OECD DAC criteria and aim to complete the following:

- Assess the achievement of project outcomes and outputs as specified in the project's logical framework.
- Evaluate the efficiency and effectiveness of project implementation, including the management and use of resources.
- Analyse the relevance of the project strategies and approaches in the context of Tajikistan's sanitation needs.

- Determine the impact of the project on the target beneficiaries, including health outcomes and capacity development.
- Evaluate the sustainability of the project's results, particularly the adoption and maintenance of DEWATS by local stakeholders.
- Learn the best practices and challenges driven from this project for application or adaptation in new projects.

In the inception report the consultant provided an Evaluation Matrix that included 20 evaluation questions. As the lead consultant was not required to travel to Tajikistan it was agreed that evaluative judgements could also be made if not all OECD-DAC themes could not be rigorously evaluated. Field visits were undertaken by a team of three associates based in Tajikistan.

Commencement

The initial assignment meeting took place on the 13th August 2024 with consultants in the UK and Tajikistan joining remotely for opening discussions. The contract with the consultant was signed on the 25th August 2024. The first visits to the project sites took place in late August and early September 2024.

Deliverables

The contract with the lead consultant called for two main deliverables, namely this inception report and a final evaluation report.

The inception report was drafted and submitted on the 16th September 2024. The draft evaluation report was required to be submitted by the 10th of October in order to be finalised before the 15th of October 2024. It is proposed this final evaluation report will be a maximum of 30pp with annexes and a 2pp Executive Summary. The drafting of the report included a short period for comments by EQUIDEV.

Evaluation Approach

Approach

The methodology used in the assessment consisted of open, participative, conversations with key informants from the Ministry of Health and Social Protection of Population (MoHSPP), State Unitary Enterprise (SUUE KMK), TTU, Tajik Agrarian University (TAU), HUKUMAT in the target districts, health professionals in the target hospitals and EQUIDEV's partner staff from BORDA and Oxfam Consults. In all these interviews and discussions, the aim was to gather experiences and considered views of the different stakeholders, wherever possible triangulating these for verification, and synthesising the results into the main sections of this report.

The consultant's preferred approach was to be as collaborative as possible with EQUIDEV, hence there was close support in providing relevant literature and in supporting field visits. Furthermore, there was close agreement on the key informants to interview from EQUIDEV, BORDA and Oxfam Consults. The collaborative ambition was fulfilled and all planned site visits and interviews were completed.

The fieldwork for this assignment was undertaken in the pilot districts of: Rudaki, Hisor, Aini, Aini/Sarvoda, Vahdat, and Faizobod. The findings from these districts will inform the uptake

of decentralised wastewater treatment systems in more challenging terrain, such as mountainous parts of Tajikistan.

Methods

Literature review

During the inception phase a literature review was undertaken by the lead consultant. This included a review of project reports, project assessment reports (including the Comprehensive Assessment Report), annual reports, logframe, baseline and endline data for target populations, and the DEWATS curriculum and training received by University lecturers. Two backstopping reports and the associated recommendations were also reviewed. Water quality analysis reports were not available.

Field visits

The terms of reference called for field visits to several sites where DEWATS systems had been constructed jointly by EQUIDEV and BORDA working with local contractors. The consultants in Tajikistan supporting the data collection work took the view that it would be helpful to visit all sites early into the evaluation (see achieved schedule in Table 1). This was made possible through consultation and planning with the lead consultant and through the logistical support provided by EQUIDEV.

All data collection tools were translated from English to Tajik and checked for clarity and accuracy. During the field visits the lead consultant and consultants in Tajikistan were in regular contact to ensure smooth progress. Each field visit and individual interviews were written up and translated from Tajik to English. They were then collated, distilled and analysed by the lead consultant. All respondents were assigned a Unique Reference Number (URN) to ensure anonymity.

Table 1: Field visits undertaken

Day	Schedule	Comment
1	<u>Morning</u> Travel Dushanbe to Rudaki Visit Rudaki District Central Hospital Return Rudaki to Dushanbe	Visit DEWATS system KII with contractor (if available locally) KII with hospital senior staff KII with community representatives KII with EQUIDEV staff
	<u>Afternoon</u> Visit Government Ministries, Department & Agencies in Dushanbe	MEWR, MoH, KMK
2	<u>Morning</u> Travel Dushanbe to Hisor Visit Hisor District Hospital Return Hisor to Dushanbe	Visit DEWATS system KII with contractor (if available locally) KII with hospital senior staff KII with community representatives KII with local BORDA staff

	<u>Afternoon</u> Visit Government Ministries, Department & Agencies	MEWR, MoH, KMK
3	Travel Dushanbe to Vahdat Visit Gulrez Hospital Return Vahdat to Dushanbe	Visit DEWATS system KII with contractor (if available locally) KII with hospital senior staff KII with community representatives KII with local BORDA staff
	Visit Government Ministries, Department & Agencies	MEWR, MoH, KMK
4	<u>Morning</u> Travel Dushanbe to Aini Visit Aini District Central Hospital Overnight in Aini	Visit DEWATS system KII with contractor (if available locally) KII with hospital senior staff KII with community representatives KII with local BORDA staff
	<u>Afternoon</u> Visit University staff members trained in DEWATS	
5	Visit Sarvoda Hospital Return Aini to Dushanbe	Visit DEWATS system KII with contractor (if available locally) KII with hospital senior staff KII with community representatives KII with local BORDA staff
6	Travel Dushanbe to Faizob0d Visit 30 years of Istiklol Hospital Return Faizobod to Dushanbe	Visit DEWATS system KII with contractor (if available locally) KII with hospital senior staff KII with community representatives

Focus group discussions

In all locations visited, focus groups were held with relevant hospital staff to discuss specific issues in detail. This includes but is not limited to understanding the impacts of the DEWATS and understanding day-to-day arrangements for operation, maintenance and financing. The FGDs were moderated by the evaluation team in Tajikistan after introductions had been provided by EQUIDEV.

Additional interviews were carried out with relevant authorities from central government and lecturers from the TTU and TAU that had been trained in DEWATS. A full list of those interviewed is shown in Annex 2.

Interviews with key informants

Following the literature review and discussions with EQUIDEV several key informants were identified for interview. These individuals were interviewed in September and early October 2024. Interviews were undertaken on a 1:1 basis and lasted between 45-60 mins in duration. Interviews were led by the lead consultant and conducted in English.

Data Analysis

Data analysis ran from mid-September to early October. To address the challenge of evaluating multiple DEWATS thematic analysis was used to organize and explore all quantitative and qualitative data gathered, with outcome harvesting used to identify and analyse results. The two core evaluation components will be the primary channels through which data – including results – are gathered, organized and analysed. All documentation was reviewed manually by the evaluator.

Findings

Relevance

EQ1: How well does the DEWATS project align with national sanitation and health policies in Tajikistan, as well as international consensus, such as the SDG targets?

It is important that the project had the full support of government and responded to local needs. At a local level, there was clear consensus that the lack of adequate sanitation services in rural areas of Tajikistan was a pressing problem and the DEWATS technology selected was considered appropriate, given that more than half of rural areas in Tajikistan lack a centralised sewage system.

“In districts with no centralized wastewater disposal system, it is considered acceptable for the establishment of decentralized wastewater systems. These systems are low maintenance and energy efficient. We will further contribute to continue working on this project and expand to other facilities, especially in rural areas.”²

At national level the project had the ear of government. Representatives from the Ministry of Health and Social Protection of Population (MoHSPP) in Tajikistan and the State Unitary Enterprise (SUE) had a thorough knowledge and awareness of the project and had actively participated in seminars and workshops designed to generate understanding of the project and the DEWATS technology. This collaborative working relationship was led by EQUIDEV.

During interviews with key informants’ reference was made that the project was aligned to National Development Strategy of the Republic of Tajikistan for the period up to 2030, the Strategy on Healthcare of the Population of the Republic of Tajikistan for the period to 2030, and the national Sanitary Rules and Norms (termed SanPin) and its relevant provisions³.

In the project documents reviewed there is less reference to international WASH accords, but Joint Monitoring Programme data (JMP 2022) shows that Tajikistan is some way off its

² Government Official, Dushanbe

³ Government Official, Dushanbe

Sustainable Development Goal (SDG) targets for sanitation. Decentralised Wastewater Treatment Systems and the technology promoted as part of this project fits with this SDG ambition and the guiding principle of 'Leave No-One Behind'. For this reason, the project is therefore considered highly relevant.

EQ2: To what extent does the project design address the identified sanitation needs of the target populations?

DEWATS were located in hospitals because these facilities are rooted in local communities and the project wanted to demonstrate the DEWATS technology at key institutions and across the wider community. The empowerment of hospital staff was also central to the project's mission.

EQUIDEV undertook initial feasibility assessments to identify the sanitation needs of the target populations and key institutions. The initial field assessments identified the status of water, sanitation and hygiene services for hospital staff, in-patients and out-patients. Common problems identified by EQUIDEV included: aged and crumbling sanitation infrastructure, overflowing sewage, environmental contamination, unpleasant smells and odours and dissatisfaction from hospital staff, some of whom were required to remove the blockages of excreta by hand with buckets. It was found that untreated wastewater was also routinely discharged directly to local water courses, such as the Zarafshon River. Respondents interviewed described the sanitary situation before the project as terrible and said this project had a significant transformative effect, resulting in a cleaner environment around the hospitals⁴.

However, we also note that the water and sanitation problems within the hospitals were not addressed with some key informants highlighting issues with limited or no adequate water supply and unsanitary toilet facilities. This issue had also been flagged by previous assessments and it is uncertain why the project chooses to pursue a partial solution to a wider problem. EQUIDEV are capable of undertaking this work, which seems to have been neglected in the original feasibility assessments and donor discussions.

EQ3: Were the needs of the target population(s) accurately identified and addressed in the project design?

The project undertook several feasibility studies, which included assessment of basic needs. Engagement with hospital staff was fundamental to the work of EQUIDEV and BORDA and key baseline data and information was collected. At each selected location this included:

- Number of hospital staff.
- Number of hospital in-patients and out-patients – disaggregated by gender.
- Volume of wastewater to be treated.
- Observation of the current sanitary conditions.

We have little doubt that the targeted hospital staff and patients benefit from the wastewater treatment technology and the project has addressed real needs. During the focus group discussions, it was apparent that the infrastructure is appreciated by hospital staff and is being used. For example, respondents in Aini Hospital remarked that the situation had improved significantly, unpleasant odours had reduced, and there is no longer need for hospital staff to empty latrine pits. However, it was also noted that the project did not directly address water supply challenges within Aini hospital and unsanitary conditions still exist in others. This means that some hospital staff and patients will still experience poor performing WASH facilities despite the addition of better treatment facilities. The project should have looked at the entire sanitation chain to fully address the needs of the target population.

EQ4: To what extent were key stakeholders involved in the design phase of the project, and how did their inputs shape the project?

At the outset of the project EQUIDEV engaged with all key government counterparts before commencing construction of the DEWATS. This included engaging with local Hukumat and its different departments such as: SES, architecture & construction department, Vodokanal and the tax department. This was done across the planning, design and construction phases. It also included the provision of training for Hukumat staff and signing a Memorandum of Understanding to foster a collaborative working partnership.

Hospital staff also participated in the design and implementation of the DEWATS. This included direct assistance to the builders during construction and overseeing implementation progress. This was viewed as a positive experience and has provided key stakeholders with a knowledge and understanding as to how the DEWATS works and what ongoing actions are required for operation and maintenance.

Coherence

EQ5: To what extent was project coherence achieved?

EQUIDEV was the project lead and BORDA were recruited as a consulting partner for this demonstration project. The focus was a good fit for EQUIDEV's and BORDA's respective skills and experience. For example, EQUIDEV (formerly Oxfam Tajikistan) has a long history of working on water and sanitation issues in the target districts across Tajikistan. The project's focus on DEWATS and engagement with academic institutions also fitted well with BORDA's work elsewhere in Central Asia. As a consulting partner BORDA had the following main tasks:

1. To provide remote support for a feasibility study conducted by EQUIDEV linked to the construction of DEWATS facility in Fayzabad.
2. To design the DEWATS systems – resulting in the production of engineering drawings, suitable for construction by an appointed contractor with supervisory support provided through EQUIDEV's field engineer.
3. To work with the design institute in Tajikistan to ensure the design and materials specification fits with national standards and norms.
4. To conduct training sessions on operation and maintenance for hospital staff, including the production of an O&M manual and a short training report.
5. To undertake a comprehensive performance assessment of the DEWATS systems, with a particular focus on wastewater quality testing and the continued performance of the five systems. This work was undertaken in partnership with EQUIDEV and Oxfam Consults.

However, despite the project being a good fit for EQUIDEV and BORDA internal coherence was hindered at times. Three factors in particular stand out. The first is that BORDA's did not have a permanent presence in Tajikistan post the COVID-19 pandemic. Some respondents maintained this hindered communication and meant the project, at times, lacked momentum. Practical day-to-day issues took more time to resolve because information had to be relayed back and forth, without the ability for face-to-face discussions.

The second factor, is the definition of roles and responsibilities between EQUIDEV and BORDA were not adequately articulated in the original project proposal and there was a very limited inception period, which reduced the opportunity for joint planning. This led to a 4-month delay in signing the project contract by BORDA, which in-turn led to delays in commencing the design and construction of the DEWATS facilities.

The third factor relates to the project's engagement with the TTU, where there were substantial delays in obtaining the original engineering curriculum and in receiving feedback on the

proposed DEWATS module. Again, this hampered the momentum of the project and reportedly led to unnecessary delays.

However, on the positive side the DEWATS technology is considered appropriate for rural contexts in Tajikistan and is recognised as being highly relevant by key government institutions.

Effectiveness

EQ6: To what extent did the project achieve its intended outcomes and outputs as outlined in the logical framework?

It is our impression that project outputs were achieved and the two project outcomes have 'broadly' been achieved. Table 2 shows that in total direct beneficiaries reached by the project are **305,375** including health workers, inpatients, and outpatients, and there are **295,560** indirect beneficiaries. This shows the original logframe target of 305,000 patients has been reached.

However, ongoing corrective action is still required if the systems are to be permanent and lasting and more work is required to evidence the standard of wastewater being discharged to the environment. A constraint on effectiveness is that the project has focussed primarily on the design and construction of the decentralised wastewater systems. This means less attention for improving water and sanitation facilities within hospitals and for post construction activities, such as ongoing support for technical and managerial challenges and finance. Hospital staff in Aini highlighted water supply as an ongoing challenge, and all hospitals require continued support to establish effective operation and maintenance regimes and monitoring systems. There are real concerns from key informants as to whether hospital staff will have the capability to operate and maintain the systems after a 1-day training session, or whether Hukumat will be able to fulfil its role effectively. Initial WASH-FIT monitoring results and respondent feedback suggest this is a challenge that EQUIDEV and BORDA must still address (see Annex 3). Notable gaps in all hospital locations include monitoring of wastewater treatment and environmental impacts.

The wider adoption of good practices and the linkages between the new university teaching module, new public investment from government and national technical capacity for sanitation engineering also need ongoing support and strengthening. For a wider 'systems' approach to be achieved there need to be strong links between the individual component parts of this project.

Table 2: Breakdown of number of people benefitting from the DEWATS intervention

Districts	Donors	Health Facility	Direct beneficiaries			Indirect beneficiaries
			# of health workers & other staff	#Inpatients	#Outpatients	
Faizobod	SDC	30 years of Istiqlol	124	1,937	3,600	39,560
Vahdat	Lions Club	Gulrez Hospital #1	152	25,237	16,000	80,000

Hisor	Lions Club	Dehi nav Hospital #1	182	22,588	26,400	60,000
Ayni/centre	Lions Club	Central District Hospital	215	44,865	115,200	86,000
Ayni/Sarvoda	Lions Club	Rural Hospital of Shahraki Zarafshon	75	20,000	28,800	30,000
Total			748	114,627	190,000	295,560

EQ7: To what extent were project activities implemented in a timely and effective manner, including the construction and operation of DEWATS systems.

A significant focus of the project was to ensure the DEWATS facilities were designed and implemented to high professional standards. This technical work was led by EQUIDEV with remote support from BORDA who collaborated with EQUIDEV’s engineer in Aini and Faizabad. The project did experience initial delays and this meant that work started in winter and had to be halted for a period (February - April) due to snowfall. This meant additional financial costs were incurred for demobilising and remobilising the contractor. Potentially extreme cold weather could also have an adverse effect on construction quality and concrete works, but it was not possible to ascertain this during short field visits. However, it was evident that the small wastewater treatment systems provided were appreciated by the hospital staff and being used. All of the hospitals reported significant improvements in local sanitary conditions.

Supervision for design and construction was conducted by BORDA remotely. This has limitations compared to an experienced engineer being resident on site, who is able to resolve construction issues in real time. This meant the contractor would have received less supervision and guidance and the project may not have captured all the practical on-the-ground experience of what works for hospital staff tasked for necessary O&M actions. Examples from respondents include the following:

- *‘Heavy manhole inspection covers that are difficult to lift’*
- *‘Inspection chambers sited below ground level, rather than above.’*
- *‘No available space for storing equipment and materials’*
- *‘Site layout hinders access for O&M actions’*
- *‘Lack of Personal Protective Equipment (clothing)’*

Respondents highlighted that training for operation and maintenance was restricted to 1-day and not all hospitals have operation and maintenance manuals for the DEWATS technology. Consequently, it is less clear if all hospitals will be able to fulfil the necessary operation and maintenance duties if there are not dedicated human and financial resources (see Box 1). This may limit the performance of the wastewater treatment systems in years to come. It is also unclear whether hospitals will continue to collect water quality samples and send to laboratories for rigorous testing. If there is a decline in water quality whether hospital staff will have the means and capability to take corrective action is uncertain.

Box 1: Operation and Maintenance of DEWATS

DEWAT is a low cost and low-maintenance technology, but this does not mean it is maintenance free. Routine operational checks to ensure wastewater is flowing and the system is free from obstructions is fundamental. Maintenance tasks such as removal of scum layers and desludging are required and hospitals are expected to implement SOPs

and conduct routine monitoring, such as the quality of wastewater discharged to the environment and local water courses. If these aspects are not in place (including budgets), as appears to be the case, or these operation and maintenance tasks are not adhered to, then DEWATS, like any technology, will have limitations and the system will not function as intended.

EQ8: To what extent were training programs and workshops effective in enhancing the knowledge and skills of stakeholders?

Several training sessions and workshops were conducted. These include the following:

- Operation and maintenance training in all target districts, conducted by BORDA. This included theoretical training of DEWATS technologies (delivered online) and practical in-situ training for O&M.
- Workshops on raising awareness of DEWATS amongst government counterparts in three districts (including Dushanbe). This was led by Oxfam Consults, EQUIDEV and BORDA.
- In November 2023 a study tour to Hisor town for 11 students and 3 university staff to see a constructed DEWATS facility.
- In June 2024, a 1-day health and hygiene promotion training in Faizabad, conducted by EQUIDEV.
- In July 2024, a 5-day workshop in Dushanbe on sustainable sanitation and water management was organised by EQUIDEV, BORDA and MoHSPP, which included hospital staff from the target districts.
- In July/August 2024 a 5-day Training of Trainers was conducted for TTU staff who will deliver the new DEWATS course.

Respondents reported they found the training useful as it introduced new technology options for rural areas. Our judgement is the training has provided people with an appreciation and knowledge of these technologies, but there is scope for more on-the-job training, which will provide people with practical experience and the opportunity to apply their learning in practice.

EQ9: Were the activities implemented with high quality and completed within the planned timelines?

Judging from the field visits and discussions with University lecturers it appears that all aspects of the planned project were implemented satisfactorily. The hospitals visited all benefit from high quality DEWATS interventions that are addressing real needs. An example of this is shown in Box 2.

Box 2: Quality of DEWATS interventions

In Tajikistan, decentralized wastewater systems are a relatively new technology type for EQUIDEV despite their long history in the WASH sector. BORDA has extensive experience in DEWATS technology having designed and constructed similar facilities elsewhere in the region.

In this project, BORDA was responsible for the design of the DEWATS technology and for providing backstop support for construction, however their ability to provide in-situ supervisory support was reduced because they were not continuously present in Tajikistan. EQUIDEV provided engineering support and were the critical link between BORDA and the hired contractors.

Consideration for post-construction support is fundamental to the DEWATS technology working well. Project staff noted this appears to have been a lesser consideration as compared to the design and construction work. On the job training and support is necessary

and the project could/should have allocated additional funds to provide support to these important issues. Respondents cited the 1-day training was too short in duration and the project did not make provision for follow up refresher training.

Efficiency

This evaluation has not undertaken a detailed value for money assessment so the findings below are based on conversations with key informants.

EQ10: How efficiently were the project resources (financial, human, and material) utilized?

We have noted that all of the decentralized wastewater systems were delivered on budget and EQUIDEV took specific measures to deliver high quality infrastructure. For example, we note that EQUIDEV's engineer had a regular presence on-site during construction and was active in sharing information with BORDA for additional technical backstop support. Furthermore, EQUIDEV operates in appropriately modest offices and its support arrangements (such as internet and vehicles) is not excessive. BORDA also did not have a permanent office in Tajikistan.

EQ11: What project management practices were employed, and how effective were they in ensuring smooth implementation?

EQUIDEV, Oxfam Consults and BORDA have a collaborative working relationship that dates back to 2018. This working relationship was utilised to ensure project activities could be implemented in an efficient and timely manner (see Table 2). We found that both EQUIDEV and BORDA were committed to ensuring their key deliverables were achieved. However, this could have been more effective had BORDA maintained a permanent presence in Tajikistan, at least during the construction of the DEWATS technologies.

There is also a necessity for both EQUIDEV and BORDA to respond rapidly when problems arise. The WASH-Fit assessment and ongoing water quality testing results are two examples where follow up action is required and problems could be resolved more quickly if further face-to-face engagement were possible.

Table 3: DEWATS: Construction period and duration

Location	Wastewater treatment capacity (M3/day)	Date construction started	Date of commissioning	Duration (days)
Central district hospital of the Rudaki district	42,6	05.02.2020	06.08.2021	517
Hospital No. 1, Gulrez village, Vahdat city –	14,3	07.01.2022	06.06.2022	150
Hospital No. 1, Dekhi Nav village, Gissar city	20,0	30.06.2022	30.10.2022	122
Central district hospital of the Ayni district	35,6	19.09.2022	20.04.2023	213
Hospital in Sarvoda village of Ayni district	13,7	27.02.2023	12.07.2023	140
Hospital in the village of 30 years Istiklol, Faizabad	15,7	-	-	

EQ12: How effective were resources used to implement the project?

DEWATS represented a relatively new technology innovation and approach for EQUIDEV. This meant that although their programme staff had a regular presence during the planning and construction of DEWATS facilities, they were unable to share their own examples of good practice with hospital staff or lessons from past programme experience for implementing DEWATS. Consequently, EQUIDEV were more reliant on BORDA for their DEWATS expertise. However, BORDA predominantly worked remotely and were rarely able to visit the site managed by EQUIDEV in Rudaki, visiting just once. Respondents highlighted that resources could have been used more effectively if both organisations had a presence in Tajikistan and were able to work together routinely.

With regards to effective use of resources, it should also be borne in mind that the project costs have predominantly covered Capital Expenditure (CAPEX) costs. Necessary recurrent budgets for operation and maintenance, Capital Maintenance Expenditure (CAPMANEX) and support costs are inadequate for water supply and sanitation within Hukumat. Furthermore, hospitals are yet to set aside adequate funds for routine operation and management tasks, including water quality testing. Therefore, the costs incurred so far to implement the project represent just one component of wider Life Cycle Costs that need to be addressed by government.

Impact

EQ13: To what extent are the changes in health conditions and hygiene behaviours among the target population attributable to the project?

This project has, in our judgement, contributed to a significantly cleaner environment at the hospitals and for the surrounding communities. For example, there is evidence the decentralised wastewater treatment systems have improved the sanitary conditions at the hospitals and the project is much appreciated. To quote one respondent:

“There were many accidents before such as clogging of the pipes, which brought to flooding of wastewater, unpleasant odors. This was very bad for such a big hospital. The project has been very effective.”⁵

It is difficult to quantify what have been the actual impacts on people’s health and how it has affected hygiene behaviours, however, this is not to detract from the appropriateness of the interventions. The DEWATS technology has resulted in treated and cleaner wastewater being discharged to adjacent rivers, which is a significant improvement from previous untreated discharges from hospital sites. However, if health conditions and behaviours are to noticeably improve at the hospitals there also needs to be corresponding improvements in water supply, sanitation and handwashing facilities within the hospital buildings. This provision of such facilities was not included within this project and hospital staff drew attention to this pressing issue. This was also identified during an assessment review to two hospitals by consultants from SKAT.

Figures 2 and 3 below respectively indicate a recent reduction in Diarrhea and Hepatitis A for those aged under and above 18 years of age since the DEWATS were installed - drawing on data shared by the respective hospitals.

Figure 2 shows a reduction in cases of Diarrhea for all locations during the period 2021-2024. This is particularly evident for those aged < 18 years of age.

⁵ Hospital worker, Aini Hospital.

Figure 3: Recorded cases of Diarrhea 2021-2024

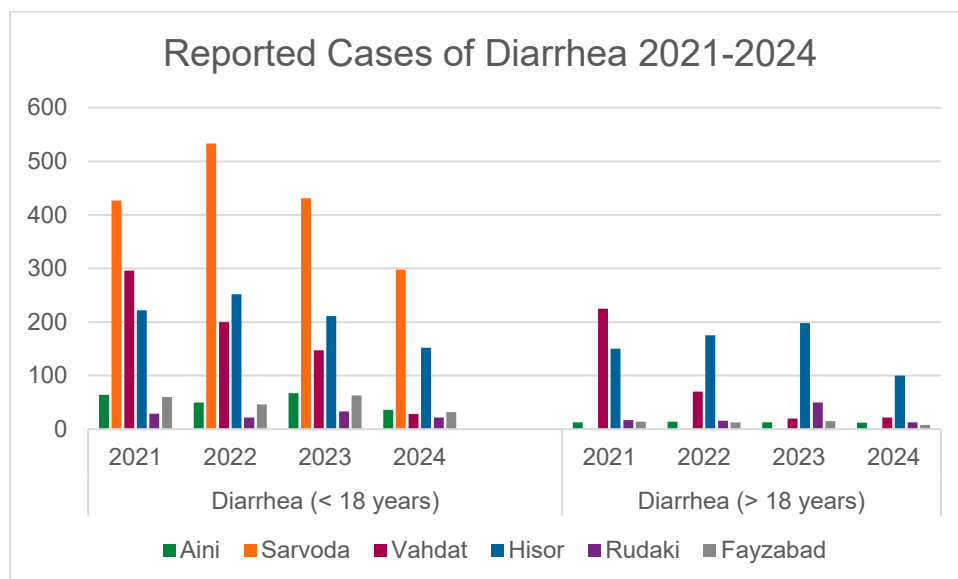
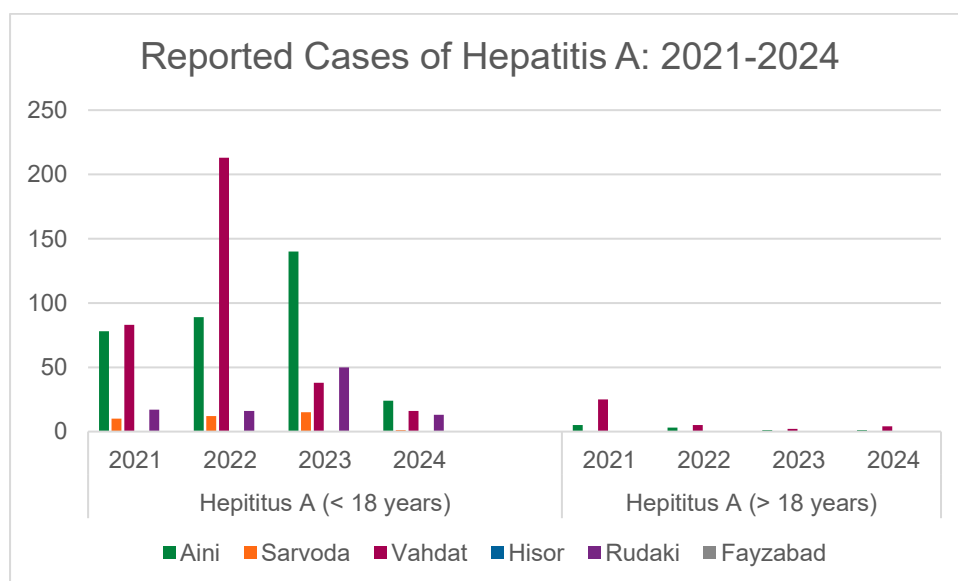


Figure 3, shows a rise in the number of Hepatitis cases for people < 18 years of age in some locations (such as Vahdat) from 2021-2022 but a reduction since the DEWATS systems have been introduced. However, the time period is too short to draw any definitive conclusions.

Figure 4: Recorded Cases of Hepatitis A 2021-2024



EQ14: What are the perceived environmental benefits resulting from the implementation of DEWATS, such as improved water quality and reduced pollution?

The DEWATS interventions have reportedly brought about significant benefits for the hospitals and surrounding areas. These include both health and non-health benefits. Examples highlighted by respondents include the following: reduced number of sanitation-related pathogenic organisms contaminating the environment and surrounding watercourses, reduced smells and odours, vastly improved sanitary conditions at rural hospitals, reducing the need for human sludge removal by hospital staff, created a better working and living environment for hospital staff and patients, and improved personal well-being amongst hospital staff. More widely it has demonstrated the importance of sanitation and introduced

new technological approaches for rural areas in Tajikistan. Actually, measuring the environmental benefits from the DEWATS is more difficult because of other sources of diffuse pollution around the hospital sites and there is no evidence of wider Water Safety Plans having been implemented or the WASH-FIT assessment tool.

EQ15: To what extent can local institutions manage the DEWATS systems and promote sustainable sanitation solutions?

The DEWATS technologies are recognised as being ‘low maintenance’ and having relatively low recurrent operating costs. However, they are not maintenance free and the sanitation systems have been installed in districts across Tajikistan where local government struggles to achieve its mandate because of limited financial allocations from central Government.

Our impression is that the project has focussed on high quality design and construction of DEWATS, but the post construction system strengthening component has been somewhat neglected. For example, hospital staff have received just 1-day operation and maintenance (O&M) training, and they are expected to develop and cost an O&M plan, with budget support being provided by the district Hukumat. Likewise, water quality samples are expected to be sent to a laboratory for routine testing. Neither of these components are presently in-place and there is uncertainty as to how it will be achieved, let alone sustained. EQUIDEV and BORDA will need to follow-up to address these issues, and it will only be possible if (a) there is joint presence on the ground, (b) if government is willing to allocate budget resources to the hospitals and (c) if hospital staff are motivated and able to undertake O&M work routinely.

EQ16: What impact has the project had on the capacities of local institutions to manage and promote sustainable sanitation solutions?

The project has made efforts to enhance capacity amongst hospital staff, local government, central government (Ministries) and University lecturers. This has primarily taken the form of workshops and training sessions, some of which were conducted face-to-face and others online. The efforts to reach a wide range of stakeholders has been impressive, but this has mainly been on generating an appreciation and knowledge of decentralized wastewater treatment systems. The impression gained from interviews with key informants was that online training was useful but it also inevitably had limitations compared to face-to-face learning.

Interviews with key informants and district visits to the systems suggest interlinkages between the different component parts that need to be in place to sustain and promote sustainable sanitation services are still at an early stage. For example, following a 1-day operation and maintenance training session, hospital staff are expected to develop costed O&M plans and submit them to Hukumat for funding support. To our knowledge this has not yet happened. There are also examples that water quality testing results are not understood and it is unlikely that busy hospital staff have the time to ensure corrective follow-up action is taken, unless there is effective support from the Hukumat.

To assess the success of the DEWATS facilities, in terms of performance, the WASH-FIT monitoring tool was introduced. Existing WASH FIT indicators that related directly or indirectly to sanitation were collated and where necessary adjusted to ensure that the focus was on sanitation, for example ensuring there is protective equipment for workers. Two areas have subsequently been added to the list of indicators, namely: social assessment – asking users of the facilities what they thought of toilet provision, and environmental assessment – checking that wastewater discharge did not cause any damage to the environment.

The tool was tested (using two pilot runs) by EQUIDEV across the five hospitals and the checklist approach applies a traffic-light score (red, amber, green) – see Table 3 below and Annex 3. Red implies no monitoring systems are in place, with amber indicating partial

monitoring is taking place and green meaning functioning monitoring systems are in place. The tool also uses a sanitary inspection method to assess the user experience and whether the toilet facilities were acceptable.

For wastewater treatment the indicator looks at whether well designed and well managed wastewater treatment plants provides at least secondary treatment and meets performance standards. The requires hospitals to complete inspections and maintain records. Likewise, to assess the environmental impact simple water quality measurements should be carried out.

Full details can be found in the pilot assessment report and healthcare assessment reports completed for EQUIDEV. The results returned a 'red' score for operation and maintenance records across all locations, which is a strong indicator that Standard Operating Procedures for O&M (including records) are not yet in place. This suggests the one-off training provided by EQUIDEV and BORDA has not yet led to effective management systems being established. Furthermore, it is unclear how this issue will be addressed within the current project duration. In our opinion it is unsatisfactory to criticise hospital staff and adequate attention for post construction operation and maintenance is a short-coming of the project. However, this can be addressed by EQUIDEV and BORDA if the matter is taken-in-hand and EQUIDEV should outline the corrective action they propose to undertake in partnership with key stakeholders. Indeed, the pilot assessment report completed in September 2024 includes key recommendations.

Table 4: WASH-FIT scores tested at DEWATS facilities

	Rudaki		Vahdat		Hisor		Aini		Sarvoda	
Pilot Results Score	1	2	1	2	1	2	1	2	1	2
Toilets	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Sewers	Green	Green	Green	Green	Green	Green	Red	Red	Green	Green
Wastewater treatment	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
Environmental impact	Red	Yellow	Red	Yellow	Red	Yellow	Red	Yellow	Red	Red
Management of sanitation	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
H&S for sanitation workers	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green

Sustainability

EQ17: What are the prospects for the continued use and maintenance of DEWATS by local stakeholders after project completion?

The sustainability of the DEWATS will depend on the collective capacities of hospital staff, local and national governments to undertake technical, managerial and financial responsibilities. All parties will need to play their role effectively.

Hospitals are responsible for the day-to-day operation and maintenance of the DEWATS but they do not have a conceptual framework for how sustainability will be achieved, working alongside local and national government. Hospital staff have received training on the DEWATS technology and operation and maintenance manuals have been provided, but plans do not exist for refresher training of new staff.

Hospitals need to maintain a record of what operation and maintenance actions have been undertaken. Furthermore, a checklist, such as WASH-FIT needs to be applied to test the adequacy of the management arrangements. This needs to be matched to the ongoing water quality testing records to ensure any problems can be identified early.

The experiences of hospitals so far show that more rigorous systems need to be in place. Some have no DEWATS operator in place. For example, in Aini the previous operator left more than 3 months ago and has not been replaced. Furthermore, the hospital has no full-time plumber and no ongoing monitoring is taking place. There are also early signs that some slippage is occurring with two manholes not being connected to the localised network and overflowing sewage, which needs to be fixed. In Vahdat it was reported that there was no budget for minor operation and maintenance repairs. Understanding and addressing these issues rapidly forms an important first step in developing a wider system strengthening approach.

*"We all agree that we need to have an operator for maintaining the DEWATS system. Our operator left his job about three months ago. Already, we experienced challenges in running the system. We should take immediate action and will try our best."*⁶

EQ18: To what extent have project outcomes been integrated into local and national frameworks, policies, and practices?

The project has been aligned to national policy and mandated institutions, such as the Hukumat and the State Unitary Enterprise "Housing and Communal Services" ("Khojagii Manziliyu Kommunalii", KMK) have knowledge and appreciation of this project. When the system was accepted, all relevant members of the Hukumat were on the commission, responsible for approving the DEWATS. Additional benefits include greater knowledge and understanding of DEWATS within Hukumat and it has demonstrated how safely treated wastewater can be used to support agricultural production. This was cited as being increasingly important as human water demands increase, resulting in larger volumes of wastewater, coupled with the growing pressures from climate change.

EQ19: What financial mechanisms are in place to support the ongoing operation and maintenance of DEWATS. What is the likelihood that local stakeholders will continue to use and maintain DEWATS systems after project completion?

Hospitals are currently responsible for recurrent operating costs. In Aini and Fayzabad, respondents mentioned they are budgeting for ongoing costs including hiring a sewage disposal truck, which will incur around 15,000 – 20,000 Somoni (\$1400 - \$1800 USD)⁷. However, it is uncertain whether they are receiving annual budget support from Hukumat and central government, as some hospitals (such as Rudaki) are reliant on existing electricity and water budgets to cover these costs. Further budget support is likely required.

⁶ Hospital worker, Aini Central District Hospital

⁷ Estimated cost provided during interviews with BORDA.

Partnerships with Academia

EQ20. To what extent can University staff deliver and sustain the new teaching course on decentralised wastewater treatment systems?

One very positive way in which the project tried to achieve greater impact was through developing a course on decentralised wastewater treatment systems, which is due to commence in 2025. The course content is to be integrated into two modules, namely: 700403-01 “Water Supply and Wastewater System” and 700403-04 “Rational Use and Protection of Water Resources”. Both courses are to be delivered by the Tajik Technical University (TTU) and the curriculum will consist of:

- 24 hours of lectures,
- 16 hours of practical classes,
- 8 hours of practical work with a teacher, and
- 24 hours of independent student coursework.

On the positive side, the course is seen as being in high demand. It has been academically approved and University lecturers have received training and education to deliver the course. One respondent was confident the course will be delivered to the required academic standards and teaching aids/materials have been developed to the satisfaction of TTU.

However, the experience of some respondents was that the decision to include a wastewater treatment course as part of this project was pre-conceived without having a thorough knowledge of the existing curriculum at TTU. Thus, a robust review of what TTU were already teaching was not undertaken and this has led to duplication of lectures between the existing curriculum and proposed module. The final recommendation by EQUIDEV’s consultant was that the new module should be better aligned to TTUs existing wastewater engineering curriculum to avoid duplication. This did not happen and instead it was driven in large part by influential retired staff at TTU, without really engaging with the current teaching staff or taking a student perspective – for example promoting more groupwork or evolving teaching methods.

The process was described by some respondents as ‘frustrating’ and it should also be borne in mind there was a significant delay (around 4 months) before details of the current curriculum was shared with EQUIDEV and the consultants. Another respondent raised concerns that lecturers still need additional training before they can teach the course and there are few engineering jobs in rural areas with adequate salaries that will attract graduates to apply this learning in practice. This implies there is an imbalance between supply and demand that this course cannot address without further government support and assistance. Graduates will need to be supported and incentivized to pursue sanitation specialisations, which is a broader issue for government and the wider WASH sector to address. More and better communication and promotion is required to raise the prestige of decentralised sanitation services and build links with industry so that students choose this specialty as part of their professional work. We do note that EQUIDEV have tried to partially address some of these issues by offering students practical field placements to increase their experience and ability in this important area.

Conclusions

In its programming across at least the five districts visited as part of this evaluation, EQUIDEV and BORDA are both effective and competent organisations with a long track record of WASH work in Tajikistan. BORDA are also experienced in delivering decentralised wastewater treatment options across the region. EQUIDEV have been working on wastewater treatment

systems in Tajikistan since 2018 and has knowledge of different technology options as well as the institutional arrangements (such as working with Hukumat) for their delivery and sustainability. EQUIDEV and BORDA are also continuing their working relationship in Penjikent, Tajikistan.

However, there are some aspects of this project that need attention and threaten the achievement of sustainability. Clarity regarding roles and responsibilities between EQUIDEV and BORDA could have been clearer, especially now that the need for corrective action has been identified. EQUIDEV and BORDA need to agree who will undertake this follow up work within the remaining time of this current project. A strong working partnership needs to be evident so that issues of concern are resolved rapidly, rather than focussing solely on the original key deliverables. The second is an issue in point and relates to the inadequate attention on post construction operation and maintenance. This is an area that needs more support and the assumption that hospital staff will be able to establish Standard Operating Procedures for O&M following a one-off, one-day training workshop was flawed. EQUIDEV or BORDA should address this issue and more focussed support should be provided to hospitals so that gradual improvements can be made. The performance and functionality of the DEWATS is likely to decline if this is not addressed. The DEWATS technologies are intended to demonstrate appropriate solutions for rural contexts. Consequently, there needs to be an evolution away from delivering the technology as a construction project to explicitly engaging with hospitals and Hukumat to see how these facilities will be sustained, and how the technology will be applied beyond health care facilities.

Recommendations

The recommendations in this section are made in relation to the sustainability of the decentralised wastewater treatment systems and the interlinkages between the DEWATS module and EQUIDEV's wider systems strengthening work.

Recommendations concerning the performance of decentralized wastewater treatment systems.

R1: Address all aspects of the sanitation system: This project has placed the spotlight on wastewater treatment systems, but corresponding improvements are also needed to improve WASH services within hospital buildings so they are accessible and acceptable with regards to their reliability and cleanliness. Future work should consider all aspects of the sanitation chain, in particular the needs to women, children and patients with disability.

R2: Face the WASH-FIT Challenge: EQUIDEV and its partners need to develop a clear plan to address the problems identified in the WASH-Fit assessment. Only then can hospital staff be better informed and prepared for taking on operation and maintenance duties – such as scum/sludge management. A monitoring tool, such as WASH-Fit needs to be introduced and the problems identified need to be addressed rapidly. WASH-Fit has been specifically developed by WHO for application in health care facilities and it is a suitable tool for rural Tajikistan. The requirement now is for EQUIDEV and BORDA to devote the necessary time to overcome the operation and maintenance challenges that are arising. The WASH-FIT monitoring tool should also be adopted more widely so there is a systematic monitoring process and there needs to be a corresponding plan of follow up action that is costed.

R3: Develop a strategy for sustainability of wastewater treatment systems: At institutional level this will require hospitals to have standard operating procedures in place for operation and maintenance, which includes record keeping. In particular they will need practical methods for operating, cleaning of the DEWATS, as well as monitoring quality of water effluent. The sustainability strategy will need to identify what roles can be performed by hospital staff routinely and areas where external support by HUKUMAT is required.

R4: Agreements for wastewater quality testing: Undertake detailed discussions involving hospitals, HUKUMAT and water quality testing laboratories around the practicality of rigorous wastewater quality tests and understand the desirability for the following:

- Roles and responsibilities for wastewater sampling and testing;
- Arrangements for corrective or follow up action if testing results are unclear or corrective action is required;
- Arrangements for financing water quality tests, including transportation, testing and analysis.

R5: Practical wastewater testing: Linked to R3, it is clear that the issue of wastewater quality testing is yet to be resolved in Tajikistan. EQUIDEV and its partners (MoHSPP and KMK) need to find a workable solution for hospitals if wastewater quality testing is to be conducted now. Practical measures should be considered as efforts to improve the performance of national laboratories may take considerable time and expense and should be government-led. Options for simpler, more appropriate methods insitu, such as a simple colour comparator to test for turbidity should be considered for observing environmental impacts (such as photos) and for measuring wastewater quality. This means using turbidity analysis against a pre-printed scale as a measure of Biological Oxygen Demand (BOD)⁸.

R6: Advocate for more and better local government funding: Advocate for funding to all districts so the demonstration decentralised wastewater treatment systems can be sustained. The logic for this is that if these systems fall into decline the prospect of their uptake will be diminished and it will provide government with a better understanding of how budget allocations should increase. In particular, funds should be provided to hospitals including a budget line for DEWATS, as well as regulatory support by HUKUMATS.

Recommendations about sanitation planning

R7: Systems thinking: This project has placed the spotlight on the issue of rural sanitation and wastewater treatment. Having completed demonstration models, engaged with government counterparts (such as MOHSPP) and academia, EQUIDEV (and BORDA) should continue to work with others (including external donors) to support strategic thinking on rural sanitation across Tajikistan. By bringing together government counterparts at national and local level, health professionals, academia and practitioners EQUIDEV are well placed to encourage all players to work towards a common conceptualisation of the desired future for wastewater treatment in rural areas. To achieve this, DEWATS systems need to be prioritised in national sanitation policy, with corresponding increases in national budget allocations with local government as the de-facto authority. There also needs to be a continuous focus on learning and developing knowledge and skills.

R8: Ongoing collaboration with TTU: A useful working relationship has been established with TTU. It would be helpful if government institutions, with the assistance of EQUIDEV and BORDA, could also offer summer placements at the constructed DEWATS systems to further develop the skills and expertise of students. This could be an extension to the taught DEWATS module and would be a cost-effective method for undertaking specific research studies that can complement the routine monitoring duties that hospitals should be performing. For example, a summer research project could investigate how the WASH-FIT tool is being applied and whether corrective follow-up action has been taken by the mandated institutions.

R9: WASH services within hospitals: It is clear that some hospitals also lack adequate water and sanitation services within hospitals, as well as requiring improved wastewater treatment

⁸ Von Sperling, M (2020) A simple field essay for detecting departures from expected performance in small-scale, remote or rural wastewater treatment plants, Water Science and Technology, IWA Publishing.

systems outside. There should be a commitment on the part of government, donors and implementing agencies, so that future DEWATS project address both aspects.

R10: Articulation of a clear national strategy for DEWATS: This project has introduced the concept of decentralised wastewater treatment systems. This work has primarily been led by EQUIDEV, with assistance from its partners. This now needs to evolve so there is strategic thinking about DEWATS in the medium and longer term – next five to twenty years from now. EQUIDEV, BORDA and Oxfam Consults are well placed to share their national and international expertise and bring together different actors (government, academia, service providers) to work towards a common goal. A new strategy should be developed. It should be government-led and focus on upscaling and sustaining a range of DEWATS technologies across rural areas of Tajikistan. This strategy should also ensure strong government leadership at national and local levels so district wide approaches are introduced.

R11: Learning: The issues identified in this report and the project experiences of EQUIDEV and their partners should be shared with government counterparts and hospital staff. This could take the form of a ½ day workshop.

Annex 1: Terms of Reference



Terms of Reference (ToR) for International Independent Consultant for Final Evaluation of SDC-Funded Project

Project Title: SDC-Funded Project on Building Knowledge and Awareness on Sustainable Sanitation Solutions

Location: Dushanbe, Tajikistan

Project Duration: 2022 - 2024

Evaluation Duration: July-September 2024

Reporting to: Gulchehra Boboeva, CEO, Equidev

Background:

Equidev has been implementing an SDC-funded project aimed at Building Knowledge and Awareness on Sustainable Sanitation Solutions. The project aims to improve the health conditions of the Tajikistan population through access to sustainable sanitation. This project demonstrates the effectiveness of DEWATS systems as a low-cost, effective sustainable sanitation solution. It captures learnings from existing DEWATS systems and installs additional systems. The learnings will be used to demonstrate the effectiveness of decentralized sanitation systems to key stakeholders from decision-making and implementing government bodies, academia, and civil society organizations in Tajikistan. Targeted training and course development in sustainable sanitation services and hygiene behavior change

campaigns will increase capacity within Tajikistan to deliver decentralized sustainable sanitation solutions.

Objectives:

The intended impact of this project is to improve the health conditions of the Tajikistan population through access to sustainable sanitation services and improved hygiene behaviours. The overall goal is that by 2024, key stakeholders will have technical knowledge and capacity to provide sustainable sanitation services to their communities in Tajikistan.

Project Outcomes and Outputs:

Outcome 1: Medical facilities provide safe sanitation services to their personnel and users/patients.

Output 1.1: Completion of running and construction of new DEWATS.

Output 1.2: Responsible authorities have the knowledge and capacity to manage DEWATS sustainably (through capacity building of the administration of the health facilities directly responsible for O&M of DEWATS, etc.).

Outcome 2: Relevant state institutions⁹ promote decentralized sanitation technologies.

Output 2.1: Evidence base for the introduction of DEWATS in Tajikistan is created (i.e. through comprehensive assessment/documentation).

Output 2.2: Advocacy, capacity building, and training of various stakeholders (i.e. decisionmakers, academia/universities, relevant state agencies such as SES, architecture committee, etc.) is conducted.

Output 2.3: Revision of university curricula on DEWATS and contribution to the revision of standards and norms.

Project Activities:

1. **Long-term and Real Environmental Analysis:** Analyse process and performance of DEWATS systems, including water analysis, operation and maintenance requirements, economic parameters, and institutional responsibilities. Create evidence of lessons learned and good practices for DEWATS in Tajikistan, identifying areas for improvement in future implementations.
2. **Comprehensive Assessment of DEWATS:** Conduct an assessment of DEWATS in Tajikistan, based on six hospitals in urban and re-urban locations. This assessment will be conducted by Equidev in partnership with Oxfam Consults and BORDA in five pilot districts. It will analyse institutional capacity, operation and maintenance data, community acceptance, and social and environmental impact.
3. **SSWM Training:** Conduct training on Sustainable Sanitation and Water Management (SSWM) for 20 people from government agencies, ensuring a systematic approach to planning, implementing, and maintaining sustainable water and sanitation services. Additionally, conduct hygiene promotion training for 20 medical staff at Faizabad hospital.
4. **Awareness Workshops:** Conduct four one-day workshops in different provinces of Tajikistan on the impact of inadequate sanitation and decentralized sanitation systems

⁹ MoHSP, MoEWR, SUE KMK, MoES, CoCA and Tajik Technical University

as suitable solutions. These workshops aim to build awareness and advocacy among 100 participants from government and communities.

5. **Support Tajik Technical University:** Support the development of a course on Decentralized Sanitation Systems at the Tajik Technical University, including organizing a Training of Trainers for 10 professors/teachers.

Objectives of the External Evaluation

The main objective of the external evaluation is to assess the effectiveness, efficiency, relevance, impact, and sustainability of the project. The evaluation will be guided by the OECD DAC criteria and will aim to:

1. **Assess the achievement of project outcomes and outputs** as specified in the project's logical framework.
2. **Evaluate the efficiency and effectiveness** of project implementation, including the management and use of resources.
3. **Analyse the relevance** of the project strategies and approaches in the context of Tajikistan's sanitation needs.
4. **Determine the impact** of the project on the target beneficiaries, including health outcomes and capacity development.
5. **Evaluate the sustainability** of the project's results, particularly the adoption and maintenance of DEWATS by local stakeholders.
6. **Learn the best practices and challenges** driven from this project for application or adaptation in new projects.

Scope of the Evaluation

The scope of the evaluation will encompass a thorough examination of the project across various dimensions as outlined below. The evaluation will consider both qualitative and quantitative aspects, ensuring a comprehensive understanding of the project's performance, challenges, and achievements.

Evaluation criteria	Dimension	Possible questions
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<p>1. Project Design and Relevant</p>	<p>Alignment with National Policies: Assess how well the project aligns with national sanitation and health policies in Tajikistan, as well as SDG targets.</p> <p>Needs Assessment: Evaluate the extent to which the project design addressed the identified sanitation needs of the target population.</p> <p>Stakeholder Involvement: Review the engagement of key stakeholders in the project design phase and their alignment with the project objectives.</p>	<p>How well does the project align with national and international sanitation and health policies, including SDG targets?</p> <p>Were the needs of the target population accurately identified and addressed in the project design? Were they consulted during the project design, implementation and review processes?</p> <p>To what extent were key stakeholders involved in the design phase of the project, and how did their inputs shape the project?</p>
<p>2. Effectiveness</p>	<p>Achievement of Outcomes and Outputs: Measure the extent to which the project achieved its intended outcomes and outputs as outlined in the logical framework.</p> <p>Quality and Timeliness of Activities: Assess the quality and timeliness of the activities implemented, including the construction and operation of DEWATS systems.</p> <p>Capacity Building: Evaluate the effectiveness of training programs and workshops in</p>	<p>To what extent were the project's intended outcomes and outputs achieved? (Logframe analysis)</p> <p>Were the activities implemented with high quality and completed within the planned timelines? What were the key achievements and challenges?</p>
	<p>enhancing the knowledge and skills of stakeholders.</p>	<p>How effective were the training programs and workshops in building the capacity of stakeholders in sustainable sanitation?</p>

<p>3. Efficiency</p>	<p>Resource Utilization: Analyse the efficiency in the use of financial, human, and material resources.</p> <p>Management Practices: Review the project management practices, including planning, coordination, and monitoring mechanisms.</p>	<p>How efficiently were the project resources (financial, human, and material) utilized? (Budget, HR and resource utilisation analysis)</p> <p>What project management practices were employed, and how effective were they in ensuring smooth implementation? How was the communication between SDC and EQUIDEV? How effective were resources used to implement the project? Was EQUIDEV in capable of independtly implement the project? What partnership or technical advisory was in place to support the project?</p>
<p>4. Impact</p>	<p>Health Outcomes: Assess the changes in health conditions and hygiene behaviours among the target population attributable to the project.</p> <p>Environmental Impact: Evaluate the environmental benefits resulting from the implementation of DEWATS, such as improved water quality and reduced pollution.</p> <p>Institutional Impact: Examine the impact on the capacities of local institutions and their ability to manage and promote sustainable sanitation solutions.</p>	<p>What changes in health conditions and hygiene behaviours have been observed among the target population as a result of the project?</p> <p>How has the implementation of DEWATS contributed to environmental improvements, such as water quality and reduced pollution?</p> <p>What impact has the project had on the capacities of local institutions to manage and promote sustainable sanitation solutions?</p>
<p>5. Sustainability</p>	<p>Adoption and Maintenance of DEWATS: Evaluate the prospects for the continued use and maintenance of DEWATS by local stakeholders after project completion.</p>	<p>What is the likelihood that local stakeholders will continue to use and maintain DEWATS systems after project completion?</p> <p>To what extent have the project outcomes been integrated into</p>

	<p>Institutionalization of Outcomes: Assess the degree to which project outcomes have been integrated into local and national frameworks, policies, and practices.</p> <p>Financial Sustainability: Analyse the financial mechanisms in place to support the ongoing operation and maintenance of DEWATS.</p>	<p>local and national policies and practices?</p> <p>Are there financial mechanisms in place to support the ongoing operation and maintenance of DEWATS systems?</p>
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Develop Evaluation Methodology:

- Design an evaluation framework and methodology, including data collection tools and techniques.
- Ensure the methodology is participatory, inclusive, and contextually appropriate.

In designing of the methodology, the following approaches should be applied to:

- Document Review
- Key Informant Interviews
- Surveys and Questionnaires
- Field Visits (Vahdat, Aini, Sarvoda, Rudaki and Faizobod districts)

Reporting:

- Prepare a comprehensive evaluation report that includes an executive summary, methodology, findings, conclusions, and recommendations.
- Present the draft report to Equidev for feedback and incorporate comments.
- Finalize the evaluation report based on feedback received.

Presentation of Findings

Deliverables:

- **Inception Report:** Outlining the evaluation approach, methodology, and work plan.
- **Draft Evaluation Report:** Comprehensive report with findings and recommendations.
- **Final Evaluation Report:** Incorporating feedback from Equidev and stakeholders
- **Presentation of Findings:** PowerPoint presentation summarizing key findings and recommendations.

Timeline

Phase	Activity	Timeframe	Responsible Person(s)	Notes
Planning	Define evaluation objectives	Week 1	Project Manager	
	Develop evaluation plan	Week 1	Evaluation Team	
	Identify stakeholders	Week 1	Project Manager	
	Develop data collection tools	Week 2	Evaluation Team	
Data Collection	Conduct surveys/interviews/focus groups	Week 2-4	Evaluation Team	
	Collect project documents and reports	Week 4	Project Staff	
	Gather quantitative data	Week 4-5	Data Analyst	
Data Analysis	Analyse qualitative data	Week 5-6	Evaluation Team	
	Analyse quantitative data	Week 6-7	Data Analyst	
	Compare results with project objectives	Week 8	Evaluation Team	
	Reporting	Prepare draft evaluation report	Week 8-9	Evaluation Team
	Review draft report with stakeholders	Week 10	Project Manager	
	Incorporate feedback and finalize report	Week 11	Evaluation Team	
	Present findings to stakeholders	Week 12	Project Manager	

Qualifications and Experience:

- Advanced degree in international development, public health, social sciences, or a related field.
- At least 10 years of experience in project evaluation, particularly in WASH and/or Public Health
- Strong analytical and research skills, with a track record of producing high-quality evaluation reports.
- Substantial experience and knowledge of sustainable sanitation solutions globally • Experience working in Central Asia, particularly in Tajikistan, is desirable
- Excellent understanding of evaluation methodologies and tools.
- Ability to work independently and manage multiple tasks within tight deadlines.
- Strong communication and presentation skills.
- Proficiency in English; knowledge of Russian/Tajik languages is an asset.

Evaluation and Selection Criteria

Applications will be evaluated based on the following criteria:

1. **Technical Competence:** Understanding of the assignment, proposed methodology, and work plan.
2. **Relevant Experience:** Demonstrated experience in similar evaluations and technical expertise in WASH projects.

3. **Financial Proposal:** Cost-effectiveness and alignment with available budget

Application Process:

Interested candidates are invited to submit the following documents:

- **Cover Letter:** Highlighting relevant experience and suitability for the role.
- **CV:** Detailed curriculum vitae including references.
- **Technical Proposal:** Outline of the proposed evaluation approach and methodology.
- **Financial Proposal:** Detailed budget breakdown for the evaluation.

Submission Deadline: 30 June 2024

Contact Information:

Applications should be submitted electronically at equidevjobs@equidev.info and with a copy muzaffar.akhmedov@equidev.info with the subject line "Application for Final Evaluation Consultant – SDC-Funded Project".

Equidev Contact Information:

IPO "Equitable Development"

37/1 Bokhtar Street

734025 Dushanbe,

Tajikistan

support@equidev.info

+992 44 600 3020

www.equidev.info

Note: Only shortlisted candidates will be contacted for an interview. Equidev is an equal opportunity employer and encourages applications from qualified individuals regardless of gender, race, or disability.

Annex 2: List of key informants

No	Name	Organisation
1	Dr. Gulchehra Boboeva (F)	(Equidev, former Oxfam staff)
2	Tim Foster (M)	Oxfam Consults
3	Farhod Khalikov (M)	EQUIDEV
4	Tatjana Schellenberg (F)	BORDA
5	Brian Reed (M)	Independent (Oxfam Consults)
6	Samariddin Bahriddinov	EQUIDEV
7	Mirzoev Kiyomiddin (M)	Rudaki Hospital
8	Faizulloev Komron (M)	Rudaki Hospital
9	Mirzoev Nurmakhmad (M)	Rudaki Hospital
10	Bakhrinzoda (M)	Aini Hospital
11	Nurova Shokhsanam (F)	Aini Hospital
12	Saidova Gulnoz (F)	Aini Hospital
13	Sattorov Abdukhalil (M)	Aini Hospital
14	Kosimov Bekhruz (M)	Aini Hospital
15	Malikov Hussein (M)	Aini District (Government)
16	Jafarov Navruz (M)	Deputy Head SES, MoHSPP
17	Amirzoda Abdukholik Amir (M)	Deputy Minister MoHSPP
18	Satorov Shakhriyor (M)	Dean of Faculty Tajik Agrarian University

19	Normatov Abdurakhmon (M)	Associate Professor (retired) TTU
20	Maramov Mirgul (M)	Acting Associate Professor TTU
21	Murodov Jamshed (M)	Deputy Head SUE Vodokanal Dushanbe
22	Zainiddinzoda Bakhtiyor Karomatullo (M)	Fayzabad District
23	Kakhorov Jamshed (M)	Department of Environmental Protection Fayzabad District
24	Sarmisokov Khudzhamurod (M)	Head: SES Fayzabad District
25	Nuraliev Tavarali Rustamovich (M)	Fayzabad Hospital
26	Rasulov Asadulo (M)	Chief Doctor Fayzabad Hospital
27	Tagoev Rustam (M)	Chief Engineer of OJSC Fayzabad
28	Faizulloev Komron (M)	Operator Rudaki Hospital
29	Mirzoev Nurmakhmad (M)	Operator Rudaki Hospital
30	Mirzoev Kiyomiddin (M)	Chief Doctor Rudaki Hospital
31	Sayfiev Jamshed (M)	Contractor Rudaki
32	Ikromzoda Shokirjon (M)	Deputy Chairman Vakhdat City
33	Anvarshohi Kurbonali (M)	Chief Engineer Vakhdat
34	Fathulloev Isroil (M)	Deputy Director SIHCS
35	Eshmatov Khodjikhasan (M)	Operator Vakhdat
36	Kholov Abduhalim (M)	Chief Doctor Vakhdat rural Hospital

Annex 3: WASH Fit Results

Note: this was not a full WASH FIT assessment but an adaption to look at sanitation aspects in particular. Additional sections were added to assess social and environmental issues

Rudaki Central Hospital		#1	#2
SUMMARY FOR SANITATION			
	Topic	SCORE	SCORE
1	Toilets	88%	90%
2	Sewers	100%	100%
3	Wastewater treatment	0%	0%
4	Environmental impact	0%	50%
5	Management of sanitation	79%	79%
6	Health and safety for sanitation workers	80%	70%
Total score		346%	388%
Number of indicators assessed		6	6
Average score (%)		58%	65%

Vahdat hospital

#1

#2

SUMMARY FOR SANITATION			
	Topic	SCORE	SCORE
1	Toilets	75%	74%
2	Sewers	100%	100%
3	Wastewater treatment	0%	0%
4	Environmental impact	0%	50%
5	Management of sanitation	64%	64%
6	Health and safety for sanitation workers	70%	70%
		Total score	309% 358%
		Number of indicators assessed	6 6
		Average score (%)	52% 60%

Hisor hospital

#1

#2

SUMMARY FOR SANITATION			
	Topic	SCORE	SCORE
1	Toilets	95%	94%
2	Sewers	100%	100%
3	Wastewater treatment	0%	0%
4	Environmental impact	0%	50%
5	Management of sanitation	71%	79%
6	Health and safety for sanitation workers	90%	90%
		Total score	356% 413%
		Number of indicators assessed	6 6
		Average score (%)	59% 69%

Ayni hospital

#1

#2

SUMMARY FOR SANITATION			
	Topic	SCORE	SCORE
1	Toilets	75%	75%
2	Sewers	0%	0%
3	Wastewater treatment	0%	0%
4	Environmental impact	0%	50%
5	Management of sanitation	64%	64%
6	Health and safety for sanitation workers	70%	70%
		Total score	209% 259%
		Number of indicators assessed	6 6

Average score (%)

35%

43%

Sarvoda hospital

#1

#2

SUMMARY FOR SANITATION			
	Topic	SCORE	SCORE
1	Toilets	85%	84%
2	Sewers	100%	100%
3	Wastewater treatment	0%	0%
4	Environmental impact	0%	50%
5	Management of sanitation	71%	79%
6	Health and safety for sanitation workers	70%	70%
	Total score	326%	383%
	Number of indicators assessed	6	6
	Average score (%)	54%	64%

Tool 6: Template for the Management Response

Management response to the evaluation of “Building Knowledge and Awareness on Sustainable Sanitation Solutions in Tajikistan” project

Management Response

The Management Response (MR) states the agreed position of the SCO and EQUIDEV on the recommendations of the evaluation of “Building Knowledge and Awareness on Sustainable Sanitation Solutions in Tajikistan” project. The MR provides a solid basis for strategic decision-making. The relevant stakeholders should be consulted.

Assessment of the evaluation

The evaluation was conducted by S. Day, S. Yarbaeva, B. Umarov and M. Dodojanova in accordance with international standards. The evaluation process was well managed and included close involvement of the SDC’s reference group comprising Alisher Shabdolov, NPO Rural Water Supply and Sanitation and SCO Water Backstoppers from SKAT.

The main objectives – to assess the effectiveness, efficiency, relevance, impact, and sustainability of the project – have been met by the evaluators. The SDC appreciates the comprehensiveness of the evaluation report and the sound analysis of key elements of the partner’s performance in “Building Knowledge and Awareness on Sustainable Sanitation Solutions in Tajikistan” project.

The report’s analysis and resulting recommendations are considered to be useful for strengthening the strategic orientation of SCO WASH portfolio specifically the strengthening sanitation component of the current and future projects.

Main findings

Shortly present an overall statement regarding the evaluation itself, especially its accuracy and usefulness, including an overall opinion on the most important recommendations in management’s views.

The evaluation has provided significant insights into the project’s outcomes, the challenges faced, and the necessary follow-up actions. While the majority of the recommendations focus on operational aspects and are directed at the project implementing partner (i.e., EQUIDEV), the Swiss Cooperation Office will carefully review and address several strategic recommendations. These recommendations will shape SCO policy dialogue and advocacy efforts within its broader WASH portfolio, particularly those related to enhancing the policy framework and increasing government investment to promote innovative technologies in the WASH sector, with a special emphasis on sanitation.

Summarise the conclusions and the follow-up from the evaluation as described in the section below.

The project has had a positive impact, demonstrating that progress on rural sanitation is achievable. The government of Tajikistan is engaged and acknowledges both the ad-

vantages of this technology and the importance of prioritizing rural sanitation within institutions and communities. However, the evaluation highlights the need for greater emphasis on improving water and sanitation services in hospitals, which were outside the project’s scope. Additional efforts by EQUIDEV, BORDA, and local government are necessary to address routine operation and maintenance challenges. Furthermore, increased support is essential to integrate the DEWATS teaching module into broader sanitation sector planning, enabling graduates to effectively apply their knowledge in practice and contribute to the sector’s development.

Out of the 11 recommendations, 8 are ‘fully agreed’ (green) and 3 are ‘partially agreed’ – see table below. The SDC agrees to seize this opportunity to improve its results by taking specific relevant measures in line with the recommendation.

1. R1: Address all aspects of the sanitation system	Green	
2. R2: Face the WASH-FIT Challenge	Yellow	
3. R3: Develop a strategy for sustainability of wastewater treatment systems	Yellow	
4. R4: Agreements for wastewater quality testing	Green	
5. R5: Practical wastewater testing	Green	
6. R6: Advocate for more and better local government funding	Yellow	
7. R7: Systems thinking	Green	
8. R8: Ongoing collaboration with TTU	Green	
9. R9: WASH services within hospitals	Green	
10. R10: Articulation of a clear national strategy for DEWATS	Green	
11. R11: Learning	Green	
Fully agree	Partially agree	Disagree

Overview of recommendations, management response and measures

Recommendation 1 - Address all aspects of the sanitation system		
This project has placed the spotlight on wastewater treatment systems, but corresponding improvements are also needed to improve WASH services within hospital buildings so they are accessible and acceptable with regards to their reliability and cleanliness. Future work should consider all aspects of the sanitation chain, in particular the needs to women, children and patients with disability.		
Management response by project implementer		
Fully agree	Partially agree	Disagree
The recommendation aligns with the holistic approach required for effective and sustainable improvements in sanitation systems within healthcare facilities. While this project has significantly enhanced wastewater treatment systems, we recognize that addressing the entire sanitation chain - including the accessibility, reliability, and cleanliness of WASH services within hospital buildings - is equally important. Ensuring that these services meet the needs of women, children, and patients with disabilities is critical to creating an inclusive and equitable healthcare environment.		

Measures	Responsibility	Timing
a) Advocate with government authorities, development partners, and donors to adopt a holistic approach that encompasses the full WASH package, including water supply, wastewater management, sanitation, and hygiene.	SCO, Equidev	Ongoing
b) Collaborate with local authorities, hospital management, and community representatives to prioritize and implement comprehensive sanitation solutions that address the entire sanitation chain.	Equidev	Ongoing
c) Upgrade existing facilities to include accessible toilets, handwashing stations, and hygiene infrastructure that cater to the needs of all users, with a focus on women, children, and individuals with disabilities.	Hospital Management and local Government Authority (Hukumat)	Ongoing: Equidev is actively collaborating with both traditional and non-traditional donors to enhance WASH (Water, Sanitation, and Hygiene) facilities in healthcare settings. Equidev partnered with the German Embassy to construct 3-flush toilets in hospitals in Hisor, Vahdat, and Faizobod, all of which are connected to newly built DE-WATS.

Recommendation 2 - Face the WASH-FIT Challenge

EQUIDEV and its partners need to develop a clear plan to address the problems identified in the WASH-Fit assessment. Only then can hospital staff be better informed and prepared for taking on operation and maintenance duties – such as scum/sludge management. A monitoring tool, such as WASH-Fit needs to be introduced and the problems identified need to be addressed rapidly. WASH-Fit has been specifically developed by WHO for application in health care facilities and it is a suitable tool for rural Tajikistan. The requirement now is for EQUIDEV and BORDA to devote the necessary time to overcome the operation and maintenance challenges that are arising. The WASH-FIT monitoring tool should also be adopted more widely so there is a systematic monitoring process and there needs to be a corresponding plan of follow up action that is costed.

Management response by project implementer

Fully agree **Partially agree** Disagree

EQUIDEV and BORDA recognizes WASH-FIT as a valuable WHO framework for improving WASH services in rural healthcare facilities, providing a structured approach to addressing operational challenges like scum/sludge management. However, we partially agree with the recommendation on improved O&M compliance, and the need for further staff training, and analysis of the financial constraints, and the requirement for coordination among multiple stakeholders, which may exceed EQUIDEV and BORDA's current capacity.

Measures	Responsibility	Timing
a) Work closely with relevant stakeholders to share resources, expertise, and responsibilities for implementing and scaling WASH-FIT.	Equidev	In 2025-2026

b) Advocate for additional funding and support from donors and government bodies to address the cost implications of implementing WASH-FIT and executing the follow-up action plans.	Equidev	In 2025-2026
c) Provide refresher training for hospital staff on O&M principles and methodologies to enable effective operation and maintenance of sanitation facilities, and to ensure good record-keeping.	Equidev and BORDA	In 2025-2026

Recommendation 3 - Develop a strategy for sustainability of wastewater treatment systems

At institutional level this will require hospitals to have standard operating procedures in place for operation and maintenance, which includes record keeping. In particular they will need practical methods for operating, cleaning of the DEWATS, as well as monitoring quality of water effluent. The sustainability strategy will need to identify what roles can be performed by hospital staff routinely and areas where external support by pemerintah is required.

Management response by project implementer

Fully agree **Partially agree** Disagree

While the development of a sustainability strategy for wastewater treatment systems is critical, the reliance on hospital staff for all aspects of operation and maintenance (O&M) may not always be feasible given existing capacity constraints. A balanced approach involving clear delineation of responsibilities between hospital staff and external support from pemerintah is essential. Additionally, the practical implementation of water effluent monitoring will require affordable and user-friendly tools and capacity building.

a) Work closely with relevant stakeholders to share resources, expertise, and responsibilities for implementing O&M.	Equidev	In 2025-2026
b) Advocate for additional funding and support from donors and government bodies to address the cost implications of implementing O&M.	Equidev	In 2025-2026
c) Provide refresher training for hospital staff on O&M principles and methodologies to enable the effective operation and maintenance of sanitation facilities and ensure good record-keeping.	Equidev and BORDA	In 2025-2026

Recommendation 4 - Agreements for wastewater quality testing

Undertake detailed discussions involving hospitals, pemerintah and water quality testing laboratories around the practicality of rigorous wastewater quality tests and understand the desirability for the following:

- Roles and responsibilities for wastewater sampling and testing;
- Arrangements for corrective or follow up action is testing results are unclear or corrective action is required;
- Arrangements for financing water quality tests, including transportation, testing and analysis.

Management response by project implementer

Fully agree Partially agree Disagree

We fully agree with this recommendation as it aligns with the critical need to establish clear roles, responsibilities, and mechanisms for wastewater quality testing. The project's final evaluation highlighted the lack of proper laboratory capacity, unclear accountability for sampling

and testing, and the absence of financial arrangements for regular monitoring. Addressing these gaps is vital to ensure the sustainability and effectiveness of decentralized wastewater treatment systems (DEWATS) in healthcare facilities.

Measures	Responsibility	Timing
a) Facilitate discussions with SES, hospitals, hukumat, and water quality laboratories to define roles and responsibilities for wastewater sampling and testing.	Equidev	2025-2027
b) Collaborate with key stakeholders to advocate for sustainable funding mechanisms to cover wastewater testing and analysis costs.	Equidev	2025-2027
c) Advocate for additional funding and support from donors and government bodies to address the challenges of wastewater testing. This will include developing national standards and protocols, and simple, cost-effective methods for sampling and analysis, that are applicable at the Regional and National levels.	Equidev	2025-2027

Recommendation 5 - Practical wastewater testing

Linked to R3, it is clear that the issue of wastewater quality testing is yet to be resolved in Tajikistan. EQUIDEV and its partners (MoHSPP and KMK) need to find a workable solution for hospitals if wastewater quality testing is to be conducted now. Practical measures should be considered as efforts to improve the performance of national laboratories may take considerable time and expense and should be government-led. Options for simpler, more appropriate methods in situ, such as a simple colour comparator to test for turbidity should be considered for observing environmental impacts (such as photos) and for measuring wastewater quality. This means using turbidity analysis against a pre-printed scale as a measure of Biological Oxygen Demand (BOD).

Management response by project implementer

Fully agree	Partially agree	Disagree
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We fully agree with this recommendation as it provides a practical and immediate solution to the pressing challenge of wastewater quality testing in Tajikistan. Given the current limitations in national laboratory capacity and the urgency to ensure proper monitoring of decentralized wastewater treatment systems (DEWATS), simpler in-situ methods such as turbidity analysis offer a cost-effective and feasible interim solution. These methods will help ensure timely observations of environmental impacts and wastewater quality, supporting operational sustainability while national laboratory improvements are underway.

Measures	Responsibility	Timing
a) Work with EAWAG institute to learn from their experience about practical and simple testing methodology in development countries and adapt it to Tajikistan	Equidev, BORDA & Oxfam Consults	2025-2027
b) Work closely with MoHSPP, SES, KMK, and other stakeholders to integrate in-situ testing into routine monitoring while advocating for long-term wastewater testing solutions.	Equidev	2025-2027
c) Continue advocating for government-led improvements in national laboratory capacity while demonstrating the benefits of interim in-situ methods.	Equidev and BORDA	2025-2027

Recommendation 6 - Advocate for more and better local government funding		
<p>Advocate for funding to all districts so the demonstration decentralised wastewater treatment systems can be sustained. The logic for this is that if these systems fall into decline the prospect of their uptake will be diminished and it will provide government with a better understanding of how budget allocations should increase. In particular, funds should be provided to hospitals including a budget line for DEWATS, as well as regulatory support by hukumats.</p>		
Management response by project implementer		
Fully agree	Partially agree	Disagree
<p>While advocating for increased local government funding is important to sustain decentralized wastewater treatment systems (DEWATS), solely relying on district-level funding may not be feasible given the financial constraints faced by local governments in Tajikistan. A more balanced approach, incorporating co-financing mechanisms and broader stakeholder support, would be more practical to ensure long-term sustainability. Furthermore, national-level advocacy is crucial to integrating DEWATS into broader sanitation strategies and budget allocations.</p>		
Measures	Responsibility	Timing
a) Promote a co-financing approach that involves local governments, hospitals, donors, and private sector contributions to share financial responsibilities for sustaining DEWATS.	SCO, Equidev in consultation with development partners	2025-2027
b) Advocate with national government institutions for dedicated budget allocations and policies supporting decentralized wastewater systems, reducing reliance on local governments alone.	SCO, Equidev in consultation with development partners	2025-2027

Recommendation 7 - Systems thinking		
<p>This project has placed the spotlight on the issue of rural sanitation and wastewater treatment. Having completed demonstration models, engaged with government counterparts (such as MOHSP) and academia, EQUIDEV (and BORDA) should continue to work with others (including external donors) to support strategic thinking on rural sanitation across Tajikistan. By bringing together government counterparts at national and local level, health professionals, academia and practitioners EQUIDEV are well placed to encourage all players to work towards a common conceptualization of the desired future for wastewater treatment in rural areas. To achieve this, DEWATS systems need to be prioritized in national sanitation policy, with corresponding increases in national budget allocations with local government as the de-facto authority. There also needs to be a continuous focus on learning and developing knowledge and skills.</p>		
Management response by project implementer		
Fully agree	Partially agree	Disagree
<p>A systems-thinking approach is essential to address the multifaceted challenges of rural sanitation and wastewater treatment in Tajikistan. EQUIDEV, having demonstrated successful DEWATS models and established strong collaborations with government counterparts and academia, is well-positioned to lead efforts in fostering strategic dialogue, aligning stakeholders, and prioritizing DEWATS in national sanitation policy. Such coordinated efforts will ensure sustainable progress and encourage continuous learning and capacity development.</p>		
Measures	Responsibility	Timing
a) Advocate for the inclusion of DEWATS in national sanitation policies and the allocation of dedicated national and local budgets to support their implementation and maintenance.	SCO, Equidev/Borda	2025-2027

b) Strengthen partnerships with external donors, technical experts, and community leaders to integrate rural sanitation into broader development strategies.	Equidev and Oxfam Consults	2025-2027
c) Advocate with national and local stakeholders to develop a cohesive and forward-looking strategic plan for scaling up DEWATS systems across rural areas.	Equidev and development partners	2025-2027

Recommendation 8 - Ongoing collaboration with TTU

A useful working relationship has been established with TTU. It would be helpful if government institutions, with the assistance of EQUIDEV and BORDA, could also offer summer placements at the constructed DEWATS systems to further develop the skills and expertise of students. This could be an extension to the taught DEWATS module and would be a cost-effective method for undertaking specific research studies that can complement the routine monitoring duties that hospitals should be performing. For example, a summer research project could investigate how the WASH-FIT tool is being applied and whether corrective follow-up action has been taken by the mandated institutions.

Management response by project implementer

Fully agree	Partially agree	Disagree
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Strengthening collaboration with TTU through practical initiatives like summer placements will significantly enhance students' technical skills and provide valuable research insights. This approach aligns with EQUIDEV's commitment to capacity building and leveraging partnerships with academia to address real-world challenges in wastewater treatment and monitoring. Offering such opportunities will complement the DEWATS module while addressing gaps in routine monitoring and operational practices.

Measures	Responsibility	Timing
a) Advocate with TTU to design a structured summer placement program at DEWATS sites, integrating hands-on learning with academic objectives.	Equidev, BORDA & Oxfam Consults	2025-2027

Recommendation 9 - WASH services within hospitals

It is clear that some hospitals also lack adequate water and sanitation services within hospitals, as well as requiring improved wastewater treatment systems outside. There should be a commitment on the part of government, donors and implementing agencies, so that future DEWATS project address both aspects.

Management response by project implementer

Fully agree	Partially agree	Disagree
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Addressing both internal WASH services within hospitals and external wastewater treatment systems is essential for creating a comprehensive and sustainable approach to improving sanitation in healthcare facilities. Ensuring adequate water and sanitation services within hospitals complements the effectiveness of DEWATS, directly enhancing the health outcomes for patients, staff, and visitors.

Measures	Responsibility	Timing
b) Advocate with stakeholders to evaluate the current status of WASH services within hospitals alongside wastewater treatment needs.	Equidev	2025-2027
c) Work with government bodies, donors, and implementing agencies to secure funding for projects that address both internal WASH improvements and external wastewater treatment systems.	SCO, Equidev	2025-2027

Recommendation 10 - Articulation of a clear national strategy for DEWATS

This project has introduced the concept of decentralised wastewater treatment systems. This work has primarily been led by EQUIDEV, with assistance from its partners. This now needs to evolve so there is strategic thinking about DEWATS in the medium and longer term – next five to twenty years from now. EQUIDEV, BORDA and Oxfam Consults are well placed to share their national and international expertise and bring together different actors (government, academia, service providers) to work towards a common goal. A new strategy should be developed. It should be government-led and focus on upscaling and sustaining a range of DEWATS technologies across rural areas of Tajikistan. This strategy should also ensure strong government leadership at national and local levels so district wide approaches are introduced.

Management response by project implementer

Fully agree	Partially agree	Disagree
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Developing a clear national strategy for a Decentralised Sanitation System is crucial for ensuring the long-term sustainability and scalability of decentralized wastewater treatment systems across rural Tajikistan. EQUIDEV, along with its partners, is well-positioned to contribute national and international expertise to support the government in creating a cohesive strategy that prioritizes DEWATS as part of the broader sanitation framework.

Measures	Responsibility	Timing
a) Advocate for a government-led approach to strategy development, ensuring strong leadership and ownership at both national and local levels.	SCO, Equidev in consultation with development partners	2025-2030
b) Work with donors and government to secure financial and policy commitments for the implementation of the national DEWATS strategy.	SCO, Equidev in consultation with development partners	2025-2027

Recommendation 11 - Learning

The issues identified in this report and the project experiences of EQUIDEV and their partners should be shared with government counterparts and hospital staff. This could take the form of a ½ day workshop.

Management response by project implementer

Fully agree	Partially agree	Disagree
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Sharing lessons learned and project experiences with government counterparts, development partners, and donors is crucial for raising awareness, fostering collaboration, and ensuring effective knowledge dissemination. To this end, Equidev organized a half-day workshop to present key insights, challenges, and recommendations from the project.

Measures	Responsibility	Timing
a) Conduct a ½-day workshop to share the findings of the project, focusing on lessons learned, challenges, and best practices with key stakeholders.	Equidev	Done
b) Record the key takeaways and feedback from the workshop and distribute a summary report to all participants for reference and further dissemination.	Equidev	Done (Equidev also continues disseminating lessons learnt during WASH network meetings and relevant workshops)