

Desk Study

Sanitation situation in rural Tajikistan

Disclaimer

This report, prepared by Susmita Sinha – in 2020, is based on qualitative analyses of information collected through interviews and document reviews. The views and opinions expressed in this report are the author's own, based on understanding, interpretations and deductions from discussions with sector professionals and review of documents. It does not necessarily reflect the views of interviewees or OSCE.

Information was collected through internet-based calls with key sector stakeholders from different agencies and international non-governmental organizations who were aware of the study being carried out. Informed consent for participation in this study was obtained after a preliminary explanation of why the author wanted to discuss these topics with them. The thematic analysis was based on semi-structured interviews, aiming to get a general understanding of the situation from social, cultural, legal, institutional, technological, economic as well as capacity perspective.

Organizational, project management support:

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LIST OF ABBREVIATIONS

CLUES	Community Led Urban Environmental Sanitation
GDP	Gross Domestic Produce
HLSC	Healthy Life Style Centres
INGO	International Non-Governmental Organization
KMK	Khojagii manziliu kommunali
NDS	National Development Strategy
NWS	National Water Strategy
OSCE	Organization for Security and Co-operation in Europe
RT	Republic of Tajikistan
SDG	Sustainable Development Goals
UNDP	United Nations Development Programme
USSR	Union of Soviet Socialist Republics
WASH	Water, Sanitation and Hygiene

1 INTRODUCTION AND PROJECT BACKGROUND

In Tajikistan, water resources are one of the key elements for development – it is one of the most abundant resource in the country and an important transboundary resource. Therefore, its sustainable use is strategically important for ecological, political and socio-economic development of the country. Improved sanitation will directly impact the quality and quantity of water available for safe use. Consequently, improving the sanitation situation contributes significantly to build the foundation to achieve sustainability and overall development targets. In the last decade or so, this fact has been very well understood by the Government of Tajikistan and they have initiated efforts to provide national priority in this direction. This intention of the Government has been emphasized in such strategic documents as National Development Strategy until 2030, National Water Strategy and National Water Sector Reform Program 2016–2025.

Supporting the Government's efforts are various international organizations. The Organization for Security and Co-operation in Europe (OSCE), Programme Office in Dushanbe being one of them. OSCE has initiated efforts to frame a locally suited sanitation programme that will contribute to improve the sanitation situation especially in rural areas, complementing its drinking water projects.

In Tajikistan, more than 73% of the population lives in rural areas. Most of the rural population has access¹ to sanitation (Refer Figure 8), however, the sanitation systems are in poor condition² making its use cumbersome, especially for elderly people, people with disabilities and women. With increasing urbanisation trends and labour migration to other countries, the population in villages is usually the vulnerable group – older persons, people with disabilities, single women with children. Poor sanitation systems make life more difficult for the rural population resulting in serious health and hygiene implications. Therefore, for rural, dense settlements, there is a clear need for implementing and improving systems across the sanitation value chain. This would help improve health and environment while making easier, everyday life of people.

Sanitation systems that are effective and sustainable require multi-sector and multi-actor inputs. The dynamic and evolving development activities in the villages necessitate an incremental, geography dependent (localized) and decentralized modular approach to develop solutions for sanitation problems. Solutions are recommended to be based on best practices, social acceptability and user preferences as well as technical robustness of solutions.

1.1 OBJECTIVE AND PURPOSE OF THE STUDY

The overall objective of OSCE's intervention is to facilitate the development of rural communities through improved access to sanitation facilities and services for ensuring a cleaner environment (especially water resources).

The first step in this direction is to develop an understanding of the current sanitation situation by addressing the entire sanitation service chain (*Figure 1*) from containment to reuse/disposal of all material flows commonly related to sanitation.

¹ Access to sanitation is measured by the percentage of the population with access and using improved sanitation facilities. www.cdc.gov; Assessing access to Water & Sanitation; April 15, 2021.

² Latrines that are outside the house, with or without covers; sometimes these covers are difficult to move or if wooden, then they may be rotten/decaying and make break easily leading to accidents. This information is based on discussions with people interviewed for the Desk Study.

Sanitation Value Chain

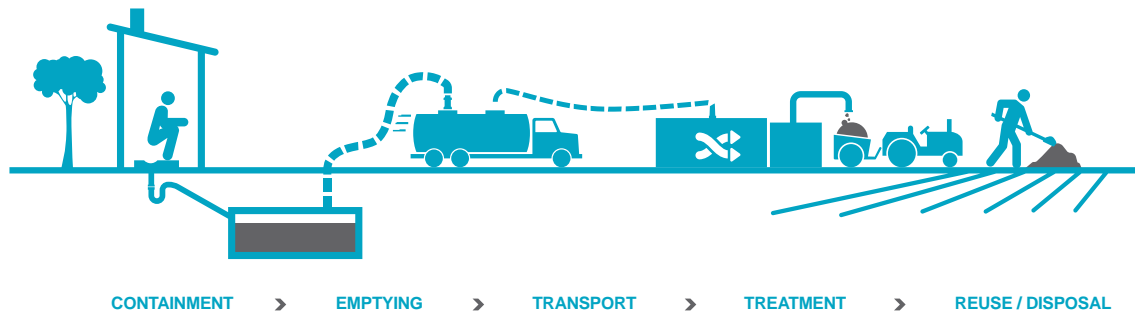


FIGURE 1. SANITATION VALUE CHAIN (SOURCE: WWW.COMMONS.WIKIMEDIA.ORG)

The sanitation situation analysis has been carried out through a Desk Study from a technical, social, institutional, legal and capacity perspective. Review of reports and articles as well as online meetings and discussions with key international and national experts of ongoing sanitation projects in Tajikistan were conducted to understand the requirements. Based on the understanding from this Desk Study, the next stage of the OSCE sanitation programme for possible sanitation solutions will be developed – selection of village(s), technology/infrastructure option selection and implementation of demonstration systems.

This Desk study aims to identify perceptions, current status and gaps across infrastructure, institutional set ups, socio-economic conditions, knowledge, awareness, capacities of stakeholders and legal frameworks. This will help inform:

- Decision makers and key stakeholders about what needs to be done to improve the sanitation situation.
- Requirements for further field study.

The study will be presented as a report on the review, findings and recommendations which will include but not be limited to lessons learnt from Desk Study.

1.2 METHODOLOGY

The Desk study is based on a participatory problem analysis approach through on-line semi-structured interviews and discussions with key involved stakeholders as well as review of secondary data. This approach uses a framework that balances the needs of the people with those of the environment for a cleaner environment and healthier public. It supports the identification of gaps and challenges as understood and identified by the stakeholders and arrived at through secondary data assessment during the sanitation situation Desk study.

Problem analysis has been carried out using the following steps:

1. Collection and compilation of data sourced through:
 - Internet based desk research.
 - Study of Government published data.
 - Documents shared by OSCE and interviewees.
2. Online discussions through semi-structured interviews with key international and national experts of ongoing sanitation projects in Tajikistan (Notes from interviews – Annexure 1).

- Data analysis using the enabling environment framework (CLUES, 2011, Annexure 2) (review of the sanitation systems in practice for their sustainability through inter-related elements of political, legal, institutional, economic, educational, technical and social conditions).

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1.3 COUNTRY CONTEXT

Tajikistan (Figure 2) is one of the smallest countries in Central Asia that gained autonomy in 1991 from the disintegrated Union of Soviet Socialist Republics (USSR). Post-civil war in the 90s, the country is making efforts to continually improve in all aspects crucial to a holistic development of the country.



FIGURE 2. MAP OF TAJIKISTAN (SOURCE: COUNTRY SECTOR ASSESSMENTS: VOLUME 2, UNDP GOAL WASH PROGRAMME, TAJIKISTAN, 2010)

Geography and Environmental Context

Tajikistan is a landlocked and mountainous (part of the Pamir range of mountains) country (Figure 3). Most of the country lies 3 000 m above sea level³. The two lowland regions are in the southern

³ Page 11, Water Sector Development Strategy in Tajikistan, 2006.

(Khatlon province/Panj river) and northern (Fergana Valley/Syr Darya) parts of the country. Glaciers in the mountains are source of water for rivers and lakes⁴.

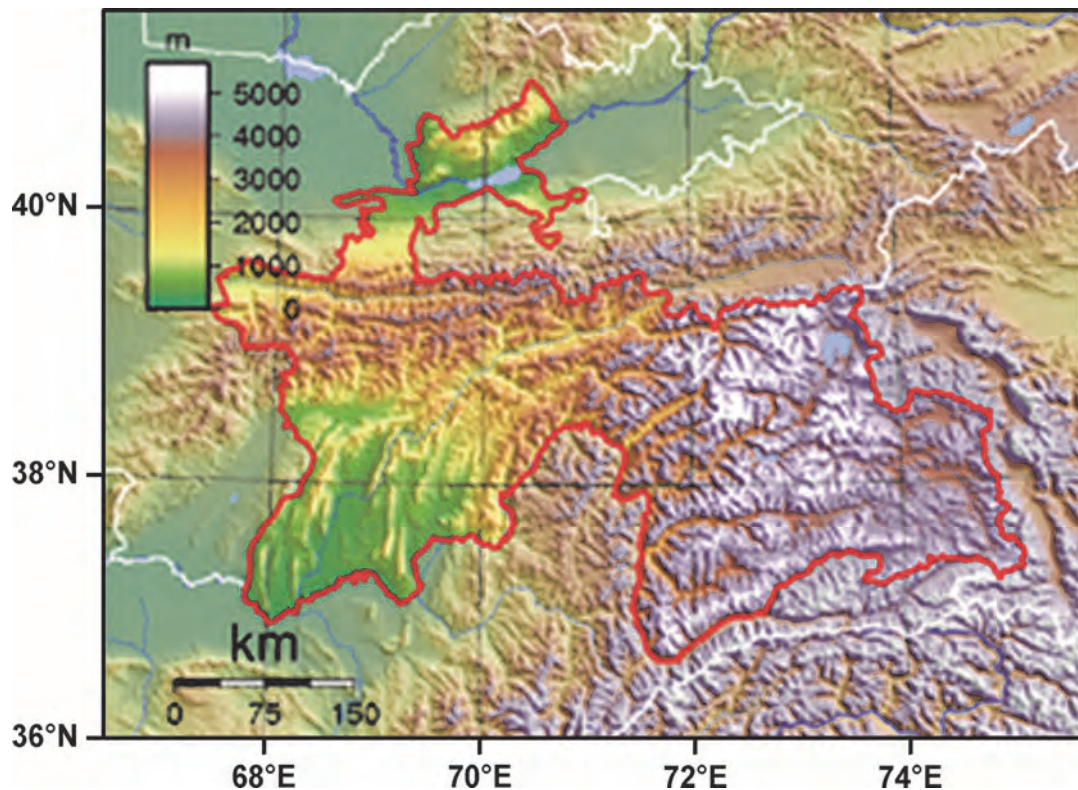


FIGURE 3. RELIEF MAP OF TAJIKISTAN (SOURCE: WIKIPEDIA)

Tajikistan's climate (Figure 4) is continental, subtropical, and semi-arid, with some desert areas⁴. Variations in climate are significant on a daily basis as well as seasonal. The climate changes drastically according to elevation. The mountainous terrain accounts for the diversity of the climate and temperatures³. At Tajikistan's lower elevations, the average temperature range is 23° to 30°C in July and -1° to +3°C in January. In the eastern Pamirs, the average July temperature is 5° to 10°C and the average January temperature is -15° to -20°C. The average annual precipitation varies from around 300 mm to 1 500 mm. The rain shadow areas in northern Fergana Valley, southeastern part of the country and eastern valley receive less than 100 mm of rainfall⁵. Most precipitation occurs in the winter and spring⁴. Evapotranspiration varies from 300 mm/year to 1 200 mm/year, for stony soils and can be as much as 1 500 mm/year⁵.

⁴ Geography of Tajikistan, Wikipedia accessed on June 5, 2020.

⁵ Aquastats http://www.fao.org/nr/water/aquastat/countries_regions/TJK/TJK-CP_eng.pdf accessed on June 30, 2020.

Tajikistan map of Köppen climate classification

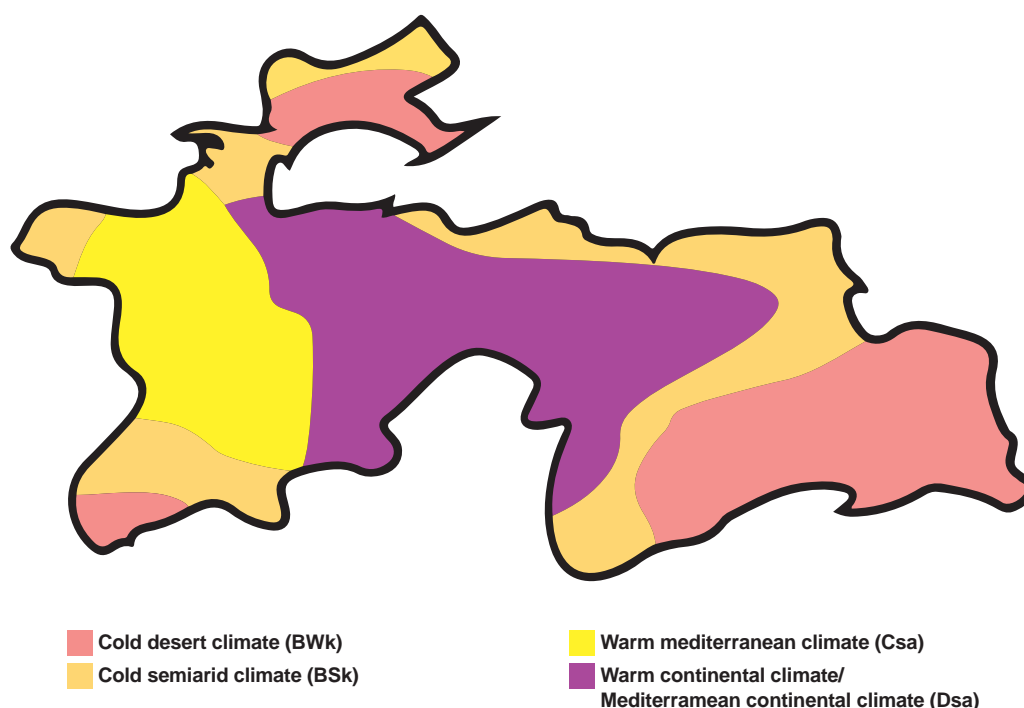


FIGURE 4. CLIMATE CLASSIFICATION OF TAJIKISTAN BASED ON KÖPPEN CLASSIFICATION
(SOURCE: ALI ZEFAN, WIKIPEDIA)

Tajikistan's soil is poor in humus but rich in mineral nutrients. Sand, shingle, scree, bare rock, and permanent snow and ice cover about two-thirds of the surface⁶. The Amu Darya river basin region has high ground water levels and gets water logged easily⁷. Similar conditions are found in lowland areas of valleys.

The mountain topography is the main reason for most of the country being unsuitable for human habitation. The rocky terrain also means that only about 6 percent of the land is arable⁸.

The desert and semi-desert lands suitable for irrigated farming have been turned into flourishing green spaces⁶.

Some of the main environmental issues today in Tajikistan are related to climate change, inadequate sanitation facilities; increasing levels of soil salinity; industrial pollution; excessive pesticides; water scarcity, severe overutilization of available water for irrigation and associated pollution⁹. The environmental problems in Tajikistan are the result of its climate, natural conditions (mountainous terrain with steep slopes), land-use change and structure of the national economy.

Social context

Tajikistan's population is around 9.5 million¹⁰ and around 73% of the population lives in rural areas. The agriculture sector employs most of the people. Poverty has reduced considerably in the last decade in the country (Poverty rate in 2018 – 27.4%)¹¹. Poverty rates in the country depend on the employment status and the income from remittances. The World Bank estimates the country's Gross

⁶ Tajikistan, <https://www.britannica.com/place/Tajikistan> accessed on June 30, 2020.

⁷ Groundwater Resources Use and Management in the Amu Darya River Basin (Central Asia), 2010.

⁸ World Bank. 2017. Glass Half Full: Poverty Diagnostic of Water Supply, Sanitation, and Hygiene Conditions in Tajikistan. WASH Poverty Diagnostic. World Bank, Washington, DC.

⁹ Environmental Issues in Tajikistan, Wikipedia accessed on June 5, 2020.

¹⁰ Tajikistan, Wikipedia accessed on June 5, 2020.

¹¹ World Bank, www.worldbank.org/Tajikistan accessed on June 5, 2020.

Domestic Product as 870 US Dollars per capita (2019)¹². The Water Sector Development Strategy in Tajikistan states, “The well-being of the poor depends very much on natural resources and many of them continue to suffer because of degradation, environmental contamination of water sources and natural disasters, including draughts and floods”.

People from the northern part of the country are considered to be open-minded and people in southern and south-east of the country are considered more conservative¹³.

Economy context

The economy of Tajikistan is based on the production of hydropower, cotton, and aluminium and reliance on remittances from citizens working abroad (job creation in the country has remained limited). The economy is therefore exposed to external factors, making it vulnerable. The private sector plays a very limited role at present in the economy¹⁴. The economy is not very robust and therefore priorities of the government decide which sector is supported. Agriculture is the most common occupation of the rural population and accounts for 60% of employment in the country and contributes to around 30% of the GDP.

Administrative context

According to the Constitution, Tajikistan is a democratic, legal, secular and unitary state. Tajikistan is administratively divided between the Sughd Region, Khatlon Region, Gorno- Badakhshan Autonomous Region (Oblast) and Regions of the Republican Subordination, under the direct governance of the central government as well as the capital Dushanbe. According to the Constitution, Tajikistan is governed through a presidential system of power. The President of Tajikistan simultaneously acts as Chairman of the government and appoints the Prime Minister as well as other members of government, whose names are consequently approved by Parliament.

These administrative units have representative bodies (majlis) elected for 5 years (Assembly of Representatives). Each region is divided into several districts, of which there are 58, throughout the country⁶. Governance of different development aspects are taken care of by different Ministries, departments and institutions set up by the government.

The geographic, environmental, social, economic and administrative aspects all impact the water and sanitation sector. Decisions on choice of sanitation interventions are influenced by all these aspects.

¹² GDP per capita (current US\$) – Tajikistan, World Bank, 2019, <https://data.worldbank.org/indicator/NY.GDP.PCAP.CD?locations=TJ>.

¹³ Interviews 02/I-D/13;02/I-D/14; 03/I-N-I/15.

¹⁴ <https://www.worldbank.org/en/country/tajikistan/overview> accessed on June 30, 2020.

2 SANITATION SITUATION ANALYSIS

Tajikistan has seen positive developments in the WASH sector in the last two decades, however, significant challenges still remain (See Figure 5¹⁵, Figure 6¹⁵, Figure 7). As seen in Figure 8, the urban-rural sanitation service levels have improved in the last twenty years but they still remain basic¹⁶ in nature. From a



FIGURE 5. UNIMPROVED PIT LATRINES (SOURCE: WORLD BANK)

regional perspective, the sanitation

situation in Khatlon region is the best whereas in Sughd and GBAO it is the poorest (Figure 9). Review of various reports and views of sector professionals interviewed, suggest that these challenges may be attributed to the slow translation of reforms into action, inadequate resource allocation by the government (focus on water supply), dependence on international funds and deteriorated sanitation related existing infrastructure¹⁷. These result in negative impact on improvements made in the water supply sector while also increasing health and environmental risks. The economic impact of poor water and sanitation services in Tajikistan is estimated at \$275 million per year (almost 4% of GDP), the highest proportion among Central Asian countries (World Bank, 2015)¹⁸. The existing sanitation systems especially in the rural areas are very basic and have not improved significantly in the last few decades, though open defaecation has reduced. The percentage of rural population connected to sewer networks or septic tanks is 0.2 and 0.07 percent respectively as seen in Table 1. Recent estimates provided by the World Bank (2017)¹⁹ for Tajikistan indicate the improved water supply access at 74% and the national access to improved sanitation at 95%. These figures do not reflect the situation, condition or efficiency of services/systems in rural areas. In rural areas, the overall sanitation coverage in terms of percentage of households having latrines is quite high (more than 90%), however, the quality of these systems in most cases (Figure 7), does not fulfil the sanitation objectives of ensuring clean environment and improving public health. The service level is mostly basic¹⁶ (97.8% of the rural population) (Table 2).

¹⁵ Page 5, World Bank. 2017. Glass Half Full: Poverty Diagnostic of Water Supply, Sanitation, and Hygiene Conditions in Tajikistan. WASH Poverty Diagnostic. World Bank, Washington, DC.

¹⁶ The percentage of population using at least basic sanitation services, that is, improved sanitation facilities that are not shared with other households. This indicator encompasses both people using basic sanitation services as well as those using safely managed sanitation services. Improved sanitation facilities include flush/pour flush toilets connected to piped sewer systems, septic tanks or pit latrines; pit latrines with slabs (including ventilated pit latrines), and composting toilets. Defined by WHO; accessed on April 15, 2021 <https://www.who.int/data/gho/indicator-metadata-registry/imr-details/4821>. For more information see <https://washdata.org/monitoring/methods/estimation-methods> Predominant type of statistics: adjusted and predicted.

¹⁷ Deductions made by author based on interviews and review of documents.

¹⁸ Tajikistan: Country Economic Update – Fall 2019, www.worldbank.org accessed on June 3, 2020.

¹⁹ World Bank. 2017. Glass Half Full: Poverty Diagnostic of Water Supply, Sanitation, and Hygiene Conditions in Tajikistan. WASH Poverty Diagnostic. World Bank, Washington, DC.



FIGURE 6. UNIMPROVED PIT LATRINE (SOURCE: WORLD BANK)



FIGURE 7. TOILET WITH WOODEN PLANKS AS COVER

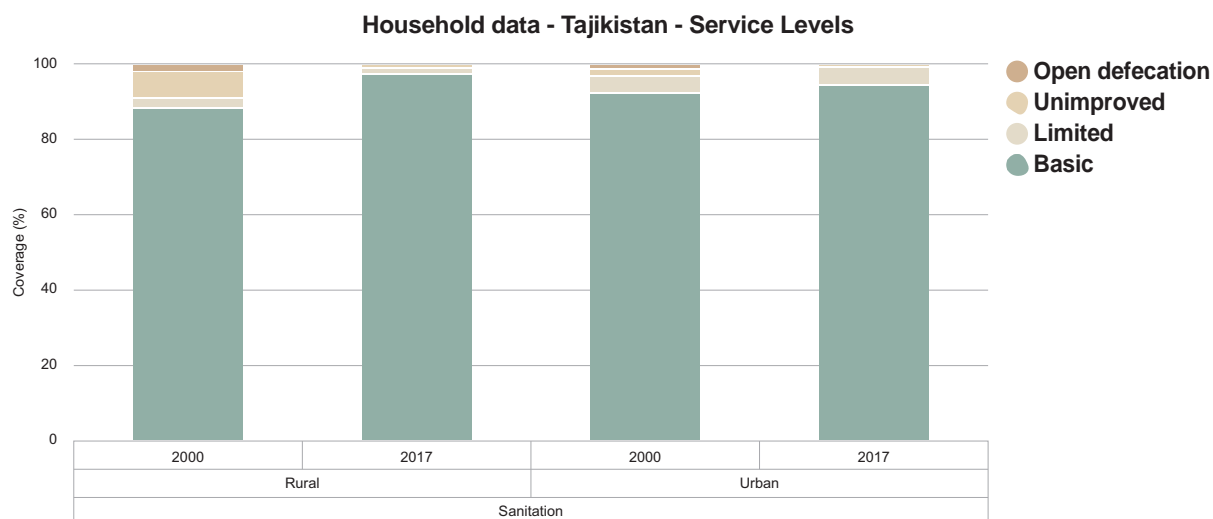


FIGURE 8. SANITATION COVERAGE – SERVICE LEVELS (SOURCE: WHO/UNICEF JMP (2019))

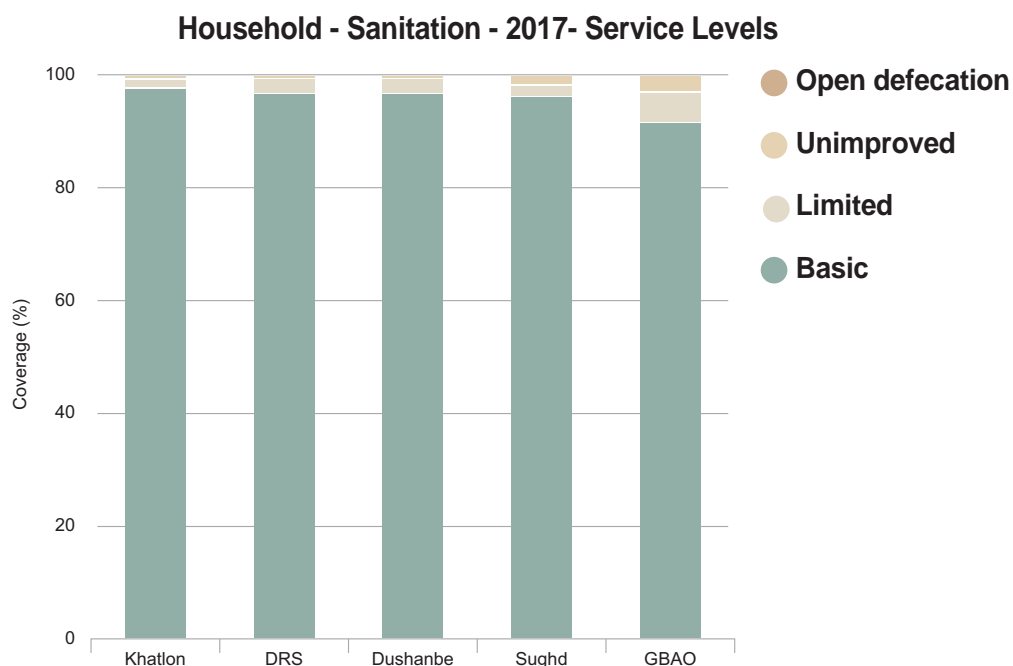


FIGURE 9. REGION WISE SANITATION COVERAGE (SOURCE: WHO/UNICEF JMP (2019))

TABLE 1. SANITATION FACILITY TYPES IN URBAN AND RURAL TAJIKISTAN (SOURCE: WHO/UNICEF JMP (2019))

Residence Type	Service Type	Year	Coverage (%)	Population	Facility type
rural	Sanitation	2017	99.06	6 452 923	Improved latrine and other
urban	Sanitation	2017	45.7	1 100 716	Improved latrine and other
rural	Sanitation	2017	0.07	4 723	Septic tank
urban	Sanitation	2017	0.2	5 224	Septic tank
rural	Sanitation	2017	0.2	13 593	Sewer

Residence Type	Service Type	Year	Coverage (%)	Population	Facility type
urban	Sanitation	2017	53.7	1 293 540	Sewer

TABLE 2. SANITATION SERVICE LEVELS IN RURAL TAJIKISTAN (SOURCE: WHO/UNICEF JMP (2019))

Residence Type	Service Type	Year	Coverage (%)	Population	Service level
rural	Sanitation	2017	97.8	6 370 323	At least basic
rural	Sanitation	2017	1.5	100 916	Limited service
rural	Sanitation	2017	0.1	5 881	Open defecation
rural	Sanitation	2017	0.6	37 064	Unimproved

The situation is similar for institutional sanitation too – schools (Figure 10) and health care facilities. As per the WHO/UNICEF JMP, 2019 Report, the data for health care facilities is insufficient²⁰.

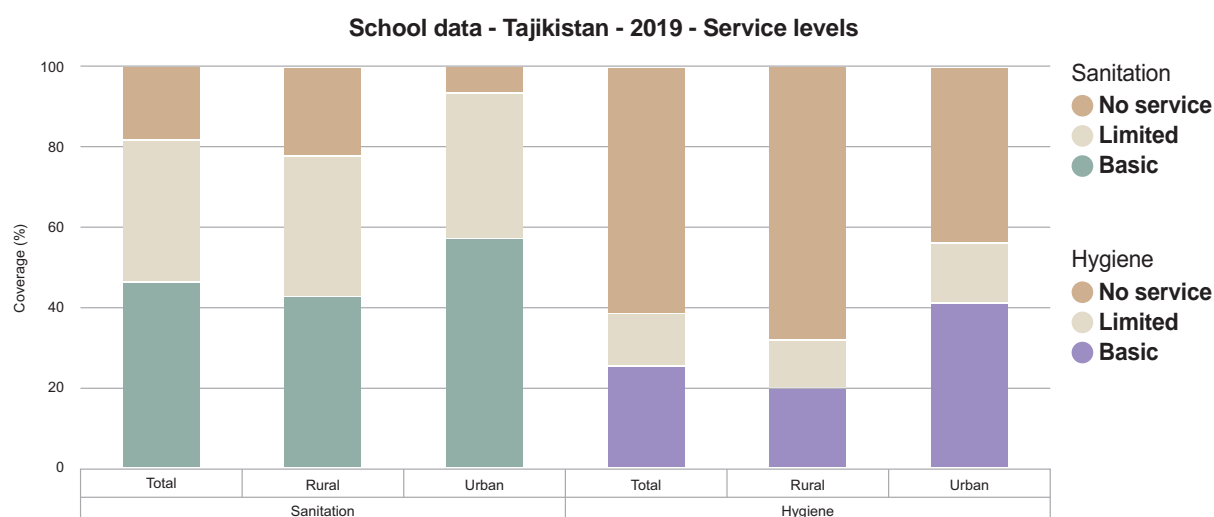


FIGURE 10. SERVICE LEVELS IN SCHOOLS IN TAJIKISTAN (SOURCE: WHO/UNICEF JMP (2019))

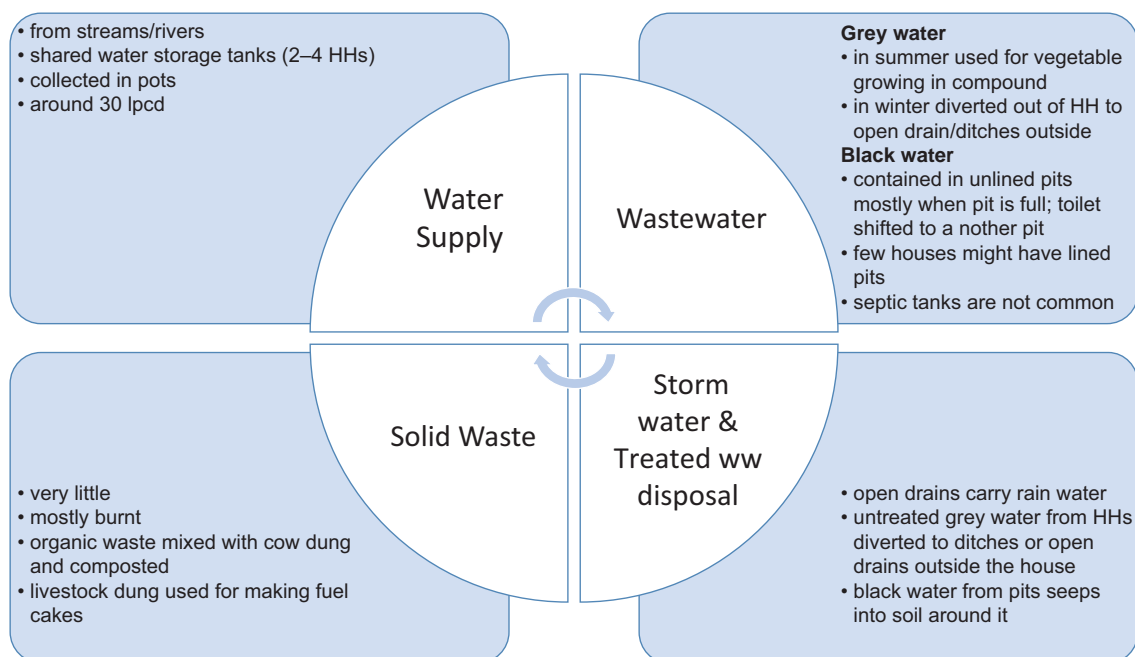
Public toilets, toilets in Health Care facilities and schools are in general found to be poorly maintained. The main reason attributed for it is inadequate resources – service providers and finances. In schools, the toilets are not enough (for around 90 children there is one toilet) and at times there might be inadequate gender segregation of toilets too. Menstrual hygiene awareness and management are poor or lacking in schools. As the number of users per toilet is high, the pits or septic tanks fill up quite fast and if they are not emptied in time, then they either overflow (causing poor environmental hygiene) or backflow into toilets making them unusable. The toilets in Health Care facilities have similar problems – less number of toilets, poor or no maintenance leading to disuse of toilets. In the recent past, international agencies have been making an effort to improve the sanitation situation in schools and public health facilities by implementing facilities. Standards are also being

²⁰ Facilities that cannot be classified as improved or unimproved are treated as insufficient data - WHO/UNICEF JMP (2019).

developed for sanitation in schools and health care facilities. A decentralised wastewater treatment system is being built for a hospital (Oxfam)²¹.

Tajikistan being one of the poorest countries in Central Asia, has not given priority for investments in water supply and sanitation services in the past.

A rapid assessment through secondary data and interviews was carried out to understand the sanitation situation and to identify required action that will facilitate the development of rural communities through improved access to sanitation facilities and services. Under the Enabling Environment Framework²², sustainable sanitation (water supply, treated effluent discharge/reuse, solid waste management and sanitation – black and grey water²³), provides a clean environment, good public health and leads to development in an enabling environment provided by capacity and knowledge, appropriate legal measures, positive social and cultural practices, institutional guidance and financial support. The current situation in rural Tajikistan (especially the villages in the catchment area of the upper Zerafshon – Sughd region) has been assessed from a sustainable sanitation perspective using this framework. The current sanitation situation (water supply, toilets and wastewater disposal, storm water and solid waste) as well as the existing influencing framework conditions based on the documents reviewed and understanding of viewpoints shared by interviewees across the country is visualised in *Figure 11*.



²¹ Interviews – 20/I-N-D/1; 20/I-E/2; 20/I-D/3; 02/I-D/14; 03/I-N-I/15; 27/I-F/11; 27/I-D/12.

²² CLUES, 2011.

²³ Used water from kitchen, laundry, showers and wash basins.



FIGURE 11. CURRENT SANITATION STATUS AND INFLUENCING FRAMEWORK CONDITIONS IN RURAL AREAS²⁴

The analysis highlights: even though households and public institutions in rural areas may have access to toilets, the basic design of toilets, poor containment structures, old and defunct wastewater management infrastructure, no grey water management, or safe disposal of sludge from containment structures along with poor hygiene practices results in poor living conditions, an unclean environment, high incidence of water borne-diseases creating health hazards for schools, medical facilities, other public toilets, households and the environment. On-site containment structures that are not water tight might be polluting and destabilising the surrounding soil. Effluent from toilets/containment structures as well as grey water from all establishments flows into open drains which are connected to storm water channels/drains that finally lead to the rivers and streams. Lack of any treatment facility in the area also leads to indiscriminate disposal of sludge, if removed from existing on-site containment structures, into the environment. Water quality data of rivers and ground water is not available, however, it can be assumed that these waters (also the source of drinking water) are contaminated with sewage (black and grey water).

Wastewater has nutrients and organic content that can be utilised after treatment. Due to reluctance of communities to reuse treated human waste (in some areas of the country), these resources are being lost. People have experience of using the traditional dry toilets in rural areas. Therefore, in general, it can be seen that there is a hesitation to change to alternative new systems. Insufficient water supply may be interpreted to be a reason for hesitation to shift to other types of toilet and containment systems.

Water supply (around 30 litres per person per day²⁵) is inadequate for all requirements of improved sanitation and hygiene practices. Some villages might have piped water but it is usually linked to a common point – water storage tank or stand post. Solid waste generated in the rural households and public establishments though estimated to be of relatively less quantity is usually not segregated and collected and is dumped or buried indiscriminately^{26 27}. This has adverse impacts on the wastewater management sector and in turn people and environment.

With climate change, there might be higher temperatures, drier spells, less water in rivers and streams, high intensity rainfall leading to flooding and landslides. Poor infrastructure and reluctance to change mindsets and behaviour will make the communities more vulnerable and less resilient to climate change.

²⁴ Based on author's understanding of views expressed in interviews and documents reviewed.

²⁵ Interviews – 20/I-N-D/1; 03/I-N-I/15; 27/I-F/11.

²⁶ Based on understanding of views expressed in interviews.

²⁷ Page 25, Review of Sanitation Policy and Practice in RT, 2015, SDC, UNDP, SIWI, Water Governance Facility, OXFAM GB, TajWSS, GoAL WaSH.

In recent years efforts have been made by the Government to improve the WASH situation (refer Box 1). However, multiple institutions with overlapping roles and inadequate capacities lead, to poor management of sanitation issues and insufficient and ineffective service delivery. For example, the **Ministry of Energy and Water Resources** is responsible for sector planning and regulations, however operations are to be managed by the local authorities. **Ministry of Health, Sanitary and Epidemiological Services Department** is responsible for administering compliance during site selection and construction as well as operation of sanitation systems. Monitoring is also carried out by them. The **State Unitary Enterprise Khojagii Manziliju Kommundi (KMK)** is the main actor for service provision, operation and maintenance of water supply and sewerage systems. At the central level, it has a management function but at District, Municipality and rural level, its function is mainly of a service provider.

“The Government of Tajikistan has taken concrete steps in recent years to improve WASH conditions across the country. It has adopted more than 15 programs, strategies, and plans of actions, and passed a series of legislation to address poor WASH conditions across the country (Republic of Tajikistan n.d.). These efforts were accompanied with public and donor-funded investments focusing on the rehabilitation of urban water systems, and on the installation of latrines, boreholes, pumps, and small-scale water systems in rural areas and small towns. At the global policy level, Tajikistan is a member of the High-Level Panel on Water launched by the World Bank and the United Nations, and has announced its commitment to the Sustainable Development Goal (SDG-6) to “Ensure availability and sustainable management of water and sanitation for all.” Tajikistan has also made significant attempts to improve access to WASH and address the various well-being impacts, such as on health and nutrition outcomes for children, through its National Development Strategy”.

World Bank. 2017. Glass Half Full: Poverty Diagnostic of Water Supply, Sanitation, and Hygiene Conditions in Tajikistan. WASH Poverty Diagnostic. World Bank, Washington, DC.

Box 1. GOVERNMENT ACTION FOR WASH

In rural areas, the KMKs function through the Vodokanals (sub-district level state organization) as they do not have a presence at levels lower than districts. Mohalla Committees and Jamoats also have similar function with regard to sanitation as the Vodokanals. However, the Vodokanals might also not be present at the rural level/village level. In case of problems with sanitation infrastructure or services, the rural population does not know to whom to address these problems other than to village heads.

There are many Community based organization across the country that are managing such services but mainly for water supply.

The current policies and laws related to sanitation aim to improve the sanitation situation²⁸, however the guidelines and by-laws are at times not suitable for current times²⁹ or not suitable for rural conditions (like quantity of water supply, polluted surface water bodies that are source of water supply, its uses or pollution sources) . Based on the review (of documents and understanding of views of interviewees) it is understood that inadequate capacities (in numbers and resources available to them) of agencies responsible for operations and monitoring leads to lax enforcement of laws. Poorly designed and poorly functioning sanitation infrastructure does not result in penalisation as implementation of alternatives are constrained by lack of resources³⁰. This has a harmful impact on environment and public health.

²⁸ Review of Sanitation Policy and Practice in RT, 2015, SDC, UNDP, SIWI, Water Governance Facility, OXFAM GB, TajWSS, GoAL WaSH.

²⁹ Page 46-52, Review of Sanitation Policy and Practice in RT, 2015, SDC, UNDP, SIWI, Water Governance Facility, OXFAM GB, TajWSS, GoAL WaSH.

³⁰ Based on understanding of views expressed in interviews.

Sanitation sector has seen very little or almost no investment from the government^{31 32}. International agencies have been working for sanitation promotion through stand-alone projects. These investments are project specific for a defined time-period and therefore might not support replication by government or people themselves³⁰.

This analysis reveals that there is lack of awareness about benefits of sanitation, improving design of toilets, containment structures and this consequently leads to poor hygiene behaviour. In addition, sustainable and effective management of wastewater is lacking without appropriate service provision and required facilitation and support from legal, institutional and financial perspectives³³. All these prove to be a major roadblock for sanitation improvements and therefore development. According to UNDP, overall human development is more closely linked to access to water and sanitation than any other development driver, including spending on health or education, and access to energy services (UNDP 2010).

³¹ Page 11, World Bank. 2017. Glass Half Full: Poverty Diagnostic of Water Supply, Sanitation, and Hygiene Conditions in Tajikistan. WASH Poverty Diagnostic. World Bank, Washington, DC.

³² Page 6, Review of Sanitation Policy and Practice in RT, 2015, SDC, UNDP, SIWI, Water Governance Facility, OXFAM GB, TajWSS, GoAL WaSH.

³³ Review of Sanitation Policy and Practice in RT, 2015, SDC, UNDP, SIWI, Water Governance Facility, OXFAM GB, TajWSS, GoAL WaSH.

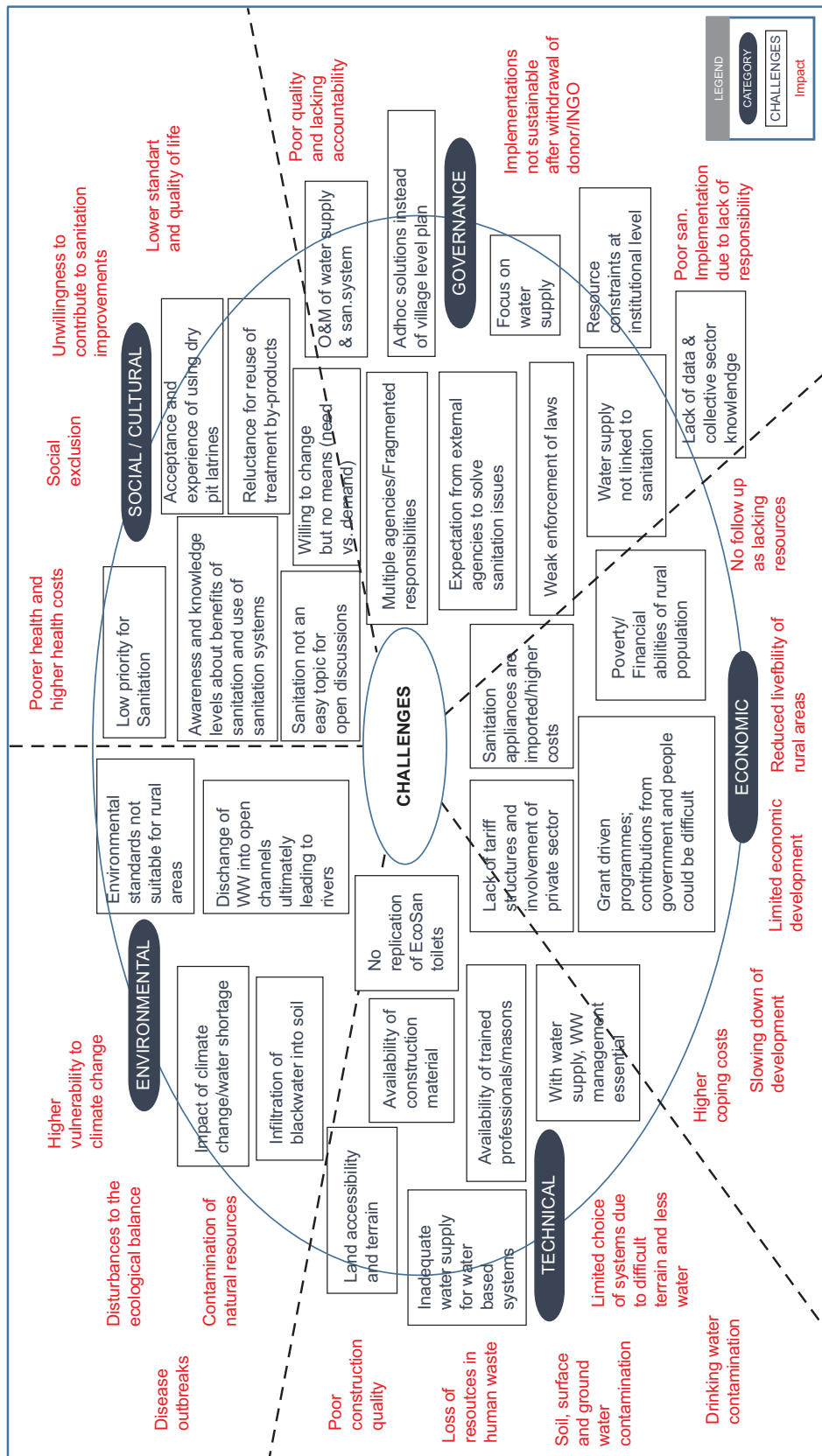


FIGURE 12. CHALLENGES FOR SANITATION INTERVENTIONS AND THEIR IMPACTS IN RURAL AREAS³⁴

³⁴ Based on author's understanding of views expressed in interviews and documents reviewed.

3 CHALLENGES

The government understands that inadequate sanitation is a major roadblock for improved environmental and public health. The problem analysis, interaction with sector experts, experienced professionals and review of reports and documents carried out during the Desk Study highlight the following major challenges for improving the sanitation situation in rural Tajikistan. Lack of awareness about sanitation benefits among the rural communities and alternative options for wastewater management, resource constraints of government (capacities and finances) and inadequate governmental institutional structures and enforcements are perceived as major gaps by the author³⁹. It is commonly understood and expected that governmental organizations are responsible for provision of environmental services despite the experience that government has not been able to provide clarity on who provides services in the rural areas²⁹. According to this situation, specific challenges have been identified that are creating hindrances to environmental sanitation development in rural Tajikistan. These are highlighted in *Figure 12* and explained thereafter.

3.1 TECHNICAL/INFRASTRUCTURE CHALLENGES

Main Findings⁴²

- Since the 90s, no new sewerage systems have been constructed. The existing systems are not adequately maintained or not maintained at all. Therefore, waste from public and private buildings including human waste, mostly is discharged to rivers and arable lands with serious consequences for population's health³⁵. Due to lack of authentic statistical data, information regarding sewerage in rural areas is presented with lack of detail compared to rural water supply³⁶.
- Most of the households in villages of Tajikistan (the share of the population with no access to sanitation was around 1.9 percent in 2016³⁷) have their own **toilets** within their premises, a **'hole-in-the-ground'** with an **unlined pit** as containment structure for faecal matter³⁸. These toilets fail to meet basic hygiene standards because they are poorly constructed and usually do **not** have **running water supply**. In general, the toilets are unhygienic, not ventilated, difficult to clean and inconvenient. These household sanitation facilities typically do **not** have **protective lids**.
- While building toilets and containment structures, specific ground conditions have an impact on the design and functioning – high water table regions face the problem of pits filling up very quickly requiring regular emptying and mountainous and rocky areas have problems with **digging** deeper than one to two meters and water not being able to infiltrate in ground further than this depth, even though it can move horizontally³⁹.
- It is important to note, that except for urine no other liquids are **disposed** of to the pits. The reason is that user practice for anal cleansing is of wiping and not washing. The cleansing material used is usually paper or clay or stones and not water. This is a very well accepted practice in rural and peri-urban Tajikistan.

³⁵ Page 25, 27-29, 48, Review of Sanitation Policy and Practice in RT, 2015, SDC, UNDP, SIWI, Water Governance Facility, OXFAM GB, TajWSS, GoAL WaSH.

³⁶ Page 47, Review of Sanitation Policy and Practice in RT, 2015, SDC, UNDP, SIWI, Water Governance Facility, OXFAM GB, TajWSS, GoAL WaSH.

³⁷ Page 65, World Bank. 2017. Glass Half Full: Poverty Diagnostic of Water Supply, Sanitation, and Hygiene Conditions in Tajikistan. WASH Poverty Diagnostic. World Bank, Washington, DC.

³⁸ Interviews 20/I-N-D/1; 25/I-N-I/9.

³⁹ Interviews 20/I-N-D/1; 03/I-N-I/15.

- **Toilets** are usually **located** in the yard of the households. Access to these toilets is difficult for people with disabilities. During winter, it becomes difficult for older people and all others due to frost and ice formation⁴⁰
- The **pits** usually do not **fill up** for many years⁴¹ as the liquid infiltrates into the ground. If the pits fill up, then they are closed and the toilet location shifted to another place in the yard. In some areas of the country, it is reported that these pits fill up every year (due to higher water table). Some of these toilets also have (wooden) slabs to cover the hole. Very few households have toilets with bowls connected to pits or toilets connected to septic tanks exemplified through data from the Upper Zerafshon catchment areas (Table 3). Improved toilets do not seem to be a priority for households, if they have to make the investment.⁴²
- Access to **drinking water** in these villages is mostly from springs and rivers. The supply could be through pipes or collected by people directly from the springs or rivers. The daily water consumption at a household can be estimated to be around 30–40 liters⁴³ per person per day in summer and much less in winter. Most people believe the water to be of good quality⁴⁴ or satisfactory. The main reason for bad quality as described by users is bad taste and sediments.
- **Grey water** from the households is usually channeled to the yard or outside the households. In some households, it is used during the summer months to irrigate the vegetable garden. During winter season, when there is frost and snow, the water is let out of the yard and disposed in ditches or open drains/channels⁴⁵. This water accumulates or flows towards springs or rivers nearby. This leads to pollution of the water bodies. In some areas, it is reported that when grey water flows in channels, after some distance it might appear to be clean and people might collect and use this water for different purposes.
- In rural areas (with few exceptions), the process of collection and utilization of solid wastes is carried out without proper organization. Most of the solid waste is removed and buried in unsanctioned locations which is the cause for soil and underground water contamination⁴⁶. **Solid waste** generated at household level is usually quite less. Most people just dispose the waste outside their households in the gullies or in water bodies⁴⁷. At times, the organic solid waste collected at household level is mixed with livestock dung and used to make dry cakes to be used as fuel or composted and used in the vegetable garden or buried⁴⁷.⁴² Centralized garbage collection and management is very limited in rural areas⁴⁶.
- **Sanitation systems** and services in social and **public institutes** like schools⁴⁸ and medical facilities are also very poor⁴⁹. Most schools in rural areas have pit latrines with or without slabs⁵⁰. At times, the number of toilets is not adequate for the number of students (one toilet for 90-100 students)⁵¹. These toilets are poorly maintained. The containment systems in schools fill up within six months and then are not cleaned. This leads to students not using the toilets and going out in the backyard creating hygiene and public health problems. Facilities for menstrual hygiene are also quite inadequate⁵¹. Public toilets are very limited in number and are of poor quality. The situation in medical facilities is similar. In some medical facilities, flush toilets might be available, however, they are not connected to a sewer system

⁴⁰ Page 5, World Bank. 2017. Glass Half Full: Poverty Diagnostic of Water Supply, Sanitation, and Hygiene Conditions in Tajikistan. WASH Poverty Diagnostic. World Bank, Washington, DC.

⁴¹ Interviews – 20/I-N-D/1; 21/I-N-I/4; 25/I-N-I/9; 02/I-D/14.

⁴² Deduction made by author based on views expressed in interviews.

⁴³ Interviews – 20/I-N-D/1; 03/I-N-I/15.

⁴⁴ EU-Rural Development Program 1, WHH Consortium, ACA/2016/373-575, Baseline Report, 2016.

⁴⁵ Interviews – 20/I-N-D/1; 27/I-F/11; 02/I-D/14.

⁴⁶ Page 26, Review of Sanitation Policy and Practice in RT, 2015, SDC, UNDP, SIWI, Water Governance Facility, OXFAM GB, TajWSS, GoAL WaSH.

⁴⁷ Interviews – 20/I-N-D/1.

⁴⁸ Page 6, World Bank. 2017. Glass Half Full: Poverty Diagnostic of Water Supply, Sanitation, and Hygiene Conditions in Tajikistan. WASH Poverty Diagnostic. World Bank, Washington, DC.

⁴⁹ Interviews - 03/I-N-I/15; 21/I-N-I/4.

⁵⁰ **Pit latrine with slab:** is a dry sanitation system that collects excreta in a pit in the ground. The pit is covered by a squatting 'slab' or platform that is constructed from materials that are durable and easy to clean. The 'slab' has a small drop hole, or is fitted with a seat, allowing excreta to be deposited directly into the pit. *Core questions on drinking water, sanitation and hygiene for household surveys: 2018 update*. New York: United Nations Children's Fund (UNICEF) and World Health Organization, 2018.

⁵¹ Interview – 02/I-D/14.

followed by a treatment system⁵². In some district headquarters, these flush toilets might be connected to a sewer system as well as treatment system. However, these systems are from 30-40 years before and not in functional condition, therefore at a higher risk for environment and public health⁵³.

- Despite the availability of marginally improved sanitation systems (pit latrines with slabs), the health benefits are minimized as most of these **outdoor latrines do not have running water supply, disinfectants, cleansing materials and hand wash facilities**⁵⁴. This is mainly because these items are costly in local markets and water available at households is limited. Therefore, the **hygiene component** of sanitation is compromised.
- Locally made material – like pans, water taps, pipes, pipe fixtures might not be easily available⁵⁵.
- Trained and qualified engineers, builders (masons) and service providers might not be available in rural areas⁵⁶.

Challenges⁵⁷

- Developing cost effective and technically suitable options for a rocky terrain.
- With limited water supply, water based sanitation systems might not be possible to implement.
- With improved water supply, wastewater management has to be developed, implemented and maintained requiring supporting conditions (resources) to be fulfilled.
- Locating and implementing grey water treatment systems (as common or public land might not always be available, as well as financial resources for its operation and management and personnel might be a roadblock).
- Availability of construction material.
- Availability of local qualified and trained professionals to design alternative options and service providers.

Impact⁵⁷

- Limited cost effective sanitation options and therefore existing practices continue.
- Soil, surface and ground water contamination.
- Contamination of drinking water (in streams and rivers as well as ground water; collected manually or if hand pumps are installed).
- Poor quality of design and construction (due to lack of trained professionals and appropriate affordable material).
- Loss of nutrient resources (as treatment and reuse are not being practiced).
- Lower tourist visits to rural areas due to lack of improved, quality public toilets.

TABLE 3. TYPES OF HOUSEHOLD LATRINES, DISAGGREGATED BY WATERSHED

Watershed	Ordinary latrine with a hole in the yard		Ordinary latrine with bowl in the yard		Latrine inside the house and a septic tank outside the house		Public Toilet		We do not have latrine	
	#	%	#	%	#	%	#	%	#	%
Sarrazm catchment	71	100	0	0	0	0	0	0	0	0
Mogiondaryo catchment	149	93.7	6	3.8	2	1.3	0	0	2	1.3

⁵² Interview-03/I-N-I/15.

⁵³ Interview – 27/I-F/11.

⁵⁴ Page 5-6, World Bank. 2017. Glass Half Full: Poverty Diagnostic of Water Supply, Sanitation, and Hygiene Conditions in Tajikistan. WASH Poverty Diagnostic. World Bank, Washington, DC.

⁵⁵ Interviews - 03/I-N-I/15; 02/I-D/14; 27/I-D/12.

⁵⁶ Interviews - 21/I-N-I/4; 03/I-N-I/15; 02/I-D/14.

⁵⁷ Deductions made by author based on input from interviews.

Watershed	Ordinary latrine with a hole in the yard		Ordinary latrine with bowl in the yard		Latrine inside the house and a septic tank outside the house		Public Toilet		We do not have latrine	
	#	%	#	%	#	%	#	%	#	%
Kishtut catchment	71	98.6	0	0	0	0	1	1.4	0	0
Revad	17	100	0	0	0	0	0	0	0	0
Madm	13	100	0	0	0	0	0	0	0	0
Kum	9	100	0	0	0	0	0	0	0	0
Pasrud catchment	21	100	0	0	0	0	0	0	0	0
Total	351	97	6	1.7	2	0.6	1	0.3	2	0.6

Source: EU-Rural Development Program 1, WHH Consortium, ACA/2016/373-575, Baseline Report, 2016

3.2 SOCIO-CULTURAL CHALLENGES

Main findings

Behavior and cultural constraints are another factor that have an impact on sanitation uptake and sustainable behavior and practices. People despite being educated (literacy rates of 99.8%⁵⁸ for people above 15 years of age) have fixed mindsets about sanitation. There are examples in other countries where appropriate information, awareness and education have helped change mindsets (Box 2).

- Sanitation is low on priority (poverty is a main hinderance)⁵⁹.
- Lack of awareness and knowledge about benefits of sanitation (and the link with better health)⁶⁰.
- Lack of experience of alternative systems or modern sanitation systems⁶¹.
- Hand washing after using the toilet is not a common practice⁶².
- Reuse of treated human waste is not considered safe or hygienic (especially in conservative populations; in northern parts of the country reuse is more common) even though farmers might be aware of its nutritive value and some may even use the dry sludge in their farms⁶³.
- Drinking water is considered to be of good quality in the project area by the people, however diarrhea and jaundice are common water borne diseases⁶⁴.

Challenges⁶⁵

- Creating awareness and knowledge to change mindset.
- Compensating lack of experience of an alternative system (to dry toilets) with links to benefits (better health, cleaner environment, improved savings, better education for children) and advantages of improved sanitation situation, financial support.
- Engaging with community for discussing sanitation issues as talking about sanitation is not easy.
- Convincing people about changing current behavior, practices and especially reuse applications.
- Sustaining behavior change.

Impact⁶⁵

- Lack of awareness leads to slow pace of development.
- Lower quality and standard of life.
- Poorer health and higher health cost.
- Social exclusion (due to lack of development).
- Unwillingness to accept and contribute to improved sanitation systems.

Information, Education, Communication (IEC), one of the main cornerstones of India's Swachh Bharat Mission (Clean India Mission) 2014–2019 addressing the social, cultural and behavioural drivers of open defaecation have helped reduce open defaecation (ODF) and move towards ODF plus (containment and treatment). Dedicated sanitation workers have been communicating, informing, educating and training the population about the harmful effects of open defaecation and encouraging toilet use. Various tools and media platforms were used and are still being used to drive home the message resulting in behaviour change.

IEC has been one of the key factors for the achievements of the Clean India Mission.

Source: National Economic Impact Evaluation of the Swachh Bharat Mission, Final Report, United Nations Children's Fund, January 2020

BOX 2. IEC – A CHANGE AGENT

⁵⁸ UNESCO, 2014; <http://uis.unesco.org/en/country/tj> accessed on June 3, 2020.

⁵⁹ Interviews- 20/I-N-D/1; - 20/I-D/3; 21/I-N-I/4; 25/I-N-I/9; 27/I-D/12; 03/I-N-I/15.

⁶⁰ Interviews – 20/I-N-D/1; 20/I-E/2; 20/I-D/3; 21/I-N-I/4; 22/I-D/7; 25/I-N-I/9; 27/I-D/12; 02/I-D/14; 03/I-N-I/15.

⁶¹ Interviews –26/I-R/10; 27/I-D/12; 02/I-D/14; 03/I-N-I/15.

⁶² Interviews – 20/I-E/2; 02/I-D/14; Page 75, World Bank. 2017. Glass Half Full: Poverty Diagnostic of Water Supply, Sanitation, and Hygiene Conditions in Tajikistan. WASH Poverty Diagnostic. World Bank, Washington, DC.

⁶³ Interviews- 20/I-N-D/1;21/I-N-I/4; 26/I-R/10; 27/I-D/12; 02/I-D/14; 03/I-N-I/15.

⁶⁴ EU-Rural Development Program 1, WHH Consortium, ACA/2016/373-575, Baseline Report, 2016.

⁶⁵ Deductions made by author based on input from interviews, documents reviewed and experience.

3.3 ECONOMIC CHALLENGES

Main findings

- Investments in the sanitation sector are mainly being provided by external agencies⁶⁶ as seen in Figure 13. Around 23% of the required investment is estimated to be from external investment, around 8% from International donors, and around 3% from the Government. The estimations also show a 60% deficit.
- The government though politically committed to improving sanitation situation does not make significant budget allocations for sanitation improvements⁶⁷.
- There is no financial means from the state budget to rehabilitate existing sewerage systems and wastewater treatment facilities⁶⁸.
- International investments with community contribution and minimal or negligible contributions from country's budget is not a sustainable approach for effective and long-term sanitation improvements⁶⁹.
- Sanitation projects (infrastructure) are implemented (at households or social institutes), however, no budget allocated for operations and management of implemented systems⁷⁰.

FIGURE 13. FUNDING SOURCES IN THE WATER AND SANITATION SECTOR 2006–2015*

Source: *Water Sector Development Strategy (2006)*

Funding Sources	2006	2006–2008	2006–2010	2006–2015
Total in US\$ thousand	74,424	248,967	510,032	998,273
– Urban households	2,786.00	8,582	11,802	35,832.00
– Rural households	80	656	2,292	7,264
– Government of the RT	4,121	10,915	16,702	31,028
– External investments	36,618	78,931	121,580	232,185
– International donors	7,700	7,700	7,700	84,700
– Funding deficit	23,119	14,2183	349,956	607,264
– Funding deficit percent	31.6%	57.1%	68.6%	60.8%

* Page 19, Country Sector Assessment: UNDP GoAL WASH Programme, Volume 2, Tajikistan, 2010.

Challenges⁷¹

- Lack of tariff structures and poor fee collection in urban areas⁷².
- Community contributions for sanitation (for building infrastructure and paying for services) as poverty is a constraint⁷³.
- Lack of involvement of private sector (due to taxation policies, poor return of investment)⁷⁴.
- Sanitation appliances are imported/higher costs.
- Grant driven programmes; contributions from government and people could be difficult.
- Poverty /Financial abilities of rural population.
- Lack of resources for operations and maintenance of systems.

⁶⁶ Interviews – 20/I-N-D/1; 20/I-D/3; 25/I-N-I/9; 26/I-R/10; 03/I-N-I/15; Pages 70-71, World Bank. 2017. Glass Half Full: Poverty Diagnostic of Water Supply, Sanitation, and Hygiene Conditions in Tajikistan. WASH Poverty Diagnostic. World Bank, Washington, DC.

⁶⁷ Interviews - 20/I-D/3; 03/I-N-I/15.

⁶⁸ Interviews – 22/I-D/7; Page 121, World Bank. 2017. Glass Half Full: Poverty Diagnostic of Water Supply, Sanitation, and Hygiene Conditions in Tajikistan. WASH Poverty Diagnostic. World Bank, Washington, DC.

⁶⁹ Interviews – 20/I-D/3; 03/I-N-I/15; Page 11, World Bank. 2017. Glass Half Full: Poverty Diagnostic of Water Supply, Sanitation, and Hygiene Conditions in Tajikistan. WASH Poverty Diagnostic. World Bank, Washington, DC.

⁷⁰ Interviews – 22/I-D/7; 03/I-N-I/15.

⁷¹ Deductions made by author based on interviews and review of documents as well as experience from various cases.

⁷² Interviews – 03/I-N-I/15; Page 133, 137-138, World Bank. 2017. Glass Half Full: Poverty Diagnostic of Water Supply, Sanitation, and Hygiene Conditions in Tajikistan. WASH Poverty Diagnostic. World Bank, Washington, DC.

⁷³ Interviews – 21/I-N-I/4; 26/I-R/10; 02/I-D/14; 03/I-N-I/15.

⁷⁴ Page 9, World Bank. 2017. Glass Half Full: Poverty Diagnostic of Water Supply, Sanitation, and Hygiene Conditions in Tajikistan. WASH Poverty Diagnostic. World Bank, Washington, DC; Interviews – 21/I-N-I/4; 03/I-N-I/15.

Impact⁷¹

- Higher coping costs.
- Slowing down of development.
- Limited economic development.
- Reduced liveability in rural areas.
- No follow up projects as resources are limited.
- Adverse impacts on other sectors like tourism.

3.4 LEGAL FRAMEWORKS, INSTITUTIONS AND GOVERNANCE CHALLENGES

Main findings⁷⁵

The legal basis for regulation of the sanitation sector is the **Constitution** of the country.

- Water and its effective availability for all citizens and use is a state concern (Article 13 of the Constitution of the RT).
- The government has enacted various laws to ensure that water resources, its various uses and its quality is maintained.
- The legal framework for the water sector is based on the **Water Code, 2000** with amendments made in 2012, and the **Law on Drinking Water and Sanitation** approved in July 2019.
- The legal and organizational foundations of drinking water supply and sanitation are regulated by these legal documents.
- They guarantee to fulfil drinking water, water supply and sanitation needs of individuals and legal entities.
- The law provides for the human right of access to safe water and sanitation as well as the responsibility of all levels of government to provide and ensure drinking water and sanitation for all (Refer *Box 3*).
- It promulgates that all social and economic development plans need to include safe water and sanitation.
- Discharge of wastewater is prohibited to water bodies that are considered as source for drinking water supply (Article 99, Water Code).
- For sustainability, the law has included government budget allocation and user tariffs for financing water and sanitation (sanitation tariffs are still not implemented by the government though proposed in the Law on Drinking Water and Sanitation).
- Service providers for water and sanitation would get State support to help their efforts for providing sanitation solutions (Article 16, of Law on Drinking Water and Sanitation)⁷⁶.
- Safety and quality of water supply and protection of water resources are also to be ensured by establishment of sanitary protection zones (Page 11, ADB, Dushanbe Water Supply and Sanitation Project, RRP, 2018)⁷⁷.
- Tajikistan is a signatory to the United Nations Sustainable Development Goals
- The Sustainable Development Goals (SDGs) have been considered while framing the **National Development Strategy (NDS), 2016–2030**.
- The NDS aims to get all the country's citizens to be above the poverty line, promote sustainable consumption and production as well as sustainable use of natural resources for social and economic development (NDS, 2016). It therefore, also has to address water and sanitation issues as they are intrinsically linked with development.
- A Sanitation Development Plan is under preparation (by Oxfam GB, UNDP in partnership with Ministry of Health and Social Protection) for the country, focusing on rural sanitation. Usually, Development plans are made only for district centers, and development of rural areas remains without due attention, in particular with regards to sanitation (sewerage, treatment, collection, transportation, storage and utilization of solid, liquid and agricultural wastes). This will be addressed in the Plan being developed. Ongoing programmes would get support from this Sanitation Development Plan.
- Post-independence sanitation infrastructure improvements in villages throughout the country is very limited⁷⁸ and usually implemented by the households themselves. This

State versus Citizen

The constitution of India has been used to raise the issue of environmental protection through Public Interest Litigations.

Right to Clean Environment – M.C Mehta v. Union of India, Divya Raj, October 3, 2019

<https://blog.ipleaders.in/right-to-clean-environment-m-c-mehta-v-union-of-india/>

BOX 3. ACCOUNTABILITY OF COUNTRY FOR RIGHTS

⁷⁵ Review of Sanitation Policy and Practice in RT, 2015, SDC, UNDP, SIWI, Water Governance Facility, OXFAM GB, TajWSS, GoAL WaSH.

⁷⁶ Page 10, Law on Drinking Water and Sanitation, 2019.

⁷⁷ Article 18, Ensuring the quality and safety of drinking water, Law on Drinking Water and Sanitation.

⁷⁸ Page 25-26, Water Sector Development Strategy in Tajikistan, 2006.

signifies that requirements of construction and sanitary standards and regulations is not taken care of, thereby creating unfavorable sanitary living conditions and increases risks for human health.

- Long-term integrated water resource management is the goal of the National Water Strategy (NWS). The NWS is also fundamentally linked with the SDGs including specific aspects of clean and safe water supply and sanitation and to the implementation of the NDS 2030.
- The **Water sector reform program for 2016–2025**, adopted in 2015, defines the direction and principles for reforming the water sector. The envisaged outcome of adopting the reforms is an economically efficient and environmentally sound water management system to meet the needs of the population and the economy of the country. Specific efforts may be necessary to complete the reform process and overcome possible gaps to achieve the SDG 6 by 2030.

Laws and Development Strategies in Tajikistan support the Sustainable Development Goals and therefore sanitation for all is a key commitment of the Government. Therefore, access to sanitation (support for the plan, implementation and sustainable operation of all functional groups of the sanitation chain) is a key development priority and should be a critical component of WASH sector development programs and plans.

A review of the institutional and governance aspects of the water and sanitation sector reveals that it is characterized by multiple ministries, departments and institutions involved in management. Few reports/sector analysis highlight the fact that the roles and responsibilities of these entities are overlapping though defined. They are also unevenly distributed at the national, regional and district levels⁷⁹ (Refer Box 4). For example, as noted in the World Bank Report, 2017⁷⁹, “the State Unitary Enterprise SUE KMK is the main actor with the widest span of assets, but it coordinates with at least seven other ministries and agencies. Each of these agencies, in turn, has regional and district level structures. Dedicated coordination and cooperation structures exist only at the national level, while local structures typically work independently from one another”.

It is also perceived that, the multiple institutions/agencies working in the sector have poor communication at all levels and also lack exchanging/reporting information between themselves. Another shortcoming may be attributed to lack of implementation mechanisms:

- The **Ministry of Energy and Water Resources** is in charge of water sector policy and regulation, as well as planning and strategic guidance. The operational responsibility for water delivery to the urban municipal and commercial sectors is with the local city authorities/municipalities.
- The **Ministry of Health, Sanitary and Epidemiological Services Department** is responsible for administering compliance with sanitary rules and norms during the location identification, design, construction, reconstruction, and operation of drinking water supply and sewerage systems. In coordination with executive bodies, the department conducts state surveillance and control over protection of water sites, monitoring of contamination levels, and wastewater treatment. **Healthy Life Style Centres (HLSC)** are responsible for raising awareness about hygiene and sanitation among the population to prevent the spread of diseases, including water-borne ones.
- The **Ministry of Finance** allocates public funds to sector agencies.
- Sewerage systems are operated by State enterprises, which are under subordination of municipal authorities.

Institutional and Governance challenge of sanitation sector

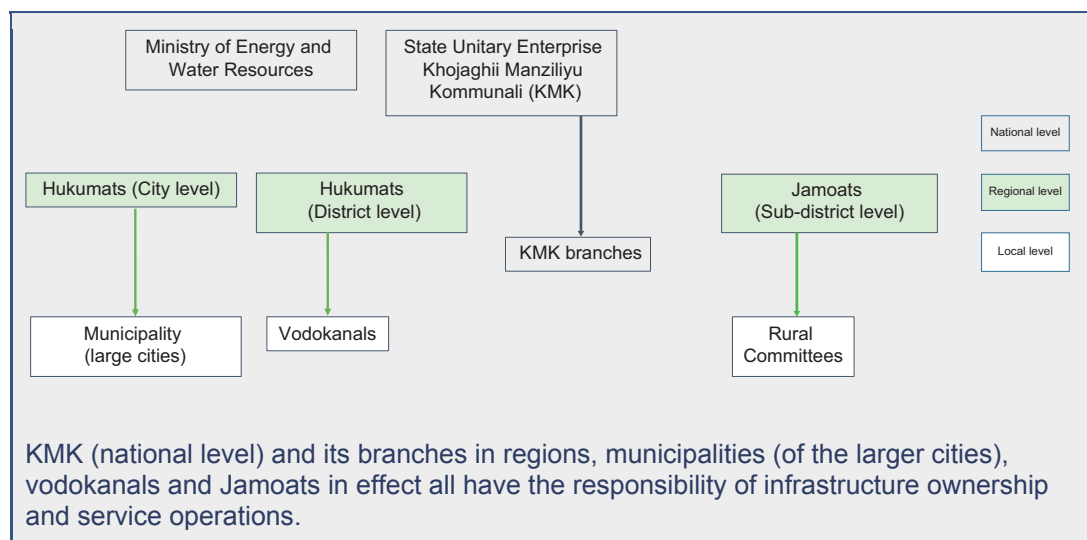
– Multiple ministries, departments and institutions involved in management. Roles and responsibilities of these entities are not clearly defined and unevenly distributed at the national, regional and district levels

BOX 4. INSTITUTIONAL AND GOVERNANCE CHALLENGE

⁷⁹ Page 122, World Bank. 2017. Glass Half Full: Poverty Diagnostic of Water Supply, Sanitation, and Hygiene Conditions in Tajikistan. WASH Poverty Diagnostic. World Bank, Washington, DC.

- **State Unitary Enterprise Khojagii Manziliju Kommundi (KMK)** is the main actor for service provision and operation and maintenance of water supply and sewerage systems. It reports to the national government and services cities and district centers with water and sewerage systems. At the central level, SUE KMK has management functions but at the municipal level, district level and rural level it functions as a service provider for water supply and sanitation⁷⁹. The service provision for six large cities has been handed over to municipalities of the respective cities. For the remaining towns and rural areas, KMK's subsidiary organization, **vodokanals** (water utility companies) are the service providers. The vodokanals are effectively sub-departments of local administrations. The service provision by vodokanals is based on contracts with KMK. KMK manages state-owned housing, water supply systems, sewerage systems, solid waste collection and other services, like desludging latrines and septic tanks. Public and municipal services policies are also designed and implemented by KMK.
- In rural areas of the country, issues of sanitation are handled by the local executive body of state power – **Jamoats** (sub-district level authorities) and vodokanals working under the local **Hukumats** (district level authorities).
- At district level the **Hukumats** supported by **Mohalla Committees** and **Jamoats (sub-district)** of group of villages and the individual village leaders are responsible for sanitation service provision – infrastructure implementation and operation and maintenance. Vodokanals, if present, are supposed to provide the sanitation service (however, due to shortage of staff and distances, services are usually not delivered).
- Tajikistan's **Geology department** is responsible for groundwater resources and the Ministry of Energy and Water Resources oversees surface water sources. The **Environmental Protection Committee** regulates the use and protection of waters and the issuance of permits for special usage. The **Architecture and Construction Committee** provides technical policy advice for water supply and sewerage systems, including construction and design standards.
- The fragmented approach and unclear roles have led to mismanagement of sanitation infrastructure and services as well as poor enforcement of laws and regulations (*An example highlighted in Box 5*).
- Wastewater discharge standards from Soviet times are still applicable (Article 14 and 19 of the new Law on Drinking water and Wastewater talk about quality standards as per existing regulations, having the provision of revision). However, in practice law enforcement on wastewater legislation is rather weak due poor monitoring resulting from staff shortage as well as fund deficits.
- In order to control and improve the sanitation situation, availability of authentic data is essential. However, data about the sanitation situation (across the sanitation value chain) especially in rural areas is missing⁸⁰. This makes governance and improvements more difficult as gaps are difficult to identify and validate as well as frame improvement actions.

⁸⁰ Interviews – 26/I-R/10.



BOX 5. SANITATION INFRASTRUCTURE OWNERSHIP AND OPERATIONS

Source: Adapted from *Regulatory and Operating Agencies for Water Supply (and Sanitation)* World Bank. 2017. *Glass Half Full: Poverty Diagnostic of Water Supply, Sanitation, and Hygiene Conditions in Tajikistan*. WASH Poverty Diagnostic. World Bank, Washington, DC.

A stakeholders list (Table 4) has been prepared based on the reports, documents and articles reviewed for this Study as well as the interviews held with various agencies working in the sector. This is preliminary understanding and will be confirmed at a later stage.

TABLE 4. STAKEHOLDERS LINKED TO SANITATION IDENTIFIED DURING THE DESK STUDY

Level/Type	Organization	Main role
National	Ministry of Energy and Water Resources	In charge of water sector policy and regulation, as well as planning and strategic guidance as well as oversees surface water sources
National	Ministry of Health, Sanitary and Epidemiological Services Department	Responsible for administering compliance with sanitary rules and norms during the location identification, design, construction, reconstruction, and operation of drinking water supply and sewerage systems
National	Healthy Life Style Centres (HLSC)	Responsible for raising awareness about hygiene and sanitation among the population
National	Ministry of Finance	Allocates public funds to sector agencies
National	State Unitary Enterprise Khojagii Manziliju Kommundi (KMK)	Main actor for service provision and operation and maintenance of water supply and sewerage systems, solid waste collection and other services, like desludging latrines and septic tanks
National	KMK branches	Same as above
Local	Vodokanals	KMK's subsidiary organization
Local	Municipality	Only for few cities; mainly involved with infrastructure management
Local	Hukumats	Responsible for sanitation service provision – infrastructure implementation and operation and maintenance
Regional	Rayon Hakumats	
Local	Mohalla Committees	
Regional	Jamoats	
National	Geology Department	Responsible for groundwater resources

Level/Type	Organization	Main role
National	Environmental Protection Committee	Regulates the use and protection of waters and the issuance of permits for special usage
National	Architecture and Construction Committee	Provides technical policy advice for water supply and sewerage systems, including construction and design standards
National	Anti-Monopoly Agency	Tariff setting for water and wastewater services amongst other responsibilities
International financial institution/Development Bank	ADB	ADB's project in Tajikistan – The project will support Tajikistan in (i) rehabilitating and expanding climate-resilient water supply and sanitation (WSS) infrastructure, pilot testing the establishment of district metering areas (DMAs) for nonrevenue water (NRW) management in selected districts of Dushanbe city and rehabilitation of the south sewage collector, benefitting 352,000 people; and (ii) developing a business model for the State Unitary Enterprise Dushanbe vodokanal (DVK) to improve the sustainability of operations, including an accountability and incentive mechanism with a performance benchmarking matrix and smart management system. The project will pilot test a behavior change component for raising public awareness on water usage and conservation and the benefits of smart meters. This is the first urban sector project of the Asian Development Bank (ADB) in Tajikistan, demonstrating efficient network management with potential for scaling up citywide. ADB approved its first urban water and sanitation project in 2018 in Tajikistan. The Dushanbe Water Supply and Sanitation Project will rehabilitate the south sewerage collector in Dushanbe which is an important part of the sewerage network. While the initial focus of the project is to address water supply issues and pilot the district metering areas approach, it hopes to move towards sanitation in the future projects.
Not-for-profit international development agency	Aga Khan Foundation	AKF is working on sanitation in many rural areas and its approach has been to link water supply to sanitation
International not-for-profit organization	ISW	The International Secretariat for Water (ISW) and Solidarity Water Europe (SWE) form a movement bringing together citizens and organizations who are committed advocates for water. Their commitment is to ensure that all people have access to drinking water and sanitation. ISW has a special focus on smaller rural and semi-urban communities, where the need for adequate infrastructure is often the greatest. Using watersheds as a framework, they help communities implement integrated water resource management. Under their project they aim to promote a decentralized system of governance, where the sustainability and the success of the project depends essentially on the citizens who make it up together with the support of the state authorities. State service staff will work directly
Finland's Water Sector Support	FinWater	Key focus on water resources management, where sanitation is part of the project
Major non-profit group working on poverty alleviation and sustainable livelihoods among other issues	Oxfam GB	The Tajikistan Water, Sanitation and Hygiene (WASH) programme aims to ensure that the population of Tajikistan will have improved, sustainable and equitable access to safe drinking water and sanitation, and will adopt better hygiene behaviour It is the result of a review following five years of water and

Level/Type	Organization	Main role
		sanitation delivery, conducted in response to sustainability concerns. It became clear that INGOs, state and private sector providers were all struggling within the existing institutional framework. In response, the Tajikistan Water Supply and Sanitation Network (TajWSS Network) was created, which brings together 17 government ministries and agencies, UN agencies, INGOs, academia, the media, Tajik civil society organizations, the private sector and Parliament. Focusing on service delivery and infrastructure alone will not improve access to water and sanitation in the long term. Instead, the programme uses a 'self-financing governance' approach that addresses the institutional and policy environment as well as working with consumers and implementing agencies
World's largest security-oriented intergovernmental organization	OSCE	Working to frame a locally suited sanitation programme that will contribute to improving the sanitation situation especially in rural areas, complementing its drinking water projects
Agency working for bilateral and multilateral development cooperation and humanitarian aid	SDC	The overall goal of SDC Office in Tajikistan is to contribute to poverty alleviation, facilitation of sustainable growth, equitable access to good quality public services and transition towards pluralistic and economically viable states
International financial institution	European Bank for Reconstruction and Development (EBRD)	
United Nations agency responsible for providing humanitarian and developmental aid to children worldwide	UNICEF	UNICEF works across sectors of child protection, health, social policy, early childhood development and education, WASH (water, sanitation, and hygiene), response in emergencies, climate change and disaster risk preparedness, children with disabilities and youth. In WASH they are looking at infrastructure implementation in schools and health facilities, behaviour change and Menstrual hygiene promotion
Non-profit and non-governmental aid agency	Welthungerhilfe	Welthungerhilfe is working with 5500 households in the Zarafshon watershed in North-West Tajikistan to protect water sources for drinking water and irrigation and reducing land degradation under their Natural Resource Management and Environment Protection programme
International financial institution	World Bank	The development objectives of Rural Water Supply and Sanitation Project for Tajikistan are to (i) improve access to basic water supply and sanitation services in selected districts; and (ii) strengthen the capacity of institutions in the water supply and sanitation sector. This project has three components. 1) The first component, Water Supply and Sanitation Infrastructure Investments, has the following subcomponents: (i) Investments in Water Infrastructure; and (ii) Investments in WASH conditions of social institutions. 2) The second component, Institutional Strengthening and Capacity-Building of Water Sector Institutions, aims to finance goods, services, and training to support a range of institutional strengthening and capacity-building activities (also related to social mobilization and WASH behavior change interventions) to be implemented at the local and national levels. It has the following subcomponents: (i) National-level Agencies; and (ii) District or Local-level agencies. 3) The third component, Project Management and

Level/Type	Organization	Main role
		<p>Implementation Support, aims to finance the costs of (a) coordinating and implementing the project; (b) preparation of pre-investment studies and designs; (c) project monitoring and evaluation (M and E) activities and implementation of baseline and end line surveys; (d) preparation of annual project audits; and (e) project grievance redress mechanism (GRM) allowing for a water utilities customer complaints registration system.</p> <p>The WB interventions on WSS side are represented by two projects (i) Rural Water Supply and Sanitation Project; and (ii) Dushanbe Water Supply and Wastewater Project focusing on rural and urban areas respectively. These interventions have a very limited focus on sanitation – largely envisaged through an upgrade of WASH facilities in schools and healthcare facilities in rural areas of selected 7 districts of Khatlon region (flush toilets with septic tanks and desludging and treatment of faecal sludge by selecting appropriate designs for facilities across the sanitation chain – all WASH facilities including its O&M) and replacement of sewage network in Dushanbe city. Also, there are at least two institutional activities – development of the National Water Supply and Sanitation Program (creating an enabling environment) and a Wastewater Master Plan (map all water supply schemes and sources; water quality analysis of all water sources including ground water) for Dushanbe city. Development of these two documents is led respectively by the Government of Tajikistan and the Municipality of Dushanbe</p>

Challenges

- Multiple agencies/Fragmented responsibilities at national, regional and district or local levels. (governance has been addressed in Article 5, 6, 7, 8 of the new Law on Drinking Water and Wastewater; however, its implementation might take time and further explanations).
- Expectation from external agencies to solve sanitation issues.
- Weak enforcement of laws.
- Focus on water supply.
- Water supply not linked to sanitation⁸¹ (Refer Box 6)
- Resource constraints (of professionally qualified or trained personnel; financial constraints) at institutional level especially after initial infrastructure investment.

Impacts

- Poor sanitation system implementation due to lack of responsibility in turn causes a public health and environmental pollution problem.
- Implementations not sustainable after withdrawal of donor/INGO.

Water supply and Wastewater

Assured and adequate quantity of water supply could result in flush toilets being implemented – generating wastewater (which contains faecal matter and therefore has organic content, nutrients, pathogens that can have harmful effects on soil and water that it comes in contact with and in turn getting transferred to humans) that needs to be collected and treated. If systems are not established for wastewater management it can result in serious public health and environmental contamination issues.

BOX 6. LINKAGE BETWEEN WATER SUPPLY AND SANITATION

⁸¹ Interviews – 03/I-N-I/15; 27/I-D/12.

4 REQUIREMENTS AND RECOMMENDATIONS FOR SANITATION IMPROVEMENT IN RURAL AREAS

To identify the contextual limitations in the project area, the sanitation situation analysis was carried out across the sanitation value chain (from toilet to reuse/disposal) bringing forward the related challenges or issues as highlighted in Chapter 3. This analysis identified the key lessons learnt, specific needs and demand for sanitation intervention as highlighted in Table 5.

4.1 KEY LESSONS LEARNT

- In absence of adequate water supply and wastewater management systems, dry sanitation systems are appropriate solutions though they require design and management improvements.
- The purpose of sanitation is improved public health and a clean environment. This cannot be achieved only by implementing a toilet. Safe containment and treatment of human waste is also essential. However, this is sometimes not clearly understood and sanitation gets equated with provision of toilets. This understanding is now changing as people understand that sanitation means improved toilets, safe containment and treatment. There is a need to address sanitation issues comprehensively (Figure 14) – from a holistic perspective and not in silos – grey water, black water, storm water, solid waste, water supply all need to be addressed with an inter-related, integrated and inclusive approach (Refer Box 9). Urban initiatives can also be looked at to address sanitation issues in a rural set up with appropriate adaptations (Refer Box 10).
- To address gaps and make improvements, collating information and data (about numbers across the sanitation value chain; infrastructure quality and treatment performance; reuse applications; market assessments for sanitation products) from various projects and at national, regional and local level is critical as it is currently not available.
- Infrastructure implementation is taking place as external agencies (grants) are investing in it. However, its operation and maintenance is lacking as adequate resources are not available (either with government or private sector). Community managed systems are one way of addressing this problem where services have a minimal fee⁸² (Refer Box 7).
- Awareness and knowledge levels related to sanitation despite high literacy rates are necessary for all stakeholders (from decision makers to users).
- Building rapport and trust with all stakeholders and involving them in planning and implementation as well as management has succeeded in some regions of the country and this approach can be replicated for scaling sanitation (Refer Box 7).
- Reuse of treated human waste (urine, black water, grey water) is possible with appropriate education, orientation, motivation, guidance and support (Refer Box 7).
- Repetition of awareness campaigns for all stakeholders (about benefits of sanitation, hygiene practices, technology options) might be crucial for changing behavior.
- There is a need to diversify source of funds for sanitation (at present funds for sanitation are mostly coming as grants from international agencies; other sources – from the market; public private partnerships need to be explored for sustainability).
- The sanitation market (supply of sanitation elements; service providers) is weak at present and needs to be developed to support increasing demand.

⁸² Page 127, World Bank. 2017. Glass Half Full: Poverty Diagnostic of Water Supply, Sanitation, and Hygiene Conditions in Tajikistan. WASH Poverty Diagnostic. World Bank, Washington, DC.

- Community based organizations or the private sector might be effective agencies for managing operation and maintenance of sanitation systems and services based on the target/beneficiaries (households in rural areas/social institutes) (Refer Box 7).
- 'Seeing is believing' – pilots need to be implemented and operated successfully over time to serve as demonstration systems (Refer Box 7).
- Laws and governance mechanisms need to be clearer for effective sanitation service delivery.

FIGURE 14. A SIMPLE ROADMAP FOR IMPROVING THE SANITATION SITUATION⁸³

Step 1	Improving containment systems
a	Building awareness about different technology options across the sanitation chain
b	Upgrading existing systems in place
	Selecting context specific option (UDDTs, EcoSan, Composting toilets, Twin Pit, etc.,)
	Incentives to local governing bodies, leaders
	Enabling access to funds for users (e.g. micro loans, installments)
	Ensuring availability of service providers & service delivery mechanisms (sanitation market development)
c	Regulation & Monitoring
Step 2	Service* Enabling Environment
	Financing options
	Human Resource Development
	Regulatory Framework
	Institutional innovation (e.g. Water and Sanitation Utilities; Self-sustainable)

* Service here refers to emptying, disposal and reuse of sludge from containment structures

Despite the current limitations, from various interactions it can be ascertained that government and people understand the need to change their perspectives regarding sanitation and are willing to support changes (Figure 15).

⁸³ Created on analysis made by author based on interviews and review of documents as well as experience from various cases.

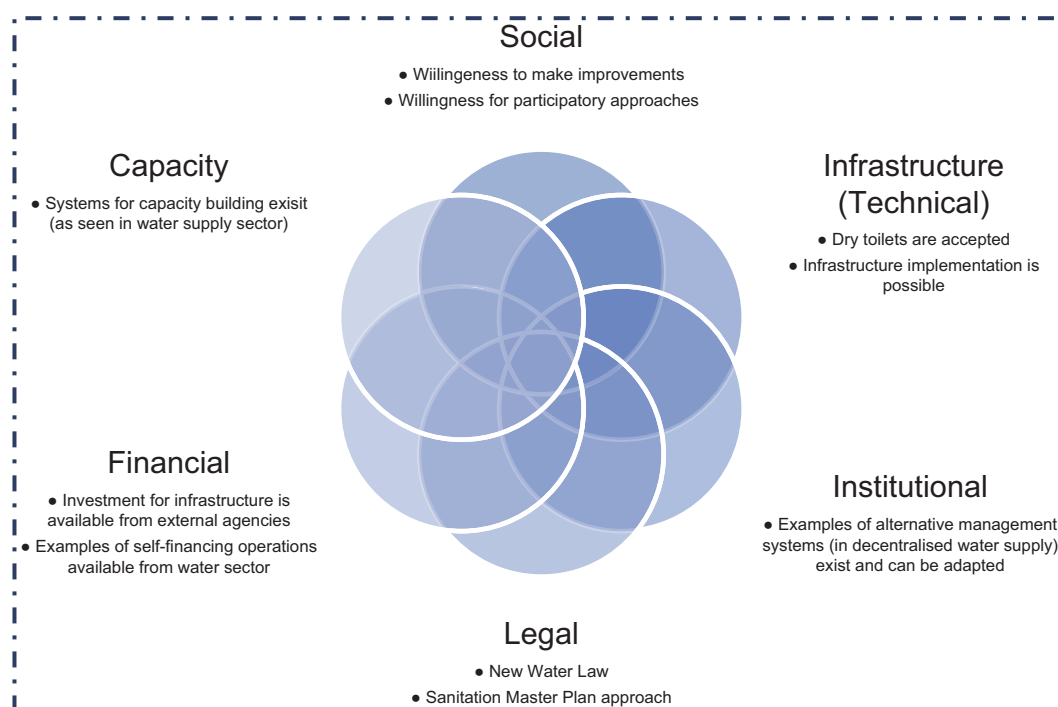


FIGURE 15. CURRENT ENABLING ELEMENTS

Innovative alternatives for technology, management and approach to improving sanitation practices is being initiated in Tajikistan through various efforts of international agencies. Sanitation related behaviour change is also being recognized as an important aspect as an enabler for effective sanitation improvements. These interventions are gaining support from people and government. Some examples are highlighted below.

ISW's approach for rural water supply and sanitation

International Secretariat for Water (ISW) has followed a participatory community based approach in its project in Ferghana Valley right from awareness building, developing trust of people through their participation in all stages of the project as well as in management of implemented systems. Drinking Water Organization (DWO) was developed as an institutional structure with representatives from households for management of drinking water supply systems – they also help collect contribution for construction (30% of cost) and have the right to apply a tariff (approved by the Anti-Monopoly Agency). This also gives the DWOs the ability to seek investment from banks. DWOs manage public toilet facilities in some project areas. The Antimonopoly Agency of both national and provincial levels approved the water tariffs in all rural water systems that were implemented with support of the project. The village water systems located in Konibodom, Isfara, Mastchoh and Spitamen districts all apply tariffs that not only cover the full cost of operation and maintenance, but also capital costs. This was achieved through the Organization's persistent follow-up, lobbying and communication of the successful experience in the projects.

EcoSan toilets were built and are being maintained well by users, under this project. Reuse of the treated by-products – urine and composted faecal matter is well accepted. This acceptance was brought about by regular awareness campaigns. Flush toilets with septic tanks and constructed wetlands have also been implemented and are running successfully.

Systems in public institutes serve as demonstration units and encourage people to implement such systems in their households. The SES has also implemented an EcoSan system as demonstration.

BOX 7. EXAMPLE OF PROJECT HIGHLIGHTING POSSIBLE APPROACH FOR SANITATION INTERVENTIONS

Oxfam's Sanitation Marketing Intervention

Research has been carried out by Oxfam in recent years to determine the feasibility of market-based approaches (for sanitation products) to improve the sanitation situation in Tajikistan. These studies have looked at capacity of the private sector and public institutions to deliver and to support the delivery of adequate and sustainable sanitation products and services. A number of favourable factors exist (as also noted in Figure 10) like customers willing to improve their toilet facilities, a number of trained masons (training programmes also carried out by Oxfam), policies on designs of improved toilets, a well-established supply chain for construction materials and a developing market for sanitation products, which imply that a market-based approach for sanitation improvements is possible. Oxfam, based on its years of experience and good relations with government and other sector stakeholders is guiding the sector to develop and pilot this approach. As highlighted in this Study, Tajikistan has access to sanitation facilities. However, these facilities are reported to be mostly unhygienic – “containment of excreta is not ensured, slabs are not easy to clean, facilities are not regularly emptied of excreta and some latrines are overused” (Sanitation Marketing in Tajikistan, 2017, WSUP). Based on the formative research carried out, Oxfam is piloting ‘sanitation marketing’ intervention in three villages of Rudaki district using a marketing mix (product, price, promotion, place and people) and private sector partnership to sell WASH products to households with better financial options (option of instalments) so that the household sanitation situation can be improved. This intervention seeks to introduce new technology options, work with the private sector to develop market potential and demand and work towards scaling up the market by inculcating improved sanitation/hygiene behaviour, Oxfam also plans to work with financial services companies to provide financing offers to eligible consumers to facilitate purchases and also set up reward schemes to enable positive behaviour change. A small range of financing options will be made available to consumers so that the intervention can target sanitation improvements across all wealth and income groups. The Project is ongoing, therefore the impact cannot be determined at present.

Inputs from Oxfam representatives and Sanitation Marketing in Tajikistan, 2017, WSUP

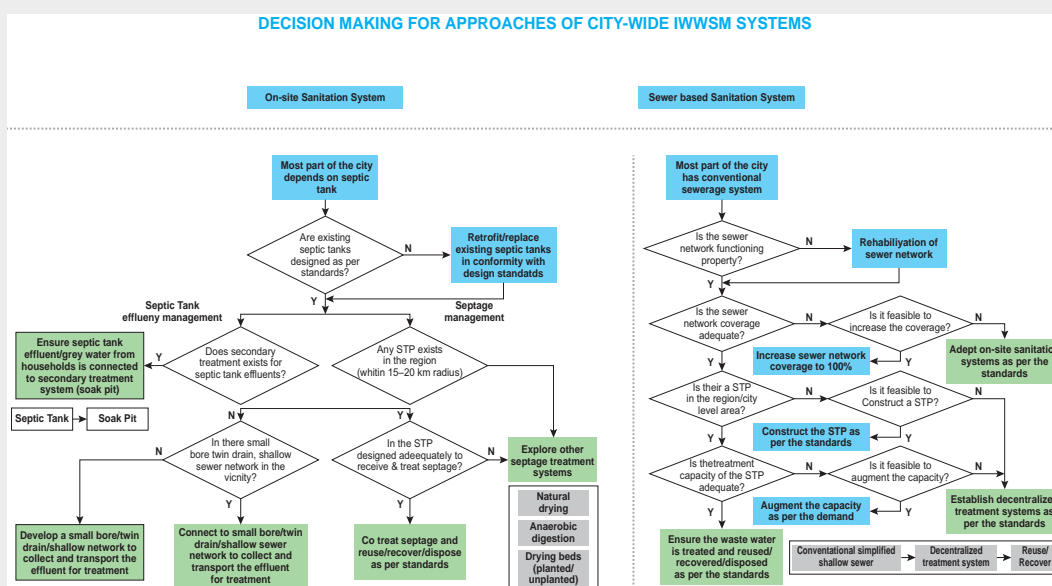
BOX 8. EXAMPLE OF PROJECT HIGHLIGHTING SANITATION MARKETING INTERVENTIONS

Integrated Wastewater Management

As alternatives to the current practice of 'hole-in-the-ground' toilets linked to an unlined pit, appear in the market, and people's aspirations for improved sanitation gains momentum, there is a need for sanitation sector professionals to be prepared for finding appropriate solutions to the different systems that might exist in a village, town or city. In addition, as water supply improves and people move from using dry toilets to water based toilets, the problem of wastewater management will also increase. Therefore, an integrated approach to wastewater management is the logical way forward.

The way to this management solution would be to first develop a sanitation plan for a village/town/city, that effectively addresses all wastewater (grey water + black water + storm water) in on-site containment systems or sewers, generated from all sources within the settlement's (village/town/city) limits. Next is to identify ways in which different streams of wastewater can be scientifically treated, operated and maintained in a sustainable manner. This approach promotes the conjunctive use of conventional and non-conventional systems to address the sanitation needs (on-site and off-site/sewered and non-sewered) in a city in an incremental manner.

Such an integrated approach is being adopted in India in many towns and cities as rural India (depending on on-site sanitation systems) gets urbanised. A decision making guide for an integrated approach is highlighted below, from the '*Handbook on Integrated Wastewater and Septage Management*', published by the Commissioner and Director of Municipal Administration Department, Government of Telangana, India, 2018 – a strategic approach developed by the State of Telangana in India, to address water and wastewater management from the perspective of optimal use of water and wastewater resources, leveraging the existing non-conventional on-site wastewater management systems that provide short-term stability and build upon them to gradually achieve the long term goal of 100% universal coverage of wastewater management services.



The handbook highlights a set of six 'guiding principles' to assist the decision makers to formulate appropriate sanitation plans that is equitable, sustainable and economically viable. The stepwise processes of planning, design, implementation, technical criteria for selection of technologies and operation and maintenance based on standards practised in India are explained. It also provides an overview of sustainable technology options in terms of capital cost, O&M cost, energy requirements and advantages and regulatory framework.

BOX 9. EXAMPLE OF PROJECT HIGHLIGHTING INTEGRATED APPROACH TO SANITATION

City Wide Inclusive Sanitation (CWIS)

Citywide Inclusive Sanitation (CWIS) looks to shift the urban sanitation paradigm, aiming to ensure everyone has access to safely managed sanitation by promoting a range of solutions – both onsite and sewerage, centralized or decentralized – tailored to the realities of the world's burgeoning cities. CWIS means focusing on service provision and its enabling environment, rather than on building infrastructure.

CWIS is characterized as:

Everyone benefits from adequate sanitation service delivery outcomes; human waste is safely managed along the whole sanitation service chain; effective resource recovery and re-use are considered; a diversity of technical solutions is embraced for adaptive, mixed and incremental approaches; and onsite and sewerage solutions are combined, in either centralized or decentralized systems, to better respond to the realities found in developing country cities.

There are four main building blocks for CWIS: (1) Prioritization of the right of all to sanitation, with inclusive strategies reaching informal settlements and vulnerable populations; (2) Delivery of “safe management” along the entire sanitation service chain by focusing on service outcomes rather than technologies, and by embracing innovation and incrementalism; (3) Recognition of sanitation’s contribution to a thriving urban economy by integrating sanitation into urban planning, reforming regulatory policies, and embracing resource recovery and reuse; and (4) Commitment to work in partnership across sectors and stakeholders to make progress through clear institutions with accountability, embedding sanitation within urban governance systems.

Citywide inclusive sanitation is explicitly agnostic about technology choice. Clear service outcomes – for all residents, in sewerage and non-sewerage areas – and system feasibility considerations (e.g., financial, environmental, political, organizational capacity, cultural, and other factors) inform system design and technology choice. CWIS is based on the fundamental understanding that urban human waste management is characterized by inherent market failures, and therefore must be organized as a public service – including ensuring safe containment – to achieve public interest components of sanitation (i.e., safety and inclusivity). This requires government engagement in market structuring; it does not preclude or diminish the role of the private sector. For service authorities to achieve the outcomes embedded within their legal mandates, they must ensure services are well executed. This expands opportunities for private sector participation by creating market incentives for investment and innovation.

Source: POLICY BRIEF ARTICLE- Front. Environ. Sci., 28 February 2020; <https://doi.org/10.3389/fenvs.2020.00019>; Citywide Inclusive Sanitation: A Public Service Approach for Reaching the Urban Sanitation SDGs; Alyse Schrecongost, Danielle Pedi, Jan Willem Rosenboom, Roshan Shrestha, Radu Ban; Bill & Melinda Gates Foundation, Seattle, WA, United States

BOX 10. EXAMPLE OF CITY WIDE INCLUSIVE SANITATION APPROACH

4.2 SANITATION INTERVENTION APPROACH

Based on the findings, challenges, key learnings and expectations of sanitation intervention in the project area, it is recommended to carry out certain assessments to formulate a thorough approach (Table 5):

TABLE 5. SANITATION INTERVENTION APPROACH

	Activities	Output
1	Preliminary assessment	Study report (completed) enabling environment and challenges identified
2	Define criteria for selection of villages for pilot intervention and select villages	Pilot villages selected
3	Identification of suitable options for management of sanitation interventions (institutional and economic viability) / institution responsible for sanitation interventions (other than OSCE), its formation, formulation of roles and responsibilities	Sanitation 'Task Force' (can be a legal new entity or an existing one with appropriate qualified members). The institution set-up (legally valid) should be financially sustainable for operation and management of pilot implementation(s)
4	Confirm findings of the Desk Study through field visits and confirm key stakeholders	Key challenges and stakeholders identified
5	Conduct a 'Perception study' in pilot villages – what is sanitation and what are its benefits	Need for specific behaviour change, awareness raising identified
6	Conduct a pollution level assessment (of existing surface water bodies, ground water and soil)	Define design and treatment objectives and option catalogue for sanitation infrastructure and management across the sanitation value chain according to specific geographical conditions as well as demand
7	Carry out a sanitation (improvements) demand assessment (what are people willing to pay for)	Clear demand identified
8	Conduct capacity need assessment for different stakeholders and develop a stakeholder engagement plan	Capacity development plan and stakeholder engagement strategy
9	Project implementation plan presented and finalized by stakeholders and feasibility assessment followed by implementation	Validated plan and Pilots implemented
10	Monitoring of system and documenting lessons learnt	Regular assessment and improvements

The presented priority actions in this report build a starting point for improved sanitation management in rural Tajikistan and thus environmental and public health protection.

It is important to point out that this assessment will have to be reviewed once the pilot villages have been identified for the interventions. A feasibility assessment will need to be carried out before finalising the sanitation options. The identified intervention activities may be discussed with the stakeholders and modified if required.

Moreover, it is crucial to streamline any ongoing / planned sanitation activities in the selected pilot villages in order to either complement or condense resources. Equally important is a strong involvement of the community living in the villages as well as the stakeholders from government from the beginning e.g. supported through public hearings on the progress of intervention implementation and similar awareness raising activities.

5 ANNEXURES

5.1 ANNEXURE 1- DISCUSSION NOTES

(Note: e-discussions were held with various experts and organization to get an overview of the sanitation situation, sanitation facilities and service status in rural areas, awareness levels and perceptions about sanitation, government's involvement and main challenges with implementation of sanitation interventions. A preliminary explanation of why the author wanted to discuss these topics with them was provided to all organizations/individuals interviewed. To keep the names of individuals and organizations anonymous, a coding has been provided as described below so that points discussed during the interviews can be referenced to. The points mentioned in the notes are not verbatim and have been written by the author in her own words).

	Description	Abbreviation
i.	International Non-Governmental Organization – Implementing agency	I-N-I
ii.	International Non-Governmental Organization – Donor	I-N-D
iii.	International Donor Agency	I-D
iv.	International Expert	I-E
v.	International Private Foundation	I-F
vi.	International Research Institute	I-R

Based on the numbering, type of organization/individual and date of interview a coding has been provided as *Date/Type of Organization or Individual/Serial number*.

Serial No.	Date of Interview	Type of Organization/Individual	Code
1.	20.05.2020	I-N-D	20/I-N-D/1
2.	20.05.2020	I-E	20/I-E/2
3.	20.05.2020	I-D	20/I-D/3
4.	21.05.2020	I-N-I	21/I-N-I/4
5.	21.05.2020	I-E	21/I-E/5
6.	22.05.2020	I-D	22/I-D/6
7.	22.05.2020	I-D	22/I-D/7
8.	22.05.2020	I-D	25/I-D/8
9.	25.05.2020	I-N-I	25/I-N-I/9
10.	26.05.2020	I-R	26/I-R/10
11.	27.05.2020	I-F	27/I-F/11
12.	27.05.2020	I-D	27/I-D/12
13.	02.06.2020	I-D	02/I-D/13
14.	02.06.2020	I-D	02/I-D/14
15.	03.06.2020	I-N-I	03/I-N-I/15

Interview 1 – 20/I-N-D/1

- Toilets are very basic, hidden from view and usually a 'hole in the ground' with or without a wooden plank to cover the hole. The hole is maybe 1.5 to 2 m deep and width/diameter is according to available land. Toilets are usually located outside the house in the yard. The super structure of the toilet is built according to the financial capability of the owner. Usually it is a temporary structure – tarpaulin sheets over a wooden frame. The toilets do not have any hand wash facilities. Flush toilets are usually not implemented in rural areas because there is no place for the wastewater to go for appropriate containment and treatment.
- The containment structure is usually just a pit (dug earth) with no lining. At times people might install concrete rings, but the bottom is not lined. Blackwater enters these pits, solids get retained in the pit and water infiltrates into the surrounding soil. These pits are usually not emptied. Once they fill up (from never to after 10 years), another pit is dug up in the yard and the super structure moved to it. The filled up pit is closed and left as it is.
- There is no treatment or reuse of blackwater.
- In general people are not very keen to reuse treated faecal matter/blackwater in agriculture.
- Grey water from households is channeled out of the house into the yard and in the summer months used for the vegetable garden. In winter, it is channeled out of the yard on the road side into ditches or small channels that carry rainwater. This water might end up into streams or rivers or lakes.
- As the upper catchment area of Zarafshan river is a mountainous region, the ground is rocky and ground water is not available. Water in aquifers might be present. Streams and rivers are usually available in the rural areas of this region.
- Water supply in the rural areas is usually from streams or rivers. The number of dug wells or bore wells are very less. Water to the households is either brought in pipes (usually a common point near multiple houses) from these streams/rivers or manually. It can be said that the water supply is limited to 30lpcd or even lesser.
- Open defaecation is very limited or it can be said that it is non-existent. Schools have toilets (but limited and not adequate for the number of students or staff and in poor condition). Public Health institutes also have toilets but they are in very poor condition.
- Sanitation is low in priority for people as well as for government. People are poor and do not want to spend on toilets. They might spend money to buy second-hand cars but improving sanitation situation might not be considered. In the post-Soviet situation, improved sanitation is given very less importance as people struggle to improve their income and lifestyles.
- Solid waste generation is limited in rural areas. Plastic and paper waste generation is very less. Organic waste is collected in the households and usually mixed with livestock dung and composted. This is used in the vegetable garden or farms. Some of the organic waste might also be mixed with animal dung to make cakes that are dried and used as fuel to start fires (coal is available).
- Literacy rates in the country is high, however awareness levels about sanitation, linkages between sanitation and health and need for improvement is very limited. Willingness to change is curtailed because of poverty.
- Most sanitation projects are initiated by International agencies working in the country. Focus is still on water supply and not on improving the sanitation situation.
- Water supply is either self-managed or managed to some extent by Village Committee (partly elected or assigned), Community Based Organizations or by the Water Users Committee depending on the size of the village and its administration. Religious leaders also play an important role in guiding and managing communities in villages.
- Wastewater discharge standards are perhaps available but not in use especially in the rural areas. Even water quality standards for supply are not enforced in rural areas.

Interview 2 – 20/I-E/2

- People are very friendly and cooperative in Tajikistan however not many speak English, therefore translation is important. Understanding the nuances might be challenging through interpretation.
- People do not talk about sanitation and therefore establishing a good rapport with community becomes essential to get to understand their views related to sanitation. Motivating people to talk about sanitation and work towards improving the situation is therefore quite challenging. Community participation on sanitation related discussions might be a challenge.
- Involving community leaders and community led initiatives would be beneficial.

- People do not have a clear understanding of benefits from improved sanitation.
- Government's involvement in sanitation is very limited.
- Education level is high in general.
- Design of toilets are very basic, usually located far away from the house in the yard. It's usually dark and not ventilated well. Hand washing facilities are not available inside the toilet. Menstrual hygiene is poor and not talked about. Girls don't go to school during menstruation.

Interview 3 – 20/I-D/3

- Our interventions on WSS side are represented by two projects – (i) Rural Water Supply and Sanitation Project; and (ii) Dushanbe Water Supply and Wastewater Project focusing on rural and urban areas respectively. These interventions have a very limited focus on sanitation – largely envisaged through an upgrade of WASH facilities in schools and healthcare facilities in rural areas of selected 7 districts of Khatlon region (flush toilets with septic tanks and desludging and treatment of faecal sludge by selecting appropriate designs for facilities across the sanitation chain – all WASH facilities including its O&M) and replacement of sewage network in Dushanbe city. Also, there are at least two institutional activities – development of the National Water Supply and Sanitation Program (creating an enabling environment) and a Wastewater Master Plan (map all water supply schemes and sources; water quality analysis of all water sources including ground water) for Dushanbe city. Development of these two documents is led respectively by the Government of Tajikistan and the Municipality of Dushanbe.
- Previously, not invested in sanitation in Tajikistan, however they are now looking at both water supply and sanitation and have also started a Rural Water Supply and Sanitation Programme.
- In urban environments, shared wastewater management facilities for e.g. for multi storey buildings might work. However, involving community for its management might be challenging. Here involvement of private sector might be more efficient. In rural areas community involvement might be more successful.
- Investment for awareness building is a must as people do not see the environmental and public health benefits of improved sanitation.
- People perceive sanitation as an external problem that needs to be monitored and controlled by an external party.
- Government's willingness for sanitation investment is reluctant. Water supply is a priority as of now.
- Government is largely relying on external funds for both water supply and sanitation interventions. There is no budget allocation for it. This scenario is not sustainable and needs to change.
- In general, water availability is seen to be as abundant therefore improving the water supply and irrigation efficiency has not become a priority. Even rainwater harvesting is not perceived as appropriate investment.

Interview 4 – 21/I-N-I/4

- Sanitation is still not a priority action area in Tajikistan. Implementing water supply and sanitation systems that are sustainable is institutionally very tough especially to build and operate. These services are not profitable (taxation issues are a hindrance). Functioning of government institutions still has a lot of old systems resulting in private sector businesses being unprofitable.
- We have been working over the years to streamline policy and legal frameworks for water supply and sanitation, operation of institutions and for raising awareness at community level.
- The current GDP of the country is dependent on 40–50% remittances and capacities at government level are limited. This makes the water supply and sanitation sector even more vulnerable (improvements are not so easy to implement).
- Construction of sanitation facilities in rural areas is a challenge as trained masons are not available locally.
- Another challenge is the acceptance of sanitation systems by the rural community due to lack of awareness and poverty. Therefore selection of communities should be thought through for project implementation – villages close to cities might be more open to sanitation improvements.

- Sanitation systems should not be provided free of cost. Options of different price scale should be presented to communities and they can select suitable options for themselves – perhaps a credit system could be a supporting measure.
- For management of sanitation issues, an institutional set up should be thought through-WUA can be an option where they exist.
- The Covid pandemic could have an adverse impact on the economy and demand for latrines might become lower. This will need to be assessed.
- Over years people's perception about sanitation has changed. This is observed in urban and peri-urban areas. However, in rural areas the awareness levels are still very poor.
- People are willing to pay for water supply however, for sanitation services, the reluctance might still be there.
- The on-site containment systems for blackwater in rural areas are big and rarely fill up before 10 years of use. The containment systems are usually concrete rings (available in urban markets). Four to five rings might be used for one pit. Water from these pits infiltrates into the ground. Each ring costs around 35–50 USD.
- Reuse of treated wastewater or faecal sludge might be acceptable by farmers especially in peri-urban areas but at community level, it might be difficult and will need to be assessed in the specific project area.

Interview 5 – 21/I-E/5

- Urine diverting dry toilets might be appropriate for rural Tajikistan.
- If people are not willing to reuse the digested dry faecal matter after two years – it can be mixed with soil and applied to forest areas.
- Urine can be used in gardens or vegetable farms.
- It is advisable to provide few demonstration systems for people to use and see benefits.
- A long-term handholding system should be established (at least 3-6 years) so that people have someone to explain doubts as they face it while using these UDDT systems.
- Cost of building these units depends on the final quality expected and the ground conditions, however, these systems can be cost effective as over time they do not need extensive O&M costs.

Interview 6 – 22/I-D/6

- The Dushanbe Water Supply and Sanitation Project will rehabilitate the south sewerage collector in Dushanbe which is an important part of the sewerage network. While the initial focus of the project is to address water supply issues and pilot the district metering areas approach, it hopes to move towards sanitation in the future projects.
- My experience during processing the project and working in Tajikistan since 2016 is that the Dushanbe vodokanal is very aware of the issues of sanitation and would like to address it but is resource constrained. There are very basic water supply aspects that need to be addressed including access, coverage, NRW, metering and 24/7 water supply. We are working closely with DVK to ensure that we can address these issues.

Interview 7 – 22/I-D/7

- The biggest challenges at the moment in the sector are: 1) lack of funding for capital investment to expand/rehabilitate the aging infra systems built in the former Soviet era; 2) insufficient revenues being generated from the urban services (including sanitation) to sustain the O&M and 3) customer attitudes and awareness towards the scarcity of water and environmental impacts.
- On sustainability of the urban services, there are a couple issues being focussed on: 1) capacity building of the utility operators; 2) establishment of DMAs, metering and SCADA system; 3) transition to volumetric tariff and 4) integrated pricing for both water and sanitation. Meanwhile, a big push right now is promoting inclusive city-wide accessibility to sanitation services and a particular focus on COVID-19 through the WASH program.

Interview 8 – 22/I-D/8

- I think that there is a significant difference between sanitation in Dushanbe and the rural areas. In rural areas sanitation is limited to basic toilets. Population density is low in most rural areas and therefore basic sanitation has not created too many issues. In urban set ups,

with higher population density, managing sanitation is more challenging. Dushanbe has poor existing infrastructure for sewer network and sewage treatment facility from the Soviet times. This needs to be rehabilitated.

- Organization and management of sanitation is very poor in the country.
- Water resource management is not given attention. Water supply has higher priority than sanitation.
- Climate change is going to impact water resources adversely therefore tying up water resource management, water supply and sanitation is an important issue to address (glacier melt, river flow, flooding and landslides – resulting in highly turbid water, as well as contaminated water resources are issues that need to be included in planning sustainable supplies). In 2017, worldwide child diarrhea instances were the highest in Tajikistan.
- From an institutional perspective – lot of people but not qualified and experienced enough and not motivated enough.
- Legally – laws are governance systems difficult to understand and implement; enforcement is poor.

Interview 9 – 25/I-N-I/9

- Sanitation is a substantially neglected issue.
- Sanitation awareness levels are very poor.
- The poverty issue results in people not being able to afford improved sanitation systems in rural areas.
- Money is usually made available for sanitation by international agencies.
- Toilets in rural areas look horrible – dark enclosures, far from house, no hand wash facility. Pits are usually big and fills up in around 10 years.
- GDP is mainly from foreign remittances, development cooperation.
- Construction cost is similar to Afghanistan, most material comes from China.
- Focus for designing a sanitation programme should be on awareness raising, piloting, and assessment for demand of sanitation facilities, ways of improving existing systems – easily cleaned, hand-wash facilities, reuse potential.

Interview 10 – 26/I-R/10

Government's focus (water vs sanitation):

- **Government's focus** – Government priorities lay on water mostly, and current focus is on IWRM aspects, where drinking water supply goes with sanitation in parallel. The recently adopted law on Drinking water supply and sanitation provides with the regulatory framework towards improvement of DWS and sanitation along with institutional set up and the role of communities, private sector and each water user. However, there is a need of clearer implementation mechanisms, with separation of the roles of each in the sector. Various studies show that sanitation in Tajikistan perceived as toilets only, without understanding of links to wastewater treatment, especially in rural areas, where there is no any sewerage systems or systematic treatment exist. Thus, in the current law and existing projects a strong requirement set to look after the sanitation and wastewater treatment. In 2015 UNDP made a study on Sanitation Norms and procedures, those set by the Ministry of Health as a nationally approved technical standards for sanitation infrastructure, and recommendations are made to revise number of them based on the current development trends, innovations and national-international obligations.
- The Water Resources program in Tajikistan, focuses on water resources management, where sanitation was put as a part of the projects with implementing partners – Oxfam GB, Aga Khan Foundation, WHO. Types of sanitation facilities were basically approved by them, including consultations with beneficiaries, local authorities and stakeholders. As a result of the project implemented by Aga Khan Foundation more than 100 households in GBAO region were provided with the EcoSan latrines (Urine Diverting Dry toilets).
- EcoSan toilets proved their usability in GBAO due to several reasons. They are affordable, water-free sanitation systems, which utilise a simple diversion process to break down human waste into liquid and dehydrated odourless, compost-like material. Such toilets do not need a sewage pipe network or sewage treatment plants, release no effluent seepage into underground water resources, do not create obnoxious odours, and are a plumbing-free

solution with low operating costs. In addition to that, most of them were constructed in the area with hard soil, where communities face a problem to dig holes for “pit latrines”.

- But, what worked well in one place was not accepted in another area, due to different issues, starting from non-acceptance of the so called ‘new technique’ by community members, and the disputes raised by some religious authorities. This happen in the different projects by other partners.
- As for Oxfam GB, their approach is complex and not limited by construction only. Their long-term project financed by Swiss (SDC) is looking at the dynamics of sanitation in Tajikistan and focuses on bringing different technologies for different users – households, social institutions (schools, local health-care facilities). Currently they are working actively on Sanitation Marketing. In-deep study was looking at the past and current challenges, community changes and development and their readiness to ‘pay for toilet’ approach.
- **Major challenges** – In 2014 I was leading a Sanitation Working Group, with the aim to review existing policies and practices on sanitation and to develop a guideline for Tajikistan on sanitation technologies. A group was comprised of many stakeholders from governmental agencies and international projects. The major challenge is lying on the gov. authorities and their understanding of the main issue – ‘sanitation is a toilet, and toilet is sanitation’. During many discussions and disputes, it was revealed that many international projects didn’t follow national WASH standards, nor government authorities pay attention when project designs approved. A lack of coordination, communication and monitoring of infrastructure projects was reported as the main issue, including coordination between the projects to avoid duplication or exchange lessons learned. Further UNDP, Oxfam designed a scoping study on Sanitation, including Sanitation marketing (mentioned above).
- Lack of data is another big concern. If you look at the JMP WASH report, you will be surprised. Sanitation data is almost absent, and the same applies to water information. A recent WB Poverty Diagnosis on WASH in Tajikistan also underlines a lack of updated information on sanitation and the need to improve existing data collection/sharing mechanisms. A New National Water Strategy reflects on SDG related targets and the need of reliable data, access, decision making and meeting international obligations.
- **Main stakeholders** for sanitation improvement in the country – Ministry of Health and social protection and its subordinate departments (Surveillance agency), is in charge of approvals, revisions and adoption of WASH norms and procedures towards infrastructural projects (SanPiN).
- Ministry of Energy and Water Resources, appointed as a Implementing agency for Water Sector reform, in where WASH considered as a substantial part; coordinates all reform related processes, including Laws, institutional frameworks and implementing mechanisms.
- Committee of Environmental protection, facilitates the surveillance of waste discharges into water bodies, including regular monitoring of surface water quality.
- Local Executive bodies, participate in all international projects, construction works and monitoring, including reporting to the central apparatus.
- Local communities, Social institutions, beneficiaries, participate in the projects design, community discussions and negotiations, installation of sanitation facilities and their use.
- **Sanitation funding** in Tajikistan – In 2013 a Working group on Water and Climate Change was created by the donor community, comprised by all development agencies, who pay for WASH projects. Till 2015 SDC played a facilitation role, then EU took a lead. Main objectives of the Group:
 - To further strengthen the policy dialogue with the Government on a broad range of issues related to sustainable water resource management and relevant issues with special emphasis on the implementation of the water sector reform programme of the Government of Tajikistan 2016–2025.
 - To strengthen information sharing and exchanges among donors with regard to ongoing and planned projects and programs.
 - To strengthen exchanges and dialogue among donors on key issues, such as:
 - Serve as a forum for discussing policy and procedural issues, such as progress on water sector reform implementation, specific policy developments in the different sub-sectors (water supply and sanitation, irrigation, etc.) and the integration of transversal themes such as Climate Change adaptation and Disaster Risk Reduction.

- Promote consensus on key issues relating to aid based on experiences and lessons learned.
- and ensure systematic linkages with related donor working groups.
- **Willingness and ability to pay** for sanitation services – In towns and cities it is not a concern, you just pay for centralized sewage and demand appropriate services. In rural areas the situation vary and depends on the region, people behave and their understanding of the sanitation. Due to labor migration, when people see better sanitation facilities being far from their own homes, they try to improve their toilets, laundry and water supply systems while back from long journey. Fast urbanization, new technologies and market diversity allows local population to build better facilities in their new houses, yet limited by financial resources. In most cases, people still use traditional means and knowledges, sometimes not safe from health point of view. In remote areas, villages do not care of their sanitation conditions, and toilets are built without any environment considerations, pit latrines contaminate ground waters, and some of them are put on the riversides, where wastes are washed to the open water, raising health risks to the downstream villages.
- Projects try to bring changes to those most affected villages, not limited by only construction of new toilets, but working with communities, raising their awareness. One of the key influencing mechanisms used by the projects is the health related data (from baselines), showing the links between insufficient knowledge of population about water-sanitation, its impact on human health and economic impact on each HHs.

Interview 11 – 27/I-F/11

- The sanitation situation in rural Tajikistan is quite bad. District centers had some infrastructure but these are no longer in working condition. In district centers even the multi-floor buildings have outdoor dry toilets. In rural areas more than 90% have dry toilets. Some administrative buildings also have sanitation systems – toilets connected to rudimentary sewers and treatment systems but these are not in working condition either due to less water supply or infrastructure damage.
- Main challenges for the sanitation sector are inadequate water supply, management structures, existing poor infrastructure and disproportionate and inadequate service provision by state enterprises.
- In the absence of sustained water supply, it is not advisable to recommend water-based toilet systems. Sanitation is not just toilets but collection and treatment of wastewater that is generated and its safe disposal.
- We have implemented EcoSan or urine diverting dry toilets in north Tajikistan (cost approx. 200 USD). Around 1300 such toilets were built. Though most of these toilets are in use, it's appropriate use and management is not ensured.
- Use of the treated faecal matter and urine is not easily accepted by all. It depends on the community. Deeply conservative populations might not reuse human waste (faecal matter and urine) as it is considered unclean and a taboo.
- We are working on sanitation in many rural areas and its approach has been to link water supply to sanitation. Water supply is approved to those households that commit to improve the existing sanitation facilities.
- The recommended sanitation improvements are improving the super structure of the toilets – ventilation, roof, doors, cleaning provisions and installation of hand-wash facilities. Toilet bowls or water based systems are not recommended as wastewater management solutions are still not possible to implement due to water supply issues, financial constraints as well as land constraints.
- We are also supporting the provision of public toilets in District centers. These public toilets are located where water supply is available. These toilets are connected to pits or septic tanks that are proposed to be emptied by trucks (at a cost).
- Another mechanism for public toilets is to provide other facilities in the same building like a sauna service.
- Another approach for financial sustainability of public toilets is to allow ownership of public toilets to be taken up by KMK or private institutions. Through the pay and use system, the toilets would be able to generate funds for its sustainable operation and maintenance.
- In villages, the community based organizations can also take up the responsibility of sanitation management as they are the ones responsible for overall development process of the village.

- Grey water is not managed and is disposed outside the houses either in open drains or ditches.
- There are standards available for safe disposal of wastewater however, these standards are not enforced due to lack of resources, capacities and institutional overlaps.
- River water quality is quite good as they are originating from glaciers. Not enough is known about ground water quality. Toilets near rivers might be contaminating the river too. Livestock waste is also a source of pollution for rivers.

Interview 12 – 27/I-D/12

- In general, in all water supply and sanitation work, 80–90% of the budget and focus is on water supply and only the remaining on sanitation. However, since last two years my organization has proactively intensified its work in sanitation.
- Their approach is that when water is brought to the individual households, it has to be ensured that sanitation systems are also in place – this includes a system for toilets, hand wash and on-site or off-site treatment. Households should also be made aware of benefits of sanitation, about design options for sanitation systems and construction material.
- In the project with UNDP and Oxfam, we are looking at providing decentralized wastewater treatment systems for hospitals, work on sanitation marketing and policy component (developing a state sanitation plan).
- Dry toilets have worked in rural areas as people have the experience of using it (it has been a traditional practice) and improvements in sanitation systems is not given priority as people are not aware of alternatives, they are not aware of the benefits of improved sanitation and most of the times their financial ability to improve their systems is limited.
- From our experience some approaches related to contribution from community for sanitation has not worked so well – low interest loans to improve toilets as very few people took the loans. Instead they have tried and succeeded when people are provided with construction material and they contribute through labor for construction and sometimes money.
- While selecting villages for water supply, one of the criteria is also the willingness of community to improve their sanitation systems.
- EcoSan toilets work differently in different areas depending on water availability, financial abilities, and cultural acceptance. EcoSan toilets, wherever it has been built are mostly in use but many a times not used well. Also, the replication of these toilets is not taking place – people don't build it on their own. The most common reason for it is that after one to two years of operation, when issues with management arise there is no support system. The pans are also not available locally. These UDDT pans are imported from China.
- Compost and urine from these toilets are used but not by everyone. Public awareness and knowledge enhancement is a must for improving the sanitation situation.
- Going forward, water supply and sanitation should not be delinked (as is being recommended in the Sanitation Master Plan).
- If water is supplied then emphasis has to be on toilets and appropriate wastewater treatment and disposal or reuse as grey water also needs to be managed.
- Where septic tanks are available, efforts have to be made to improve the desludging service and provide treatment facilities for the faecal sludge.
- In the future ground water contamination can be a major environmental issue therefore efforts have to be made now to change mindsets and make options available to people for appropriate wastewater management and not just toilet provision. In peri-urban areas today, households and institutional building have flush toilets and the wastewater from them sometimes goes directly to rivers.
- A new Drinking water supply law has been formulated by the government which includes tariff structures for water supply that is also going to include a fee for wastewater management.
- WASH also needs to be looked at with a COVID context.

Interview 13 – 02/I-D/13

- Our organization has been supporting Tajikistan with urban water supply and Integrated Water Resource Management (IWRM) based on a basin approach and according to the Water Code. Initially water supply was the focus and in recent years sanitation has been included in the programme as water supply without adequate sanitation interventions is not appropriate from an environmental and public health perspective.

- My organization has worked on regional water programmes (Uzbekistan and Kyrgyzstan) as well as national programmes in Tajikistan.
- Work is in partnership with government, other international donor agencies, INGOs and local NGOs and private sector for developing the sanitation market.
- From observations in the field, it is understood that sometimes traditional practices are more efficient according to the local conditions versus modern technologies as they might be suitable for the specific conditions of the locality.
- Success of EcoSan toilet implementations depends on its management – how willing are people to manage it. In Tajikistan, in different regions, people react differently to dealing with human waste. In some areas, there is readiness to support new ideas. Time, awareness and education are essential for people to change their minds about managing human waste and reusing the treated waste as fertilizer in farms.
- Few organizations have conducted trainings and awareness campaigns for WUAs, schools, health care facilities and in these locations the EcoSan systems are working effectively.
- There are multiple institutes who deal with some aspect of sanitation at national, provincial and local level. Therefore, engaging with multiple agencies for a sanitation related project becomes cumbersome. Working with community becomes easier and more effective.
- KMK is responsible for the operations of water supply and sanitation systems. However, most of the times this is limited to fee collection. Management is still an issue. It is proposed to restructure KMK to make it function better.
- The National Water Strategy, Water Code and the new law on Water Supply and Sanitation tries to define roles and responsibilities to make functioning of these institutions better.
- The legislations are stringent and the traditional mentality of people in the government makes it difficult to work in the sanitation sector. A decentralized, community based approach works better. However, for country wise improvements, it will be good to involve KMK (as it is not centralized or decentralized for the situation improvement but a combination of both according to the local conditions).
- KMK will be at the national level and eight regional companies will be set up to support the vodokanals at the local level.
- In general the north of the country is more progressive and easier to work with whereas the south being more conservative, at times making changes takes a long time.

Interview 14 – 02/I-D/14

- Work being done on communication and behavior change has got a boost with the COVID situation as prevention and precaution is the measure to take to prevent infection.
- In the last few years, there is a positive momentum for sanitation in the country as government has started giving priority to drinking water supply and sanitation with the push from SDGs. It is the SDG era. Water supply and sanitation are now being taken as equally important.
- Since 2010, there has been progress in the sanitation coverage but in rural areas the progress is slow as the focus is only on access to toilets. Efforts across the sanitation value chain have not been significant.
- In rural areas toilets are mostly pit latrines and very few have flush toilets with septic tanks. The septic tanks are emptied by desludging trucks operated by KMKs or by private service providers. However, these services are not easily available. Even if it is provided then the sludge that is removed from septic tanks is disposed into rivers or streams.
- The septic tanks that are built are usually one chambered and do not have a soak away. The walls of this chamber is also not water tight. Only in some cases concrete walls are made. Sometimes concrete rings may be provided. Under our projects, if septic tanks are made they are two chambered and the filtrate flows into a system of stones for filtering into the ground.
- The Agency for Architecture and Construction, the Construction Department of the Ministry of Education and Ministry of Health also look into the designs for it correctness before implementation.
- We are developing standards for sanitation systems at schools and medical facilities.
- For wastewater discharge, the national standards are from the Soviet times and quite high and therefore its implementation is difficult and poor.
- Decentralized systems might be more suitable for rural areas.
- KMKs are present at the national level and at district centers. However, this presence is limited in number of personnel with focus being on housing and other functions. The 4–12

people share responsibilities and water supply and sanitation also are managed by them. Their presence at Jamoat level (group of 10–30 villages) is not there and therefore they are not able to provide any services at village level. Tajik Rural Water works that worked in rural areas before has been merged with KMK now but it has not been able to improve service provision.

- In villages, people themselves build their toilets and pits are preferred as it is easier to build and change to a new one once it is full. If they build a septic tank then they require a service provider to clean it which can cost around 150–500 TJSomoni. Pits usually fill up once a year (with a family size of 7–10 persons).
- In schools, for every 30–40 children a toilet should be provided. However in reality is it usually for every 90 students one toilet is provided. So pits get full every six months or so. KMK might be requested to empty these pits but as schools might not have resources for paying KMK for emptying, they don't get it cleaned and this makes the toilets unusable. Children then opt for relieving themselves in the school back yard.
- In schools there is also a lot of water wastage as taps might not be closed properly.
- Community pays for water as they are getting water but their willingness to pay for sanitation is not clear as services provided and used by community is very little or not there at all.
- In many households hand wash facilities are not available as they use a teapot/pot of water to wash hands and sometimes this practice might be ignored.
- After the typhoid epidemic of 1994, people boil the drinking water and this has reduced disease incidences, however, there are many instances when the hand pump is located very close (less than 30 m) to the toilet pits and this could be contaminating the water source.
- Water depth is usually around 1.5 to 10 m (Khatlon region).
- In rural areas sometimes the pits are also emptied manually and the contents used in the fields.
- Open defecation is officially non-existent, however when you travel to rural areas the public facilities are either not available or in such bad conditions that it is not possible to use them.
- MHM is a big challenge in schools.
- Also toilets in social institutions are not designed for use by people with disabilities.
- The irrigation pumps installed during the Soviet times are no longer in use (as they are not functional). This has increased the ground water levels.
- Most construction material is available in Tajikistan, but ceramic washbasins or toilet pans/bowls are brought from China, Turkey or Russia and are therefore more expensive. Plastic pipes are made locally.
- EcoSan toilets are built and used but its successful use is there only in some regions where it is reuse of human waste is culturally accepted. All people are not ready for it. O&M of EcoSan toilets require more attention and until and unless people are trained and aware of the practices, the use of these toilets will not be easily taken up. In many cases after one year of use, it is found to be no longer in use as it cannot be managed by the toilet users.
- In western Khatlon and northern parts of the country reuse is accepted as people are open to new ideas.
- There is no support service for alternative technologies, so if something breaks or there is an operational problem, people are not able to address these issues and then stop using the toilet. It might be a good idea to try alternative technologies in social institutes so that people can observe how it works (with a system for O&M) and after few years they might implement these systems on their own in their households.
- Demand for alternative technologies should be clear and properly understood before building the supply side.
- For community based systems, ownership of toilets/treatment system/reuse should be very clear – especially land ownership, responsibilities for O&M should be clearly defined and resources assured then people will start trusting and then be willing to pay.
- KMK should also be involved as a significant stakeholder and their capacities should be built so that they can provide sanitation services and all stakeholders should work for public interest and not for private interests. All stakeholders should come together to select the best technology option.
- Solutions should be context specific and planning process is very important for its success.
- Grey water is disposed in ditches outside the houses. Very few households dig hole and add sand and stones for filtering process of grey water.

- Sometimes when grey water is disposed in open channels, after some distance of flow it might appear clean and people downstream of the channel use it for various purposes without realizing that the water is contaminated.

Interview 15 – 03/I-N-I/15

- Sanitation is linked to cultural, social behaviour and therefore awareness raising is one of the most important aspects of improving sanitation.
- Reforms for sanitation are well reflected on papers however, in reality the focus is still very much on water supply for irrigation.
- There has been prolonged underinvestment in drinking water supply and sanitation.
- Large majorities in rural population face problems associated with drinking water and sanitation.
- Access to sanitation is improving because of external funding.
- Our organization has only recently started working on sanitation (last few years) as their initial emphasis was on drinking water supply in rural areas.
- More than households social institutes have a more critical need for improved sanitation – at households people make the effort of building and maintaining their toilets as best as they can (especially financially; it is the women of the household who manage it) but in social/public institutes like schools and health centers the responsibility for operation and maintenance as well as the resources are missing.
- Maintenance is the key – for different systems the approach, effort and resource required might differ but is critical and essential.
- We have built EcoSan toilets, flush toilets with septic tanks and constructed wetlands for overflow. As water supply is limited in rural areas a centralized sewer network and treatment does not seem to be viable option (though preferred by government officials).
- In places where ground water table is high, EcoSan toilets can be built above ground and if managed well can be effective systems for improved sanitation.
- In some schools it has been observed that there are flush toilets with septic tanks or pits and wastewater from these on-site containment structures are infiltrated into the ground contaminating soil or ground water.
- EcoSan toilets might not be suitable for kindergartens as the children might not be able to use them properly.
- We have built sanitation systems at schools, public toilets and in sanitary zones (Jamoat level).
- Sanitation is a difficult topic to speak about especially with officials/authorities. In villages, it is much easier to speak to people.
- Hygiene behavior and maintenance is an issue that needs to be addressed.
- Need for advocacy and awareness for decision makers.
- Investment is required for the sector.
- Reforms – legal and institutional for sector development.
- Participatory approaches work better – involve all stakeholders especially at National government level.
- Infrastructure and hygiene behaviour have to go hand in hand.
- We have conducted teacher trainings, and training of health workers about sanitation awareness – benefits and behavior change (PHAST training modules adapted to local conditions).
- Mobilizing people for hygiene behavior training is possible.
- In today's Covid situation – hygiene behavior training takes significance and this opportunity can be used to highlight the importance of water, sanitation and hygiene.
- WUA were formed for irrigation water but have not been very effective.
- Under the project, Drinking Water Organization (DWO) were developed as an institutional structure with representatives from households for management of drinking water supply systems – they also help collect contribution for construction (30% of cost) and have the right to apply a tariff (approved by the Anti-Monopoly Agency). This gives it the ability to seek investment from Banks. They can be tried for sanitation too. DWOs manage public toilet facilities in some project areas.
- Water and sanitation should have an equal footing for seeking funds and implementations – with appropriate (alternatives) models for rural areas.

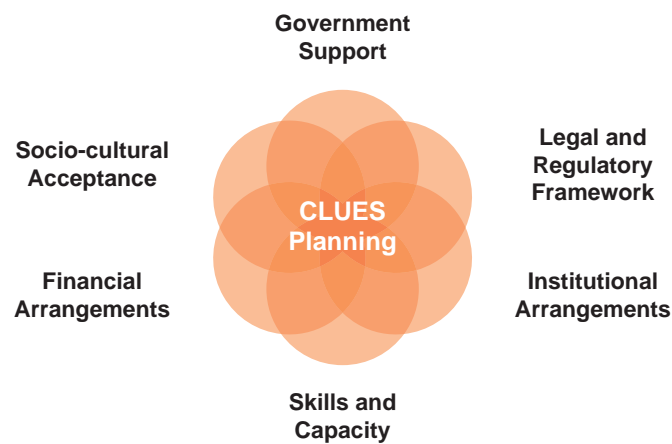
- EcoSan is easy to adapt (not complicated) to as people have been using dry toilets traditionally – maintenance knowledge and service should be provided so that it can be used and managed effectively.
- Farmers in some areas ask the desludging truck operators to empty the faecal sludge into their cotton fields.
- In Ferghana Valley, the sludge from the pits or from EcoSan toilets are used for agriculture.
- In some hospitals and public institution toilets wastewater management is not working well – the septic tanks when full are pumped and the sludge sent directly to fields. This people understood as a bad practice but were not able to complain about it – awareness has to be built that the sludge can be used as a fertilizer in the fields after treatment and with certain safety practices.
- During PRAs conducted for EcoSan toilets, it has come to light that people are aware that the dry faecal matter after few years in the pit is a fertilizer and safe for reuse in the fields. People have been using it (perhaps not in the safest way) and these practices can be made safer and better through training.
- Schools can also sell the compost from their toilets to farmers.
- In conservative populations, reuse might be an issue but can be overcome with awareness building and training.
- People are aware that after proper processing faecal sludge is acceptable to use; it's a matter of right messaging that will help change mindsets.
- Use examples – trees that have been fertilized by compost from an EcoSan toilet and found to be growing better make a positive example in a Medical Centre.
- Demonstration and sharing of experiences (peer learning) from existing projects helps in convincing new project partners (financial recovery, reuse, participatory management).
- EcoSan toilets have also been built attached to main house/buildings – this also provides an advantage to many – especially women and adolescent girls.
- Sanitation is successful when it is demand driven – this should be a qualifying criteria for selecting villages.
- SES has built EcoSan toilet in their building as a model to help convince people about its advantages and ease of use and management.
- Existing standards and norms are extremely demanding and complex and not applicable to rural areas.
- Taxation policies are very strict and not suitable for rural areas.
- Water tariffs are calculated not on use but on slabs of supply – for example – water supply in households is 60lpcd and people are charged for that whether they get that much water or use it or not. For yard connections, the supply is 95lpcd. In reality people only use perhaps 30–35 lpcd in summers and around 20lpcd in winters.
- Vodokanals and KMK are bankrupt as fee recovery is very poor (they can't even pay salaries).
- Decentralization of water supply and sanitation might be a better model for villages.
- Understanding the importance of maintenance and allocating budget and funds for maintenance is something that people have to learn – access to funds for maintenance is missing right now (especially for social institutions). This has to be assured. Long-term maintenance is critical for sustainability. To convince people for a specific type of toilet or containment is only one step (and a simpler one at that) but to keep resources for long-term maintenance to keep the system running effectively is the more serious issue.
- This message has to be repeated regularly with all stakeholders – management of systems.
- Failure of sanitation systems (EcoSan; flush toilets with overflowing septic tanks) because of poor maintenance might be a reason for decision makers to not accept decentralized; on-site sanitation options as it could not be managed. Attention is not paid to the reason behind the failure – external factors/lack of support from authorities.
- At present, funds for this sub-sector is very less especially for O&M and sustenance of the whole chain.
- Flush Toilets should not be built where there is no water available.
- Pit latrines in high ground water table areas will not be effective.
- While carrying out technical assessment, understanding people's perceptions, awareness levels and demand is essential.

- In north, people are more involved and have good experience with agriculture, financial institutions. In south, trust building has to be the first step for any project – benefits should be explained and reiterated regularly.
- Community based organizations should be institutionalized in the government system of operations and given a legal status for them to work effectively.
- Cooperative and participatory approaches are successful – sharing of experiences and demonstrations also help to change mindsets.
- In Ferghana valley the approach was to work in social/public institutes for demonstration – people use these systems and see that it works and then are open to new, alternative ideas – this has to be supported by awareness building, get people interested.
- In mountainous areas digging for construction is a big constraint as well as access to land (ownership issues), here EcoSan could be an easier option to implement (AKF project in Pamir region).
- Reliable access to water should be confirmed before selecting flush toilets as an options.
- VIPs or EcoSan could be an option with reuse of compost in gardens or fields – with appropriate awareness building.
- For selecting villages – water supply, access to information, demand, proactive village representatives can be criteria.
- Starting with social institutes might be better than with households – let households do it on their own once they are convinced.
- Build local capacity for long-term support.
- Sanitation market has to be developed so that spare parts are available over time.
- At present pans mostly come from outside – can be made locally if enough demand is there.
- Locally some manufacturers have made pans with concrete which work if proper use and maintenance is provided.
- Elements are there – they need to be put together to make sanitation work.
- People are looking for solutions (willingness is there) but financial constraints need to be overcome – these options need to be thought through. Even when pits become full and need emptying or a new pit has to be built – it costs money so investing in a system that is less expensive to operate and maintain might be more financially viable.
- MicroCredits exist (but with high interest therefore not acceptable).
- In the present Covid situation if Tajik people cannot go to other countries to earn money then sanitation will take a back seat as money will become a constraint.
- Masons or design companies are difficult to find in rural areas. If available, they have to be oriented intensively to make them aware of the system being proposed so that they can implement correctly. Adapting designs to existing building can be a challenge and needs to be thought through.
- Design institutions are not very good for sanitation issues.
- In rural areas people build toilets themselves – they are not qualified masons but do the job – they would need training.
- Cement prices fluctuate seasonally, so the construction costs also change – another factor to consider while implementing.
- Standard models with key design elements have to be shown to designers so that it does not get over/under dimensioned (an IKEA of EcoSan toilets).
- Another intervention option for sanitation can be that the toilet and containment structure cost can be subsidized by implementing organization and they build those specific elements – the rest built by the household.
- For villages – the service level benchmark and award model (as in India) might be successful.
- If people work outside the country or in cities when they go back to the villages they might be willing to make changes to improve the standard of living.
- Sanitation campaigns should be a constant effort – repetition is the key.
- Inspection and monitoring is another important aspect to build into management. This helps to make corrections/improvements quickly without something failing completely.
- MHM has to be considered in all public institution sanitation system.
- Engineers have to be trained to include MHM elements as well as urinals for males (follow standards set by WHO) – urinals should not be too close to each other.
- Privacy is important in public set ups.
- Appropriate and enabling policies need to be developed.

5.2 ANNEXURE 2 – CLUES FRAMEWORK

- Lüthi C., Morel A., Tilley E., and Ulrich L., © 2011 Eawag-Sandec/WSSCC/UN-HABITAT, Community Led Urban Environmental Sanitation Planning

For sustainable sanitation interventions, an enabling environment is required. This enabling environment comprises of a group of inter-related elements that impact the outcome of sanitation interventions making it sustainable. This includes political, legal, institutional, financial and economic, educational, technical and social conditions, which encourage and support certain activities. An enabling environment is important for the success of any development investment; without it, the resources committed to bringing about change will be ineffective.



5.3 ANNEXURE 3 – PROJECT AREA – UPPER ZERAFSHON CATCHMENT AREA

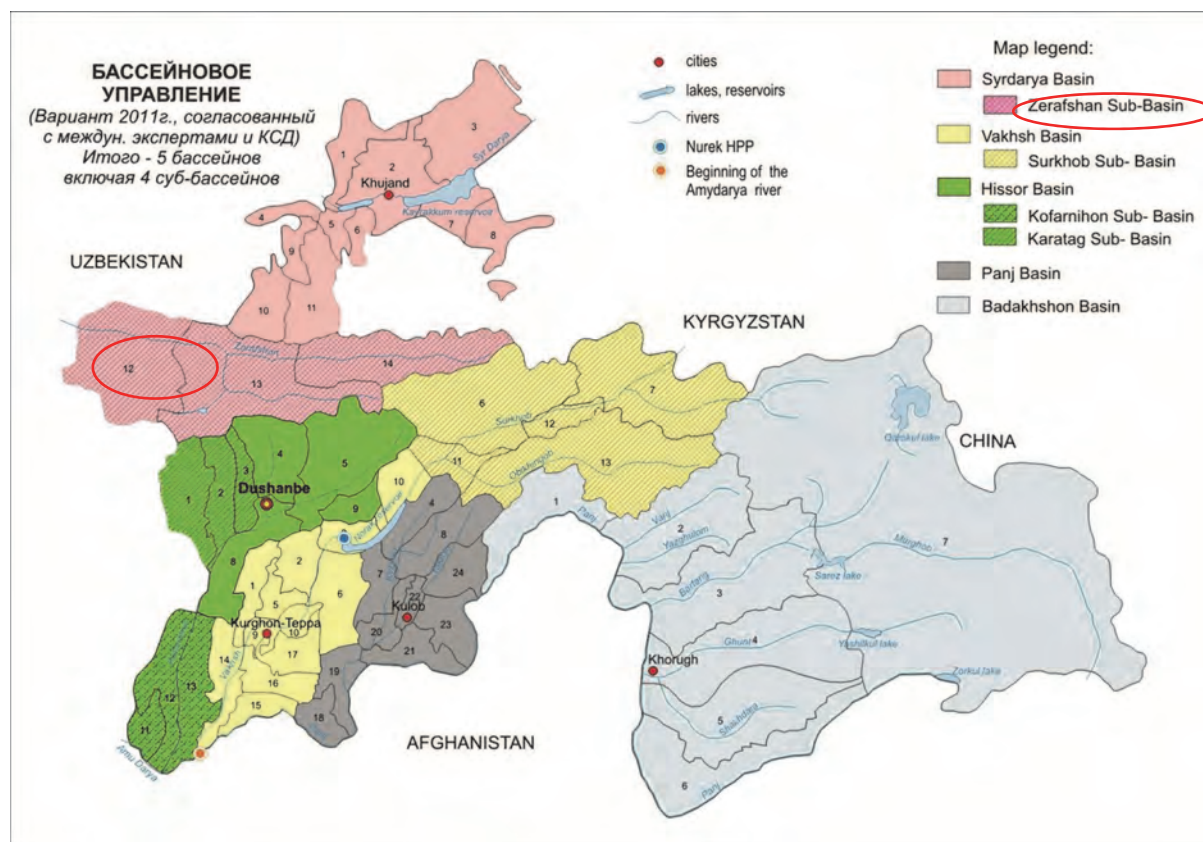


FIGURE 16. PROJECT AREA IN TAJIKISTAN – UPPER ZERAFSHON (SOURCE: ADB REPORT 2013: 155)

The project area is located in the upper catchment watershed areas of the Zerafshon (Figure 17). The sanitation interventions are envisaged as demonstration systems in selected villages of the Ayni and Panjakent districts of Zerafshon Valley. The total population in these villages (64) is around 78,000 people with a range of a few hundreds to around 1 500. Selection of village(s) will be carried out during the next stage of the project.

This area has a temperature range of maximum around 23 to 30 degree centigrade and minimum of minus 3 to minus 10 degree centigrade and rainfall from the month of October to May in the range of 15 to 25 mm with maximum going up to 60 to 100 mm⁸⁴. The Project Area lies in the semi-arid cold climate region and the warmer Mediterranean climate region⁸⁵ (Figure 11). Maximum rainfall is in the months of March and April. The area is characterized by a rocky terrain. The main income of the population in the project area is from agriculture and labor remittance⁸⁶. The main crops grown in the project region of Upper Zerafshon are potato and wheat (mostly irrigated and not rainfed). However, the per capita income is low. Land is mostly owned by the people though some residents have rented land for agricultural purposes.

⁸⁴ EU-Rural Development Program 1, WHH Consortium, ACA/2016/373-575, Baseline Report, 2016.

⁸⁵ Geography of Tajikistan, Wikipedia accessed on June 5, 2020.

⁸⁶ EU-Rural Development Program 1, WHH Consortium, ACA/2016/373-575, Baseline Report, 2016.



FIGURE 17. ZERAFSHON WATERSHED (SOURCE: WELTHUNGERHILFE)

5.4 ANNEXURE 4 – SANITATION SITUATION IN UPPER ZERAFSHON CATCHMENT AREA AND NEED FOR ACTION

Sanitation situation analysis as highlighted in *Figure 5* is also reflective of the situation in the project area of upper Zerafshon catchment area. It implies that unimproved access to water and sanitation is resulting in negative impacts on social and economic development – it impacts poverty, hunger, primary education, gender equality, child and maternal mortality, major diseases, environmental sustainability as well as economic benefits. In order to accomplish the Sustainable Development Goals, improving water and sanitation situation is a critical prerequisite.

Sanitation interventions when being planned for the rural areas in upper Zerafshon catchment area will require the following needs and demands to be addressed (Table 6):

TABLE 6. SUMMARY OF SANITATION NEEDS FOR RURAL AREAS

Technical	<ol style="list-style-type: none"> 1. Increasing knowledge on best practices for sanitation systems (suitable for the region) 2. Improving O&M procedures for existing sanitation systems 3. Appropriate systems for hilly and rocky terrain 4. Management of accessibility /Space constraints between households for infrastructure implementation 5. Effective management of wastewater 6. Implementation of standard systems (water tight, capacities and designs) 7. Removal of solid waste/trash in wastewater along with household level solid waste collection 8. Building capacities of professionals needed across the sanitation chain
Legal/Institutional/ Governanc	<ol style="list-style-type: none"> 1. Clarity of responsibilities of involved institutions/organizations/departments 2. Clarity on ownership of land (for building any treatment system) 3. System to synergise/synchronize programs/activities that run in parallel 4. Define legal role allocation for sanitation issues with one entity 5. Enforcement of environmental laws and inclusion of safe sanitation practices regular desludging of septic tanks/pits, treatment of wastewater and prevention of pollution of natural resources 6. Setting of tariffs and tax systems for sanitation market
Social	<ol style="list-style-type: none"> 1. Accessibility to toilets for all 2. Improve public health 3. Increase concern for environment and public health 4. Create awareness about costs and foster willingness and ability to pay 5. Overcome stigma attached to reuse 6. Minimise water related diseases 7. Create awareness on benefits of sanitation
Economical	<ol style="list-style-type: none"> 1. Develop and include business models for partnerships with private entities or CBOs 2. Develop market for more private players providing sanitation services 3. Acquire and allocate funds for sanitation infrastructure or services 4. Assign budget for sanitation especially O&M services 5. Develop financially viable tariff / fee system for sanitation services
Political	<ol style="list-style-type: none"> 1. Build capacities of local governmental bodies to have operational team/staff

	2. Define nodal agency for spearheading WASH sector initiatives
Environmental	<ol style="list-style-type: none">1. Improve quality of existing water bodies, underground aquifers and soil environment through prevention and control of pollution2. Minimise microbial contamination of potable water3. Minimise pressure of tourism sector on water sources4. Prevent and control soil contamination

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Notes:

