

**Department for the Development of Drinking Water Supply and Wastewater Disposal
under the Ministry of Water Resources, Agriculture and Processing Industry of the
Kyrgyz Republic**

Climate Resilient Water Services Project Implementation Unit (CRWSP)

TERMS OF REFERENCE

**For consulting services on development of detailed engineering design for the
rehabilitation of internal sanitary facilities in social institutions in Batken and Issyk-
Kul regions**

Introduction

The Terms of Reference is prepared within the framework of the CRWSP, financed by the World Bank and the Cabinet of Ministers of the Kyrgyz Republic, and describes the scope of responsibilities of a consulting company that will perform its services under direct supervision of the CRWSP Project Engineer and Project Coordinator and will be accountable for preparing design documents including bills of quantities and drawings.

The Department for the Development of Drinking Water Supply and Wastewater Disposal (DDWSWD) is the Client for the Consultant's work, and the Consultant shall work under the direct supervision of and be accountable to the PCU.

I. OBJECTIVE OF THE ASSIGNMENT

The objective of the assignment is to conduct an inspection, prepare bills of quantities and drawings for the rehabilitation, reconstruction, redevelopment, and reprofiling of the internal sanitary facilities of school, clinic and kindergarten buildings in project territories of Batken and Issyk-Kul regions listed in Annex 1 to this ToR. The assignment includes a detailed technical inspection of the premises to assess their current technical condition, followed by the preparation of defect reports, drawings, and bills of quantities.

II. SCOPE OF WORK

The scope of services to be provided under these Terms of Reference consists of two tasks:

- Task 1 – Design work;
- Task 2 – Author's supervision.

III. Task 1. DESIGN WORKS:

1. Detailed inspection of facilities with preparation of a report on their actual technical condition;
2. Preparation of defect reports for selected premises for rehabilitation;
3. Preliminary on-site inspection of areas;
4. Determination of design criteria and standards; The client will share the proposed standard approach to sanitary facilities.
5. Hydraulic calculations (if necessary);
6. Structural calculations (if necessary);
7. Calculations for construction, mechanical, and electrical work;
8. Selection of materials and equipment;
9. Preparation of detailed design drawings for the premises to be rehabilitated;

10. Preparation of technical specifications;
11. Preparation of bills of quantities and cost estimates at base rates;
12. Preparation of instructions for the operation of facilities;
13. Adjustment of design solutions;
14. Other tasks within the scope of the project that may be reasonably assigned by the CRWSP PCU Engineer.

3.1. Detailed requirements for each subtask:

Sub-task 1.1. Detailed inspection of facilities with preparation of a report on their actual technical condition.

The Consultant shall conduct a detailed inspection of existing sanitation facilities to assess their structural integrity, the absence of damage to load-bearing structures, and the condition of engineering communications. During the inspection, the scope of restoration work shall be specified (if there are areas that need to be reinforced or replaced). Based on the results of the inspection, structures to be designed, methods of connecting them to external utilities (water, electricity, sewerage networks), as well as their cleaning, if necessary, shall be determined. The Consultant, with the direct participation of the Client, shall perform the following:

- obtain a land allocation certificate for the construction of a septic tank and other structures;
- obtain technical specifications for connection to the district electricity system (if necessary);
- obtain other permits regulated by the Kyrgyz Republic standards;
- In the future, to obtain in accordance with the legislation of the Kyrgyz Republic, engineering and technical conditions, architectural and planning conditions, etc., if necessary.

Preparation of an inspection report for the facility.

When conducting a detailed inspection of the premises, it is necessary to perform a visual inspection of the entire building and structures. If defects and damage exceeding regulatory requirements are detected, it is mandatory to inform the facility management and the Client.

Sub-task 1.2. Preparation of defect reports for selected premises for rehabilitation.

The Consultant, following an inspection of the planned/existing premises, shall be obliged to draw up a defect report for the purpose of preparing BoQs or estimates.

Sub-task 1.3. Preliminary on-site inspection of areas

The Consultant shall carry out geotechnical investigations and site inspections for each facility, including the excavation of exploratory pits (manually or mechanically), determination of groundwater levels, sampling and analysis of soil and groundwater to assess their characteristics, as well as an evaluation of site safety in terms of natural hazards. Geotechnical data for the design territory shall be provided by the Client which might be available from detailed designs of water supply system. In case such data is not available a geotechnical survey shall be conducted by the Consultant. In case no infiltration possible for some of the facilities, the Consultant shall consider other options of disposal of effluent, as removal of treated and accumulated effluent and disposal to the permitted sites.

Sub-task 1.4. Determination of design criteria and standards.

The Consultant shall determine the basic design parameters in consultation with the Client and prepare a design concept/report with a proposed solution for each facility. Where feasible, the Consultant shall also evaluate the potential to accommodate new toilet facilities within the main building, and, if this is not possible, prepare the design for an additional separate toilet building. In all cases the Consultant shall ensure structural considerations and safety standards are fully integrated into the design solution. And, if necessary, the Consultant shall engage a geotechnical engineer.

All design work must be carried out in accordance with current regulatory documents in the Kyrgyz Republic or international standards.

The main design criterion for the Consultant is to create simple, reliable, and cost-effective designs in terms of construction that ensure the regulatory service life of the structures. The Consultant shall adopt simple, repeatable standard details that can be applied wherever possible to reduce both design and construction costs.

The Consultant shall also consider handwashing sinks at the school entrance, coverage of the kitchen with sinks for dishwashing, and for hand washing, toilet and shower units to the kitchen to serve the needs of the kitchen staff and comply with San Pin requirements.

Safety is an important aspect that must be taken into account in the design process. Consultants shall ensure that all national safety standards of the Kyrgyz Republic are complied with both during the construction phase and during subsequent operation.

Sub-task 1.5. Hydraulic calculations (if necessary).

The Consultant shall perform hydraulic calculations to ensure the required water pressure in all devices and shall select pipe materials (diameter, wall thickness) based on the calculations.

Sub-task 1.6. Structural calculations (if necessary).

The Consultant shall perform structural calculations to ensure the reliability of all surface and underground structures, particularly taking into account the anticipated design life. As some of the buildings were not initially designed to have indoor water supply and sanitation (WSS) plumbing, the retrofitting must be carried out to avoid any damage to the existing buildings and structures. The Consultant shall field qualified civil/structural engineers to assess and mitigate any risks to the structural integrity of each building arising from the retrofitting works. The Consultant shall perform verification calculations when installing heavy equipment or water storage tanks in load-bearing structures.

Sub-task 1.7. Calculations for construction, mechanical, and electrical work.

The Consultant shall ensure that the placement of the new plumbing and related works does not compromise the general and seismic stability of the buildings, including prevention of damage to reinforcement in slabs, walls, and foundations. The surface and underground structures must be designed taking into account seismic activity in the zones and territories of the Kyrgyz Republic. In addition, where possible, standard mechanical, electrical, and electronic equipment from manufacturers for pumping stations and similar installations should be used, but the Consultant shall assess the power supply load requirements and provide the Client with appropriate recommendations for pumps and other equipment.

Sub-task 1.8. Selection of materials and equipment.

Given the problems associated with infrastructure deterioration in the past, the choice of materials for future construction is crucial. The Consultant shall carefully select materials

to meet the established design criteria, with particular regard to the required design life, considering the prevailing weather conditions, soil conditions, and seismicity of the site.

All materials and equipment proposed by the Consultant in the design and estimate documentation and bill of quantities shall be based on technical characteristics and requirements, and their description shall not refer to specific manufacturers or brands.

Sub-task 1.9. Preparation of detailed design drawings for the premises to be rehabilitated.

The Consultant shall prepare all detailed design drawings.

The drawings shall include:

- Site plan(s)
- Layout drawings
- Detailed drawings

The drawings must be fully detailed design drawings containing sufficient information to enable the Client to invite contractors to submit tender bids for construction, repair, and restoration work, as well as sufficiently detailed to enable the Client to issue them to the contractor that is successful in the tender to carry out construction, repair, and restoration work without additional revision of the detailed drawings.

The drawings shall be prepared in A-3 format and delivered to the Client on a flash drive in addition to two hard copies on paper for each sub-project separately.

Sub-task 1.10. Preparation of technical specifications.

The Consultant shall prepare specifications in accordance with applicable GOST and SNiP standards. In the absence of a suitable standard for a specific project element, the relevant international standard should be adopted.

Sub-task 1.11. Preparation of bills of quantities and cost estimates based on basic rates.

Cost estimates shall be prepared based on the existing unit prices set by the Ministry of Architecture, Construction, Housing and Communal Services.

The bill of quantities shall be prepared on the basis of the prepared cost estimates, taking into account the Client's proposals and comments.

Sub-task 1.12. Preparation of instructions for the operation of facilities.

The Consultant shall develop “Guidelines for the Operation of Rehabilitated and Constructed Structures” for each sub-project.

Sub-task 1.13. Adjustment of design solutions.

Adjustment of design solutions as a result of errors made by the Consultant. The Consultant shall justify the errors found in the design and estimate documentation and eliminate them by proposing technical solutions in accordance with applicable standards and SNiPs. This work shall be performed free of charge.

3.2. Reporting requirements for Task 1

The work duration shall be 5 months, on a contract basis; the terms may be extended as necessary. The Consultant's primary workplace shall be general education institutions (schools, gymnasiums), preschool institutions (kindergartens), and medical facilities (family

doctors' group, rural health posts/village first-aid station) located in settlements in Batken and Issyk-Kul regions which are listed in Annex 1 to the ToR.

Table No. 1

No.	Output	Subtask	Deadline	Planned percentage of payment	Number of copies for Client
1	Provision of Work Plan and Work Schedule	Work Plan, Work Schedule	End of 1 st week	10%	2 R + e-copy
2	Interim Progress Report	1.1. Detailed inspection of facilities with preparation of a report on their actual technical condition. 1.2. Preparation of defect reports for selected premises for rehabilitation 1.3. Preliminary on-site inspection of areas 1.4. Determination of design criteria and standards.	End of Month 2 (from the date of signing the contract).	25%	2 R + e-copy
3	Draft Report covering all sanitation facilities	1.5. Hydraulic calculations (if necessary). 1.6. Structural calculations (if necessary). 1.7. Calculations for construction, mechanical, and electrical work; 1.8. Selection of materials and equipment. ;	End of Month 4 (from the date of signing the contract).	30%	2 R + e-copy

4	Final Report covering all sanitation facilities	1.9. Preparation of detailed design drawings for the premises to be rehabilitated; 1.10. Preparation of technical specifications; 1.11. Preparation of bills of quantities and cost estimates at base rates; 1.12. Preparation of instructions for the operation of facilities;	Final Report – End of Month 5 (from the date of contract signing)	30%	3 R + e-copy

- 1) Within the first week after signing the contract, the Consultant shall provide the Work Plan and Work Schedule
- 2) At the end of the second month of the assignment, the Consultant shall provide the Client with Interim Progress Report No. 1, which shall include:
 - A brief description of the work progress to date in terms of the overall program;
 - Identification of any issues that could affect the timely completion of the work and actions that need to be taken to resolve any issues that have arisen.
- 3) At the end of the fourth month assignment, the Consultant shall provide the Client with a preliminary report, which shall include:
 - A brief description of the work progress to date in terms of the overall program;
 - Identification of any issues that could affect the completion of the work and the actions that need to be taken to resolve these issues;
 - Anticipated completion date compared to the planned completion date.
- 4) Two weeks before the end of the assignment period, but no later than the end of the fifth, the Consultant shall submit a draft final report, which shall include the following:
 - A brief description of the work performed under this assignment;
 - Proposals for similar work in the future, if any;
 - A list of drawings and documentation in Russian on a flash drive, in addition to two hard copies for each object separately in A-3 format and, at the request of the Client, in A-1 format.

Following the discussion and based on comments from the CRWSP PIU, the Consultant shall finalize the Final Report and final documents.

Design Working documents

Two copies of the final design and packages of all necessary technical documents for all facilities shall be attached to each deliverable and the final report. All reports of the Consultant shall be prepared in Russian.

3.3. Consultant's staffing for Task 1

The Consultant shall provide sufficient number of qualified personnel to ensure proper fulfillment of the tasks according to requirements in Table 2 and Annex 2.

Table No. 2

No.	Personnel position	Number	Input, person- month	Total
1	Team Leader	1	5	5
2	Engineer for the inspection and design of sanitary facilities	3	5	15
3	Cost Engineer	2	2	4
	Total	6		24

The staff assigned to Task 1 may also be assigned to Task 2.

3.4. Contract Form and Payment to the Consultant for Task 1

The contract to be concluded between the PCU and the Consultant for the provision of services under Task 1 is a “Lump-sum contract” (fixed payments), with payments made on the basis of submitted reports and final DED in accordance with Table No. 1.

IV. Task 2. DESIGN AUTHOR'S SUPERVISION

4.1. Delivery of services

The author's supervision shall be aimed at clarifying design solutions, resolving issues related to design, and verifying the technical feasibility of any proposed deviations from the project.

The author's supervision shall not replace or duplicate the responsibilities of construction supervision. Any proposed changes to the project identified during construction shall be formally documented and submitted to the PCU for review and written approval prior to implementation. The specific tasks under this assignment include, but are not limited to, the following:

- Appointment of responsible technical specialists to carry out author's supervision for each of the project settlements.
- Proper maintenance of the author's supervision log with regular entries during each site visit. The entries shall reflect compliance or any identified deviations from the design solutions, along with recommendations and deadlines for their correction.
- Author's supervision specialists shall visit construction sites at all stages of construction in accordance with the schedule approved by the PCU, in order to verify the adequacy of measures in line with the detailed design, as well as to resolve any

issues raised by contractors related to DED, testing, and any other technical issues related to the execution of the construction contract.

- Conducting selective reviews of as-built drawings prepared by contractors and providing comments on their correctness, completeness, and accuracy in relation to the completed works.
- Providing technical advisory support to PCU engineers in resolving complex technical issues raised by contractors and construction supervision engineers. Identifying technical risks and risks related to construction feasibility, and proposing mitigation measures for the PCU consideration.
- Conducting final inspections of completed construction facilities jointly with the PCU and providing comments on quality, completeness, and readiness for commissioning and handover.

The author's supervision shall be carried out in accordance with the applicable SNiP standards of the Kyrgyz Republic. Consulting companies invited to submit a technical and financial proposal, must indicate in their proposal unit prices for author's supervision services, separately identifying the following cost items: a) travel expenses; b) transportation costs listed separately for each village; c) Consultant's labor cost per man*day.

4.2. Reporting requirements for Task 2

During the project implementation, the Consultant shall submit the following reports to the PCU in accordance with the schedule below.

Table No.3

No.	Output	Contents	Deadline	Number of copies for Client
1	Monthly Report	Overall progress of work performed by the Consultant. Assessment of the contractor's construction work for compliance with the DED. Identified issues and recommendations for improving the quality of construction work.	10 days after the end of the reporting month	2 R + e-copy
2	Final Report for all facilities	Overall project achievements. Technical assessment of the work performed. Recommendations for monitoring completed projects.	Within one month of the completed construction of the last site	3 R + e-copy

4.3. Consultant's staffing for Task 2

The personnel hired by the Consultant to perform the work under Task 1 may also be assigned to perform the work under Task 2.

Table No. 4

No.	Personnel position	Number	Input, person-month
1	Team Leader	1	1
2	Engineer for the design of sanitary facilities	3	1
	Total	4	4

4.4. Contract Form and Payment to the Consultant for Task 2

The contract concluded between the PCU and the Consultant for the provision of services is a “time-based contract”. Payments under the Consulting Services Contract shall be made monthly based on reports on services rendered, acceptable to the Client, and confirmation of the actual time worked on the tasks described in these ToR, and shall include remuneration and reimbursable expenses based on supporting documents. The Consultant shall ensure that the input of personnel corresponds to the actual needs of the facility.

V. INSTITUTIONAL ARRANGEMENTS

The Consultant shall report to the PCU Director. The primary point of contact is the PCU Senior Infrastructure Engineer, to whom the Consultant will submit reports on the work performed. The Consultant will work in close cooperation with the PCU team and Aiyl Okmotu. All reporting materials shall be submitted in Russian and in electronic format; the number of copies to be provided is specified in the “Reporting Requirements” section of these Terms of Reference. All prepared materials shall be reviewed and approved by the PCU Engineer and the PCU Director. The Consultant, or any of its sub-consultants, must hold a valid license for design activities issued by the Ministry of Architecture, Construction, Housing and Communal Services of the Kyrgyz Republic. If the selected Consultant does not possess such a license at the time of contract award, a period of 30 days will be granted to obtain it

VI. QUALIFICATION REQUIREMENTS

- 1) At least three years of overall experience in implementing consulting contracts in the field of design and technical supervision of building/structure construction.
- 2) Experience in implementing at least two (2) consulting contract involving design of sanitary facilities in social institutions such as schools, clinics and kindergartens within the last three (3) years.
- 3) Experience in author, construction supervision of water and sanitation projects as a lead consulting company during the last three (3) years will be considered an advantage.

The preferable qualifications (skills and experience) for personnel are listed in Annex 2 to these Terms of Reference.

Annex 1. List of facilities

No.	District	Village	Subproject	Facility name
	Batken District			
1	Leilek	Aibike	Aibike	Preschool educational institution “Ak-Shoola”
2	Leilek	Aibike	Aibike	Madaniyat School
3	Leilek	Katran	Katran	Preschool educational institution “Aigul”
4	Leilek	Katran	Katran	Preschool educational institution “Altyn-Beshik”
5	Leilek	Katran	Katran	School named after O. Saparov
6	Leilek	Katran	Katran (Epkin)	Family Doctors Group No.28
7	Leilek	Katran	Katran	Katran School
8	Leilek	Katran	Katran	Koi-Tash School
9	Leilek	Katran	Katran	Epkin School
10	Leilek	Baul	Baul	School named after D. Berdiev
11	Batken	Kan	Kan	Preschool educational institution “Ак-Beshik”
12	Batken	Karabulak	Karabulak	Karabulak village first-aid station
13	Batken	Chek	Dara	Family Doctors Group No.14
14	Batken	Chek	Dara	Aidanek kindergarten
15	Batken	Chek	Dara	Taibobok kindergarten
16	Batken	Chong-Talaa	Tort-Gul	Kelechek kindergarten
17	Batken	Jany-Jer	Dara	Ak Tilek Kindergarten
18	Batken	Jany-Jer	Dara	Village first-aid station
19	Batken	Ak Otok	Tort Gul	Ak-Otok Elementary School
20	Batken	Ak Otok	Tort Gul	Village first-aid station
21	Batken	Ak Turpak	Tort Gul	Balakai kindergarten
22	Batken	Zartash	Tort Gul	Aikol kindergarten
23	Batken	Zartash	Tort Gul	School named after J. Bayjigitov
24	Batken	Chon Kara	Tort Gul	Family Doctors Group No.7
25	Batken	Chon Kara	Tort Gul	Altyn Balalyk kindergarten
26	Batken	Chon Kara	Tort Gul	School named after Toktogul
27	Batken	Chon Talaa	Tort Gul	Chon Talaa kindergarten
28	Batken	Apkan	Apkan	Aktan kindergarten
29	Batken	Apkan	Apkan	Village first-aid station
30	Batken	Chet Kyzyl	Chet Kyzyl	School named after S. Momunov
31	Batken	Chet Kyzyl	Chet Kyzyl	Village first-aid station
32	Kadamjai	Otukchu	Ak Turpak	Otukchu Elementary School
33	Kadamjai	Otukchu	Ak Turpak	Village first-aid station
34	Kadamjai	Kyzyl Korgon	Ak Turpak	School No. 24 Kyzyl Korgon
35	Kadamjai	Kyzyl Korgon	Ak Turpak	Village first-aid station

36	Kadamjai	Chogorok	Ak Turpak	Village first-aid station
37	Kadamjai	Ak Turpak	Ak Turpak	School named after Sh. Zheenbaev
38	Kadamjai	Kalacha	Ak Turpak	Chon Kara School
39	Kadamjai	Sovetskoye	Sovetskoye	Family Doctors Group No.28
40	Kadamjai	Sovetskoye	Sovetskoye	Vocational school No. 72
41	Kadamjai	Sovetskoye	Sovetskoye	Kan School No. 21
Issyk-Kul District				
42	Jeti-Oguz	Kyzyl-Suu	Kyzyl-Suu	School named after V. I. Lenin
43	Ton	Kadji-Sai	Kadji-Sai	School named after A.S. Pushkin
44	Ton	Kadji-Sai	Kadji-Sai	Preschool educational institution No.4
45	Ton	Bokonbaev	Bokonbaev	Preschool educational institution No.1

Annex 2. Qualification requirements for the Consultant's personnel

No.	Personnel title	General qualifications	General experience	Specific experience
1	Team Leader	At least a Master's degree in the field of building and structure inspection and design.	Work experience in projects funded by international organizations. Knowledge of Russian is an advantage, as are leadership skills and the ability to work in a team.	- 10 years in the field of building and structure inspection and design - The Expert must have completed at least two (2) assignments as a Team Leader and have experience in inspection and design.
2	Engineer for the inspection and design of sanitary facilities	Higher technical education in the field of water supply and sanitation Qualification certificate of the established standard of Gosstroy (State agency for architecture, construction and housing and communal services of the Kyrgyz Republic)	At least 7 years of total work experience. Knowledge of SNiP and advanced international experience. Good knowledge of Russian and/or Kyrgyz languages is required.	- 5 years in the field of building and structure inspection and design. - Participation in the development of at least 5 DEDs and experience as a designer.
3	Cost Engineer	Specialized education in the field of Pricing and Estimate Standards. Qualification certificate of the established standard of Gosstroy (State agency for architecture, construction and housing and communal services of the Kyrgyz Republic)	At least 7 years of total work experience. Knowledge of local building codes and regulations, a specialized estimated program "RIK". Good knowledge of Russian and Kyrgyz languages is required.	- 5 years in the field of cost estimation preparation for construction and repair works. - Participation in the development of at least 5 DEDs, in which he/she performed similar work.