Final Evaluation Report WASH in Schools and Kindergartens Project

Prepared for UNICEF Mongolia

by

Alcanz Consulting Group, Inc.

2015 November

Acknowledgement

The Alcanz Consulting Group Incorporated Evaluation Team composed of Mr. Richard Prado (Team Leader), Engineer Cesar Yniguez (WASH Specialist) and the home based support team members, Dr. Luzeta Adorna, Norma Tulio and Cecilio Adorna, wish to thank UNICEF Mongolia for entrusting the evaluation study to the group.

Our sincere thanks and appreciation are also due to the Government of Mongolia (GOM) for lending us considerable time and generosity to share information and insights both at the national and sub-national levels. We are grateful to MECS, MOH and MOF for sharing with us their vision and challenges for achieving a healthy and stimulating learning environment for Mongolian children. The political leaders of the Khuvskul Aimag and the eight soums gave the evaluation not only the requested information but also inspired the evaluation team by how the Aimag's strong motivation to sustain the project.

We also acknowledge the dynamism and frankness of the school administrators, parents and school children who participated in the survey, focused group discussions and key informant interviews that provided substantive evidence for the evaluation. The partner NGOs in the WASH cluster that took part in the evaluation (particularly, ACF, World Vision, The Asia Foundation, the Mongolian National Red Cross and other national civic organizations) showed consistent cooperation and support in completing this rapid assessment.

Without the uncomplaining support and tenacity of our research aides cum translators, Ms. Uranchimeg Budragcha, Darisuren Ajaa and Burembayer Chanrav, our 23 days of field assessment in mid-autumn would not have been as productive and tolerable.

Finally, the Evaluation Team acknowledges with gratitude the partnership and professionalism of UNICEF's WASH and M&E Team, notably Dr. Batnasan Nyamsuren and Ms. Khurelmaa Dashdorj respectively, for laying out the work plan and ensuring the follow up support necessary to successfully complete the evaluation.

The determination of the UNICEF Representative, Roberto Benes and the Deputy Representative Judith Bruno to pursue the evaluation to inform the next country programme has given much energy to this exercise. It is our sincere hope that the evaluation study will guide the next steps of the GOM and UNICEF for 2016 and beyond in the area of WASH in schools and kindergartens.

Executive Summary

The Government of Mongolia (GOM), UNICEF and Department of Foreign Affairs and Trade (DFAT) Australia joined efforts and resources to implement the WASH Project in Schools and Kindergartens in 12 schools, 12 kindergartens in 12 soums of Khuvskul Aimag from 2012-2015, investing $2.4 M for the construction of WASH facilities and implementing a hygiene education-focused Behavior Change Communication (BCC) programme. The project responds to the priorities set forth by the GOM and UNICEF addressing the huge gap in access to WASH facilities in poor provinces of Mongolia. Khuvskul is a poor underserved region of Mongolia and the need for such facilities is felt strongly across the aimag by the population and local officials.

The evaluation examined project efficiency, effectiveness, relevance and sustainability. Using findings and lessons from the project, it offers recommendations to the GOM, UNICEF and donors on further improving project design and implementation and securing sustainability of results at sub-national and national levels. A combination of quantitative and qualitative tools were utilized in the evaluation: a documents review, guided key informant interviews, an end-of-project facilitated self-administered survey of knowledge, attitudes, skills and practice (KASP) of students, and field observations of achieved project outputs, specifically WASH infrastructures, and hygiene promotion. The documents reviewed include project documents and reports of project monitoring events, summaries of baseline information, administrative information from the Departments of Education and Health.

The mid-term review (MTR) held in 2014 signified satisfaction with the progress of the project. The planning and contracting, procurement and construction appeared in compliance with the norms and standards of UNICEF. At end of project in June 2015, the planned facilities (indoor toilets, hand washing and showers units and water dispensers, outdoor ventilated improved pit latrines) were fully completed and the budget was fully utilized. Access to the WASH facilities in project schools and dormitories improved as the new facilities were added to the old ones. Organized hygiene promotions were undertaken as planned, led by soum and school health personnel who trained teacher and student promoters using BCC materials and hygiene kits. A survey of students showed that the level of children's knowledge in hygiene topics is high; attitude and practice including hand washing tend to lag behind knowledge but are significantly better than those reported by students in non-project schools.

Nevertheless, the design of the installed WASH systems that inadequately took account of the harsh winters in the soums and the management of waste matter appeared to have prevented the full availability and utilization of the facilities by the school children. The design flaws have considerable implications: frozen clean water pipes and sewer drains made indoor latrines, hand washing and shower facilities not usable in severe winters that characterize the soums, while the 70-100 meter distance of the VIP latrines from classrooms, the odor and temperatures that go down as low as -40^0C discourage some children from using them. The heating system that should have addressed the problems was not sustainable in many schools - either due to wrong materials used or because of the high cost of heating. Operation and maintenance issues also affected the level of utilization of the facilities by students.

Keeping the facilities functioning and effective and further improving proper hygiene practices among the children in schools and kindergarten will require addressing the above mentioned issues. The project provided lessons on how facilities can be improved and maintained better toward sustainability and replication.

For WASH facilities:

- Design of piping systems – consider running water and wastewater pipes running parallel to heating pipes of schools or soums. Study the feasibility of pipe insulation used in the UNDP/MCUD pilot project, comparing installation cost against long term saving on heating which will no longer be required.
- Design of indoor WASH facilities – design as small water and wastewater utilities complete with source, piping and treatment and disposal systems, operated and maintained as combined small water and wastewater systems.
- Design of VIP latrines – consider a double pit concept with composting and regular cleaning at shorter intervals (1-2 years) in smaller pits. Enhance composting and odor removal through a properly installed vent and the use of the MAST's Institute of Microbiology developed compound for enhancing decomposition.
- VIP latrines close to school and dormitory buildings – consider moving there designed VIP latrine closer to schools and dormitories to take advantage of the building heating systems. Proper maintenance and use must be a joint undertaking of the school and dormitory caretakers and the children. Reinforced proper use and keeping toilets clean messages in the hygiene promotion program will be needed for the latter.
- Construction supervision and monitoring – strengthen as part of capacity building to undertake WASH projects. A system of support from MCUD/DCUD will be needed if capacities at the aimag and soum/school levels are to be developed to, among others, avoid shoddy construction and inferior materials and equipment from being installed and accepted.
- Connection to a soum system – the ideal case: connect school systems to soum utilities (communal centers) that combine heating, water and waste water systems, as is the case in Tarialan. Schools will be treated as customers, served and billed as such. The schools need not be bothered with operating and maintaining a water and wastewater utility with attendant O&M problems they are not prepared or trained to solve. Nevertheless, the schools will remain responsible for minor O&M requirements. It is recognized that the ideal system is not feasible in all soums.
- School's own clean water and sewerage system and operation and maintenance requirement – the alternative to soum system connection requires technical and financial management and operations. Institutionally, this will entail assigning responsibilities for managing the system, operating the system, budgeting of expenses and managing costs and expenditures to schools, supported at the soum and aimag levels. Each school and kindergarten should have staff trained to take on

these responsibilities. Operation and maintenance manuals specific to the equipment used should be provided. Training courses will be needed if the number of soums with WASH in schools and kindergartens will be expanded.

- Learning from others – hold workshops among school managers and operators of WASH facilities of the 12 participating soums to share experiences on problems and solutions encountered in operating and maintaining the new WASH facilities, whether technical, financial or institutional. Such workshops should also invite the main implementing institutions at the aimag and national levels involved in planning, design, construction, monitoring and overall implementation of the project. Many water and sanitation utilities in other countries are involved in sharing experiences and helping one another through networks and partnerships to improve O&M performance. In Mongolia, the Mongolian Public Utility Association could be one such example.

For proper hygiene, toilet use and maintenance:

- Toilet use and cleanliness – the survey shows the need to improve toilet use and cleanliness among the school children. The responsibility for keeping the toilets clean should be shared with users such as children keeping age-appropriate involvement and safety considerations in mind and this should be part of hygiene education.

The project gave the government the experience in planning and implementing WASH in schools and kindergarten especially at the aimag and soum levels that should strengthen the institutions for their roles in managing such projects.

- Working with WASH sector agencies and partners – many of the problems encountered by agencies and partners in the WASH sector in planning and implementing WASH projects are unique to Mongolia's harsh environment. Regular sharing sessions and visits to successful projects will help distill experiences and lessons relevant to future projects.
- Soum communal centers as service providers – the plan to develop so called "new soums" should include WASH services with heating systems for schools and kindergartens. Let communal centers worry about the provision of clean water and wastewater services.
- Minimum requirements for WASH in schools and kindergartens – the guidelines will enhance the inclusion of WASH facilities and hygiene promotion in schools and kindergartens. Advocated by the Asia Foundation, the feasibility should nevertheless be assessed with respect to institutional capacities and costs required to implement and comply with the guidelines.

Lessons from the evaluation would further strengthen the WASH in school and kindergartens for future expansion and sustainability of the initiative:

- For infrastructure projects of this nature, the standard process used by development agencies (i.e., ADB, JAICA, etc.) would have been useful. Agencies have in practice prepared exhaustively all facets of project development, from pre-feasibility, feasibility, pre-appraisal/appraisal before actual grant or loan is processed. Inability to do so would have meant the cancellation of agency involvement or investment in the project.
- Even with the above, given infrastructure design requirements for the harsh climate environment, capacity of contractors and sub-contractors and uncertainty of technical oversight capacity in the soums for monitoring construction and receiving completed projects, a strong oversight mechanism on the part of UNICEF, the Aimag and the soums was a critical element of the project. The poor performance and apparent lack of professional responsibility of contractors has undoubtedly affected the functionality and usage of the WASH facilities.
- Stakeholders, the soum residents and school officials in this case, should have been thoroughly apprised of the organizational, financial and technical capacity requirements for operation of the WASH system and their responsibilities. The Project did not define and discuss the budgetary implications of the construction of the WASH facilities to the schools and the soums which at the later stage were responsible for O&M and technical connections to the appropriate water supply, heating and waste water system.
- Partial remedy would have rested in organized and focused training for school technicians, and soum residents, more intense if schools would be fully responsible for O&M. Training should be conducted with the proper O&M manual, ready for actual use after the training in which the appreciation of technical issues and constraints like ventilation and odor of VIP latrines, effects of freezing to waste water and clean water and ground water operations in perma frost areas, among others, need to be also properly introduced. In many schools, the staff indicated that no training in O & M of WASH facilities was conducted for maintenance personnel.
- The Government's financial investment in the WASH project needs to be ascertained and secured. It is important to know the definite role of government financing in the overall resource base for sustaining the project at least for the next five years.

As can be surmised, the problems are not formidable. Several factors strengthen the potentials for getting the design right in the currently covered schools and in the expansion of the initiative to other soums:

- Based on evidence observed and triangulated, GOM and the people of Mongolia value the WASH in school for its long-term education, health promotion and benefits of modernization.
- The population manifests readiness to break tradition and adopt acceptable and modern technology for enhancing the learning environment and ensuring health of children.
- The central government and local governments appear willing and capable of continuing financing for WASH in school given its high political acceptability across party lines.

- The country experience gained in applying the WASH in schools technology and capacity building components have been amply demonstrated in various settings, i.e.

urban ger areas, arid Gobi areas and Khuvskul aimag. institutional capital strengthened in the joint convergent delivery of BCC messages of hygiene education in which the national and sub-national ECD and health services network provide strong support to WASH in school.

Recommendations

The evaluation offered recommendations for the WASH Project in the remaining year of UNICEF's country program 2012-2016 and for going to scale beyond 2016.

For the current GOM –UNICEF Country Program for 2016, the evaluation recommends that:

a) UNICEF and the Khuvskul Aimag and soums address the O&M, capacity building and technical issues with more rigor in design. O&M capacity building remains unavoidable but of different intensity depending on feasible strategy for heating WASH facilities selected. Lessons learned in the challenging areas of O&M, technical issues and capacity building should inform future expansion.

b) Khuvskul Aimag be supported in its efforts to integrate WASH in schools in the design of its Perspective Plan for 2017-2030. A discussion and articulation of the kind of support needed (planning, design, M&E, etc) will have to be spelt out to facilitate early action and response to the interest of the Aimag.

c) UNICEF initiate strategic discussions/negotiations with MOF and MECS with respect to their technical and related needs in pursuing scaling up initiatives for the WASH in school project next year and beyond. The request for technical assistance indicated by the two ministries should be taken up as an integral part of preparing UNICEF work plan for the coming year.

d) The hygiene promotion component develop a follow up initiative to address gaps in reaching the remaining quarter of the student population that still have to adopt attitudes and practices related to hand washing after toilet use and other behavior that require modification.

The following are recommended for a WASH Project going to scale:

a) UNICEF and GOM need to forge consensus on the technical package for WASH in schools that will be replicated and scaled up given the observations and lessons learned thus far from the Project.

b) It is important for confirm the funding from the GOM and other partner agencies, particularly the ADB, for the expansion of the WASH project in schools.

c) As UN cluster lead for WASH, UNICEF should lead in working with the GOM, the UN and other partners and develop an interagency WASH project among the agencies for the next UN Development Assistance Program for maximum convergence. A corollary task would be to launch a joint review of the experiences of UNDP, UNICEF and WHO in their previous joint WASH project to highlight potential areas of cooperation and further partnership.

d) It is evident that the tripartite agencies (MECS/MOH/MOF) will require technical assistance in the implementation of the Norms and Minimum requirements for WASH in schools, particularly in undertaking the impact regulatory assessment of implications of the norms and requirements. They will have to be considered in sustaining the guidelines, a process. UNICEF should support closely.

e) As the opportunity presents itself, GOM should take the leadership in developing a National Partnership Program for WASH in Schools and possibly communities as Mongolia's key contribution to the implementation of the new Sustainable Development Goals (SDGs). Given the strategic importance of access to water and sanitation in Mongolia and the climate change challenge, the pursuit of this objective is worthy of strong advocacy and resource mobilization.

Contents

List of Figures and Tables

Figures

Tables

List of Acronyms

ACF	Action Contre la Faim
ADB	Asian Development Bank
Aimag	Province
Bagh	Sub-sub Province (smallest administrative unit)
BCC	Behavior Change Communication
CDC	Child Development Center
CFC	Child-friendly community
CFS	Child-friendly school
DoE	Department of Education
DoCUD	Department of Construction and Urban Development
DFAT	Department of Foreign Affairs and Trade (Australia)
DPRK	Democratic Peoples Republic of Korea
EoP	End of Project
ECD	Early Childhood Development
FGD	Focus Group Discussion
GDP	Gross Domestic Product
Ger	Mongolian traditional shelter, made of felt and wood
GOM	Government of Mongolia
HP	Hygiene promotion
IEC	Information, Education and Communication
IMR	Infant mortality rate
JICA	Japanese International Cooperation Agency
KASP	Knowledge, Attitude, Skills and Practice
KII	Key informant interview
MAST	Mongolian Academy of Science and Technology
MUST	Mongolian University of Science and Technology
MCUD	Ministry of Culture and Urban Development
MECS	Ministry of Education Culture and Science
MOH	Ministry of Health
MOF	Ministry of Finance
MPUA	Mongolian Public Utility Association
MRCS	Mongolian Red Cross Society
MTR	Mid-term Review
NGO	Non-government organization
NSO	National Statistics Office
NWC	National Water Committee
O&M	Operations and Maintenance
PHI	Public Health Institute
PSC	Project Steering Committee
RFP	Request for Proposal
Soum	Sub-province
SCF	Save the Children Fund
SDG	Sustainable Development Goals

SWG	Soum Working Group
TAG	Technical Advisory Group
TAF	The Asia Foundation
ToR	Terms of Reference
ToT	Training of Trainers
U5MR	Under 5 Mortality Rate
UN	United Nations
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
VIP	Ventilated Improved Pit (latrine)
WAM	Wash Action of Mongolia
WASH	Water, Sanitation and Hygiene
WHO	World Health Organization
WinS	Wash in schools
WB	World Bank
WSP	Water Safety Planning
WV	World Vision

I. Project Background

The end of project evaluation covers UNICEF Mongolia's WASH in Schools initiative which is a flagship project component of UNICEF's current country programme me of cooperation (2012-2016). This project covers 12 schools and 12 kindergartens in 12 soums of the Khuvskul Aimag, which is located northwest of Mongolia.

This project is funded by the Department of Foreign Affairs (DFAT), Australia for a period of four years from 2012 to 2015 under its Infrastructure for Growth Initiative. The project was implemented in the following soums/village: Arbulag, Burentoghtogh, Galt, Renchinlkhumbe, Tarialan, Tunel, Ulaan-Uul, Khankh, Khatgal village, Tsagaanuur, Tsagaan-Uur and Shine-eder. After the project inception report was completed in 2012, actual construction and capacity building work started immediately and culminated in June 2015.

The project's overall goal is to support Mongolia in developing child friendly schools and kindergartens to enhance the achievement of the Millennium Development Goals, its Comprehensive National Development Strategy, and the GOM-UNICEF Country Programme me. The project has two specific objectives, namely:

a) Suitable and sustainable WASH facilities and appropriate hygiene behaviors by staff and children in all project schools/kindergartens by end of project and

b) Effective Government of Mongolia mechanisms for WASH in schools and kindergartens are established.

The project had two revisions since the concept document was approved in May 2011. These are: a) the removal of the previously proposed community infrastructure component and objectives and b) shortening of the project duration from five years to four years. It also confirmed UNICEF's work in its new geographical-focused area, Khuvskul Aimag, as the target area for the joint cooperation (see map in Figure 1).

At the beginning of the project, it will be noted that until the project schools and kindergartens are selected, and the site-specific needs and solutions have been identified, it was not possible to be precise about the details of the WASH infrastructure to be provided by the project. Despite these uncertainties, the general principles that have been adopted that guided construction work and the typical standards for infrastructure were the following:

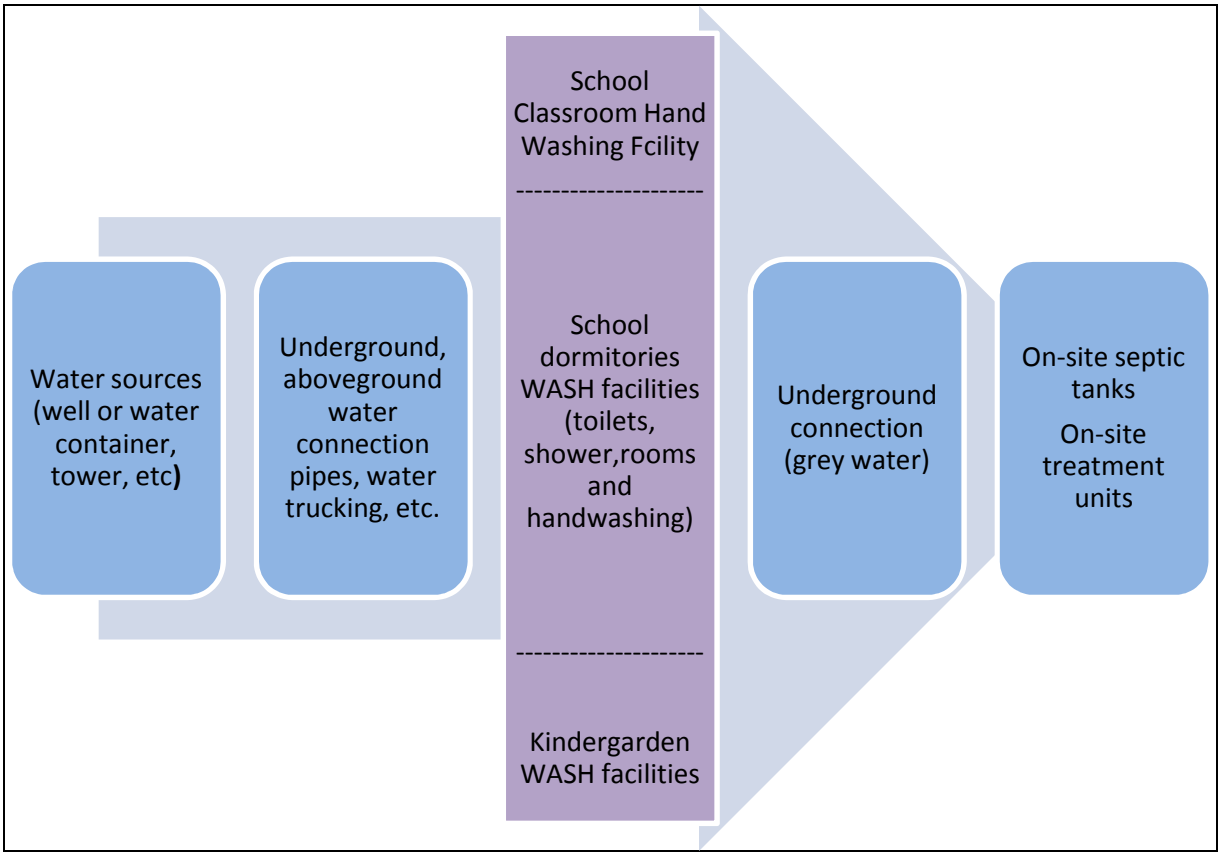
Figure 1: Map of Mongolia and Project Location

- water supply will be provided by drilled well(s) or borehole(s); where groundwater is not viable, sustainable alternatives would be investigated,
- indoor water flushed toilets are proposed as the standard. This allows for year round use and hand washing where there is insufficient space in existing buildings, an extension or adjoining building will be required. This will be connected to the school's heating system where required, shower facilities in dormitories will be upgraded
- where water shortages are anticipated, eco san facilities (e.g. urine diverting facilities as tried in some Eastern European countries) will be considered
- drainage from fixtures(e.g. sinks) will be plumbed to outside the building into soak pits or septic systems to ensure that groundwater is not contaminated, and
  all facilities will ensure disabled friendly access to WASH facilities

At the end of the project, a total of six new boreholes were drilled to provide access to water supply in selected target schools, while two water supplies was connected to the soums water system. Moreover, there were also 13 new container type indoor WASH facilities constructed as well as 12 indoor WASH rooms rehabilitated, while 26 VIP latrines completed. The project also provided water containers and water dispensers with ceramics filters to all the target 12 soums.

The reduction of the funding allocation from DFAT from US$3.4 million to US$2.4 million in December 2013 required a communication plan to reduce reputational damage to DFAT and UNICEF after commitments to build the indoor WASH facilities in12 schools and 12 kindergartens in the 12 project soums have been made and agreed upon. However, by the end of the project, the total programmable amount had been increased to US$2,671,983. See Figure 2 for the overall physical project schema.

Figure 2: Schema of Planned WASH Facilities in Schools and Kindergartens

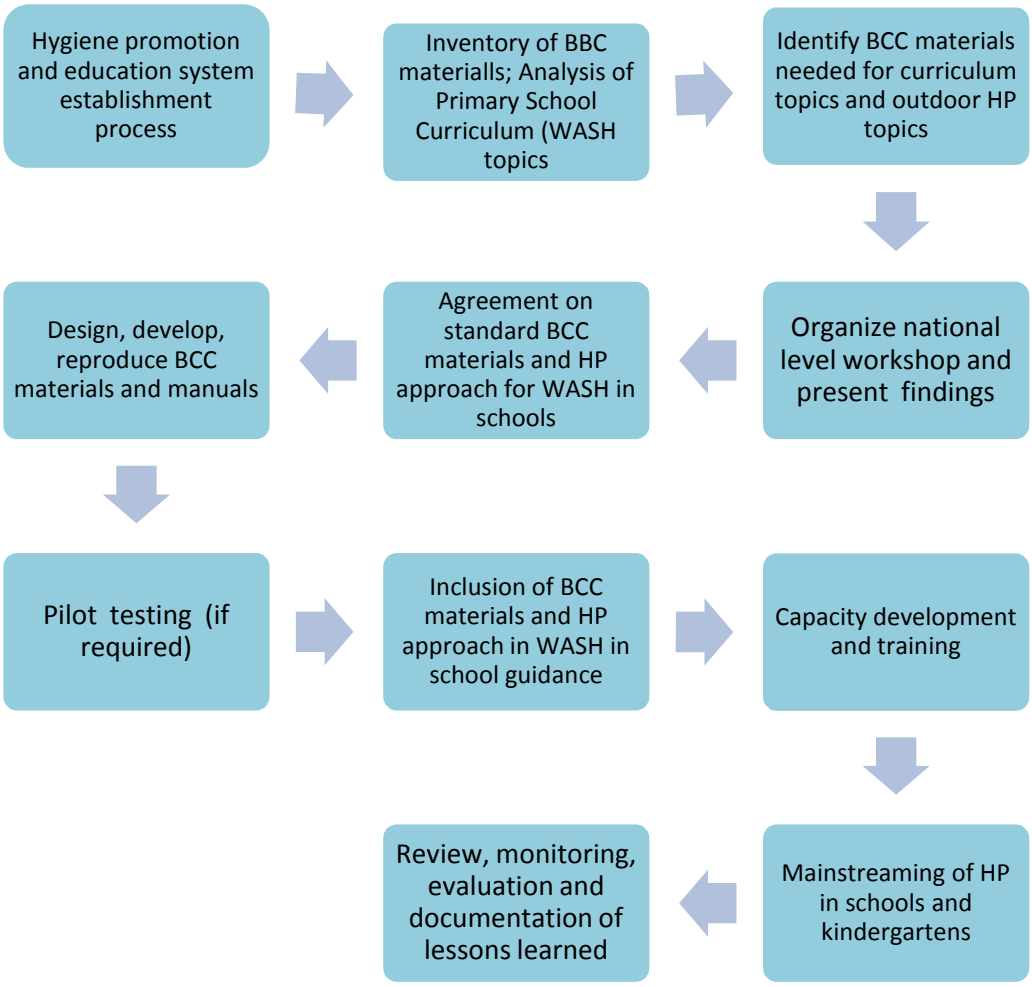


Source: WASH in Schools and Kindergartens Project, Inception Report to AusAid. Dec 2012

The hygiene promotion component, essentially focused in complementing the existing national programme, which emphasized the learning of correct behavior and practices primarily on hand washing and similar subjects in the health curriculum in the schools. With support from partner NGOs (Action Contre la Faim (ACF), The Asia Foundation (TAF) and World Vision (WV), the work in Khuvskul have concentrated in training, production of BBC materials and manuals for effective conduct of hygiene education in schools.

Figure 3 below shows the process of hygiene promotion envisaged in the WASH in schools project.

Figure 3: Hygiene Promotion in Schools and Kindergartens



Source: WASH in Schools and Kindergartens Project, Inception Report to AusAid. Dec 2012

With the official completion of the project in June 2015, UNICEF commissioned an end of project evaluation to assess the extent to which the goal and objectives of the project were met and identify specific lessons and recommendations for the replication and sustainability of the project if warranted.

II. Country context

The Mongolia's Fifth MDG Progress Report' 2013 says that in more than two decades after its transition from Soviet-style socialist economic system to a liberal market economy and democratic system of governance, Mongolia has become one of the region's most consistent economic performers. Its average economic growth rate, mainly fueled by its mining industry, was estimated at about 9 per cent from the period 2004-2008. After recovering quickly from the global financial crisis in 2008-2009, a double digit growth of GDP was recorded increasing the growth of the economy by

2.4 times, enabling the country to achieve the status of belonging to the lower rung of middle income countries The above further reported that Mongolia has also undertaken significant democratic reforms enhancing its political and budget transparency amidst continuing instability in its Parliamentary governance. Its vast territory which is sparsely populated by about 2.7 million people is experiencing rapid urbanization. About 62% are now living in its capital and in shanty areas around the city (called Ger areas) with population from rural areas migrating to the city to find employment and basic services as well as avoid the continuing losses from repeated onset of winter storms (dzud).

However, based on key human development indicators, it is evident that a significant portion of the population remains unable to secure their share of the benefits of economic growth. It is estimated that poverty rate has remained stagnant at 35% nationally and 50%in rural areas. Moreover, it is estimated that 73% of the poor generally work in low-paying jobs in urban centers or in rural herding and farming households. The situation of children is most affected among the population groups with incidence of poverty estimated at 42% and 21% suffer from chronic malnutrition.

Pervasive evidence of inequity in Mongolia is rooted in the complex mix of political, social and economic factors, including discrimination targeting women particularly in political leadership, ethno-linguistic minorities and people with disabilities. Government attempts to streamline the social welfare system have been unable thus far, to generate the necessary and appropriate support to the country's poor and disadvantaged population. The policy, programme and resource gaps remain a major challenge and could undermine the progress of Mongolia in achieving the Millennium Development Goals (MDGs) and its post MDG efforts.

As pinpointed earlier, the impact of economic and social disparities are most visible as one looks at the situation of children. The WASH in Schools and Kindergartens Project, Inception Report to AusAid. Dec 2012 describes such situation. A study in 2009 established that one third of children from the lowest wealth quintile suffered from malnutrition and other micro-nutrient deficiency such as rickets; one third were deprived of health and shelter and half did not have access to education.

It is also estimated that more than 40% of the rural population has no access to safe water and nearly 60% has no access to adequate sanitation. Moreover, the lack of proper water and sanitation in rural schools and their dormitories, where children mostly of nomadic herders spend roughly nine months of the year, remains a critical area of concern.

Mongolia also faces challenges related to its vast geography, harsh climate and comparatively poor road and other infrastructure. These factors have made logistics and project implementation costlier and more challenging. Climate change has also been observed to cause increasing temperature both in summer and winter, water shortages, poor water quality, land degradation and desertification which collectively threaten livelihood, food security and other challenges to human survival.

In its current country programme of cooperation, UNICEF is focusing its assistance and development interventions to its new geographic area of focus, Khuvskul Aimag particularly its 12 soums where the WASH in Schools project and other child-friendly projects have been introduced in convergent fashion. The integrated interventions (health, education, early childhood development, etc) will address the issues facing the most vulnerable population (mainly children) as well as constitute a

learning area for an innovative approach for replication and scaling up. The WASH in school project and other allied interventions are envisioned to lay the foundation for advocacy and mobilization for policy development, standard setting and resource mobilization at the national level.

III. Methodology

In accordance with requirements laid out in the RFP, the evaluation examined project efficiency, effectiveness, relevance and sustainability. Using findings and lessons from the project, it offers recommendations to the GOM, UNICEF and donor on further improving project design and implementation and securing sustainability of results at sub-national and national levels. Lessons distilled from the project could be useful for similar projects in Mongolia and elsewhere.

Two types of concrete outcomes were ultimately of special interest to the evaluation: (a) results achieved with respect to the provision of suitable and sustainable WASH facilities in project schools, promotion of hygiene practices and adoption of hygiene behavior by students and (b) actions taken by schools, the local government units and national agencies including the MECS and MOH with relevance to the sustainability of the project and outcomes.

A combination of quantitative and qualitative tools were utilized in the evaluation: a documents review, guided key informant interviews, an end-of-project facilitated self-administered survey of knowledge, attitudes, skills and practice (KASP) of students, and field observations of achieved project outputs, specifically WASH infrastructures, and hygiene promotion. The documents reviewed include project documents and reports of project monitoring events, summaries of baseline information, administrative information from the Departments of Education and Health. The full list is found in the List of References.

The focus of the evaluation was 6 project and 2 non-project soums selected in consultation with UNICEF project staff. Information was gathered from each site with the assistance of translators who also have background in WASH behavioral change communication topics.

- Schools (primary, lower secondary and higher secondary, kindergarten) in each soum were visited to determine the status and state of WASH facility installations and observe the deployment of behavioral change communication materials.
- Information were gathered from interviewed officials, teachers and student hygiene promoters, and WASH maintenance staff of the schools on, among others, facility installation schedules, state of installed WASH, actual utilization and functioning of facilities, maintenance training, and the children's hygiene education. In the same visits, KASP surveys of students from the primary, lower and higher secondary levels were undertaken using facilitated self-administered questionnaire.
- Local government officials informed the team of aimag or soums' role in support of the project and WASH initiatives in their area while public health staff when available provided data on the incidence of infectious diseases, specifically diarrhea and hepatitis.

- Selected parents of children enrolled in the soum schools gave the team some background on the students' WASH facilities in their homes and/or their communities and valuable feedback of their children on the modern WASH facilities installed in schools.
- The Team met the contractor of the school WASH facilities, providing better understanding of the technical choices adopted in the project WASH as well as non-project factors with incidence on the resulting state of facilities.

Box 1: A conversation with school children on hygiene knowledge and practices

The team spent a total of 23 days in the Khuvskul province and about three weeks in Ulaan Bataar to gather information. The number and designations of individuals who shared information with the Team in the FGDs, KIIs and field observations are found in Annex 2.

Two meetings were held at UNICEF to present and validate the preliminary findings of the study on 7 and 8 October first with UNICEF staff and second with the GOM, NGOs and UNICEF staff. The participants from the sub-national and national level endorsed the findings and recommendations of the study and emphasized the importance of building the lessons and recommendations into the remaining year of the country programme and beyond. The list of attendees is in Annex 2A and 2B. Annex 2C shows the full timetable of the evaluation exercise.

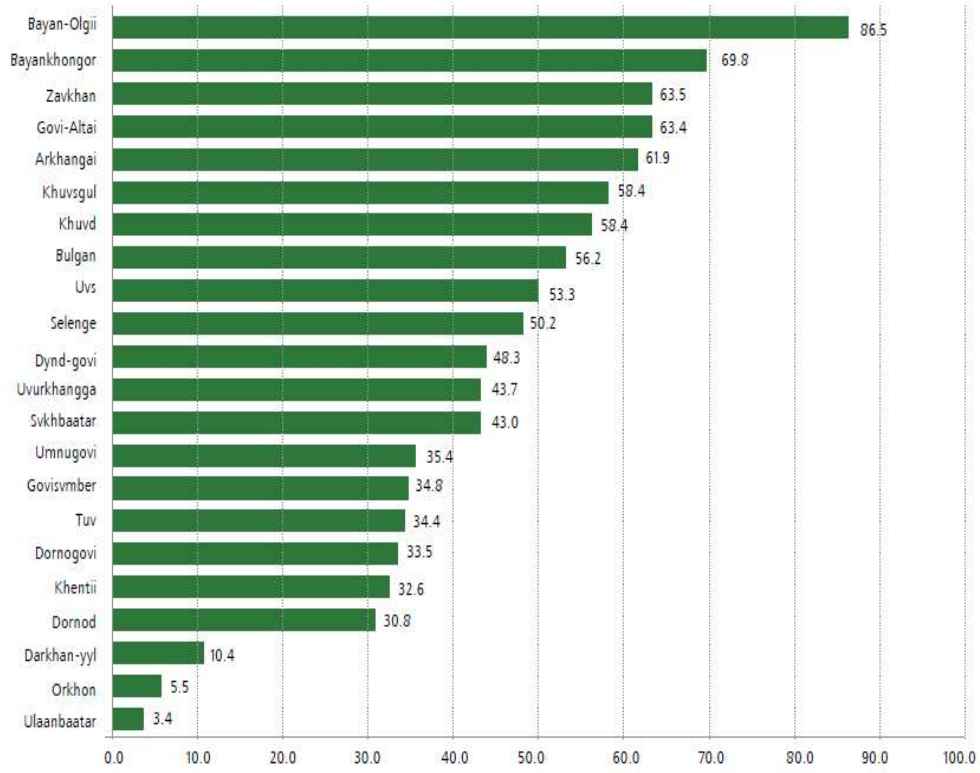
IV. Key Findings

1. Relevance

The evaluation team assessed the project's continuing relevance to the country, to the national and local governments and to the population and school community. What it found is that the relevance of the project remains high and likely to remain so in the medium term.

In the last five years, the GOM with support from the UN and other multilateral and bilateral agencies have put a clear emphasis in increasing access to potable water supply and improved sanitation facilities, as well as, promoting hygiene practices particularly in rural areas. In its Comprehensive National Development Strategy (2008-2020), GOM has put considerable importance in achieving the MDGs and used it as a legal basis for defining the government's priority areas of investment to achieve the objectives of Mongolia's national development. The coverage in water and sanitation and hygiene remain very deficient. In fact the MDG targets on water and sanitation in rural areas are off track as shown below in Figure 4.

Figure 4: Proportion of Population without Access to Safe Drinking Water - 2010



Source: GOM MDGs Final Report 2013

It will be noted that more than half of the country's aimags and more than 43% of population have very low access to potable water supply. In particular, poverty stricken regions like eastern and

Hangai regions which have Bayan Ulgi Aimag and Khuvskul Aimag, respectively have clearly poorer access to potable water supply with 86% and 58.4% of population deprived of potable water. On the other hand, urban centers like Ulaanbaatar, Orkhon and Darhan as well as other Aimags in the Central Region have very high access to potable water through the pipeline systems in their respective areas (with only 3.4%, 5.5% and 10.4% respectively of these cities' population without access to potable water supply.

In the same vein, the pattern is similar in terms of access to improved sanitation facilities is concerned as can be seen from Table 1. The poor population that resides in the rural areas is still deprived access to proper VIP latrine and other modern sanitation facilities. It is clear from the above that, the objectives of the WASH in school project of providing suitable and sustainable WASH facilities and appropriate hygiene behavior remains a challenge that needs to be continuously addressed.

Table 1: Proportion of population without access to improved sanitation facilities

	1990	2000	2006	2010	2015
Country average	77.4	77.0	73.4	76.8	60.0
Western region	-	96.5	-	95.5	-
Khangai region	-	89.7	-	91.1	-
Central region	-	79.4	-	79.7	-
Eastern region	-	84.9	-	85.8	-
Ulaanbaatar	-	51.2	-	62.2	-

Source: GOM MDGs Final Report 2013

The approval of the Tripartite Agreement (MECS/MOH/MOF) of the Norms and Requirements for WASH in Schools is an ample demonstration of the relevance and importance the government attaches to the project. Cognizant of the centrality of setting norms and standards for promoting a Child-friendly learning environment which is also promoting health, the three Ministries of Education, Culture and Science together with the Ministry of Health and the Ministry of Finance have recently approved the Minimum Requirements for WASH in schools. Efforts to put these norms and requirements in operation are continuing and are seen to be completed early next year. These initiatives underscore the continuing relevance of the advocacy of the WASH in school project to sustain national interest and mobilize resources to scale up the sub-national WASH project into a nationally-owned initiative.

Key informant interviews conducted by the Evaluation team with selected officers of the Ministry of Finance , Ministry of Education and the Asian Development Bank underscore alignment of interest in WASH in School facilities and readiness to scale up investment in this key area. The Ministry of Finance indicated their readiness to provide a new budget line on WASH in schools starting next year and emphasize that they intend to protect this programme for children in the face of continuing budgetary constraints. Similarly, the Ministry of Education has allocated new budgetary commitments for investments on WASH in schools and such move appears to earn the support from MPs across party lines. In both interviews, the ministry officials have indicated that although they are not considering development loans for this initiative, they also hasten to add that this option may be considered if the economic situation will not improve. Moreover, the Ministry officials interviewed, requested technical assistance from UNICEF in allocating and programming GOM future investment in WASH in schools considering the multiplicity of demands for such facilities in the various aimags.

The ADB Country Director informed the team of his interest in mobilizing the Bank's resources to finance the WASH in school initiative, showing preliminary interest in the dormitories in the depressed schools. The Country Director has done some field visits in Khuvskul and other poverty stricken aimags. He is ready to discuss cooperative ventures with UNICEF, GOM and other parties interested in WASH.

The importance placed by the various soums of the Khuvskul aimag to the strategic relevance of WASH in school project is underscored by the specific allocation of budgets and actual expenditures not only for promoting Child-friendly schools but more notably WASH facilities in school. In Khuvskul Aimag, a provincial resolution was approved by all soums and the Provincial leadership in 2013 that commit all soums to allocate no less than 10% of their Local Development Funds (LDFs) for Child-friendly schools initiatives including WASH in schools investment. These investments for children would include rehabilitation of dormitories, bathroom in schools, playground for children, etc.

The total LDF budget allocation and actual expenditures of the LDFs of the various soums in Khuvskul are shown in the Table 2 below. As can be seen in this table, the eight target and non-target soums visited were not immediately able to allocate the necessary investments for the various programmes for children in 2013 as only Alag-erdene, Tarialan, Shine eder andKhatgal village were able to make allocation for children programmes and also for WASH projects. However, in 2014 all the visited soums have made the necessary allocation for children, except Tarialan. In 2015, all the soums have made allocations for child-friendly programme s and WASH projects. It appears that over the years, the soum and Aimag leaders have recognized the relevance and importance of promoting access to water and sanitation and hygiene practices in their schools.

The Provincial Governor of Khuvskul informed the Evaluation Team of his commitment to use the provincial funds to replicate the project in the various soums. The province is disposed to procure the necessary capital and logistic support to the WASH projects. The Governor also spoke at length of his commitment to prepare a Perspective Plan (2017-2030) for his Aimag that could include a WASH in School component. The Governor was awarded by the Central

Government the highest state award for his performance in implementing development programme s in his Aimag. The Governor also called the entire aimag and soum leaders in an Aimag Forum to discuss the framework and strategic thrusts of his vision for Khuvskul Perspective Plan which includes WASH for the province. It is evident that the strategic relevance and importance of the WASH in School project is well ensconced in the priority framework of the leadership of Khuvskul Aimag.

Table 2: Distribution of soums' LDF and expenditure for children in 2013-2015

Soums	2013			2014			2015		
	Total budget (Tugrik M)	Expend. for children (Tugrik M)	%	Total budget (Tugrik M)	Expend. for children (Tugrik M)	%	Total budget (Tugrik M)	Expend. for children (Tugrik M)	%
Alag-Erdene	193.2	50.0	25.8	257.4	17.8	7.0	117.8	15.7	13.3
Burentogtokh	208.8			240.3	54.7	22.7	115.6	10.3	8.9
Galt	243.2			276.6	105.0	38.0	127.4	7.2	5.6
Tarialan	260.2	22.5	8.6	299.5			131.6	42.6	32.3
Timurbulak	186.3			246.2	113.8	46.0	115.6	22.0	19.0
Tunel	186.9			249.1	40.0	16.0	118.5	15.0	12.6
Shine Ider		18.0			14.0			40.0	
Hatgal		20.0			43.0			10.0	

Source: Khuvskul LDF allocation; 2013-2015
Note: USD 1=Tugrik 1,980

Further evidence of the relevance and importance attached to the WASH in School project are the comments recorded in various KIIs and FGDs across a variety of stakeholders. See Box 2 below:

Voices from	Dimensions of Relevance	Quotes
Ministry of Finance	Policy and resource commitment	*" We stand ready to protect the programmes on promoting the environment of children in school even in the current period of resource constraint"*
Governor, Khuvskul	Political will with full recognition of the comprehensive need for WASH across territories	*"Although most of our soums are not identified as target areas for the 'New Soum Programme ', we are effectively implementing the concept in Khuvskul with our WASH in school project".*
Governor, Burentoghtogh	Sub-national leadership support for national development strategy and recognition of benefit of WASH for marginalized population to address equity	*" Nomadic herders in Baghs coming back to the soum center to enroll their children in schools with modern water and sanitation facilities in our soum …"*
Mother from Shin-eder	Embracing modernization of WASH in schools and kindergarten in preparation of their children's future	*"With this project, we are confident that our young children can visit Ulaanbaatar and not play with water in the toilet bowl as some of our neighbors' children have previously done… "*
School principal, Tarialan	Awareness of the benefit of WASH in schools and kindergarten breaking from past WASH practices	*"This project has fostered revolutionary change in the knowledge and practice of not only students but also teachers, and the entire community in the importance of proper hygiene and sanitation in the schools"*
Student living in a dormitory in Galt	Relevance shown at the level of the ultimate beneficiary of the project with a student in dormitory enjoying the joys of shower	*"I really enjoy having my regular shower and my toilet in our dormitory. I don't have to go out and feel cold especially during winter".*

Box 2: Selected quotes from various people and officials

2. Efficiency

The project design had undergone several changes from concept stage when first submitted to DFAT for funding to inception when feasibility and detailed design were undertaken. While the objectives of the project remained the same changes were made on the scope, composition and number of WASH facilities. The previously proposed community infrastructure component was removed and the project

duration was shortened from 5 to 4 years. The reduction of the funding allocation from DFAT from US$3.4 million to US$2.4 million in December 2013 required a communication plan to reduce reputational damage to DFAT and UNICEF after commitments to build the indoor WASH facilities in12 schools and 12 kindergartens in the 12 project soums have been made and agreed upon. However, by the end of the project, the total programmable amount had been increased to US$2,671,983.

The final assessment on project efficiency is based on the revised project implementation schedule and budget (Annex 3) and the revised project baseline objectively verifiable indicators (Annex 4) completed as of March 2014 at about half-way through project duration. By this time, for Objective 1, the feasibility studies and design of the water facilities have been completed. The design of the sanitation facilities (indoor and outdoor) have been approved by MECS. Rehabilitation of indoor WASH facilities in schools and kindergartens has been completed in 4 soums and one bagh. BBC materials have been developed, hygiene promotion training for representatives of all 12 schools and 12 kindergartens have been conducted, and child development centers were established in all target schools. Two of 4 targeted guidelines/manuals have been drafted, namely, the Minimum Requirements for WASH in Schools and Kindergarten and the guidelines related to Education Management Information System (EMIS), National Level Survey and Children's Monitoring.

Table 3: Efficiency of water and sanitation facilities

Facilities	Planned	Achieved	%
Construction of indoor WASH facilities	13	13	100
Rehabilitation of indoor WASH facilities	12	12	100
Drilling of groundwater wells w/connection to indoor WASH facilities	6	6	100
Septic tanks with soak pits connected to indoor WASH facilities	7	7	100
Construction of outdoor VIP latrines	26	26	100

Notwithstanding the changes, by the end of the project duration in June 2015 the remaining planned activities have been completed and budgets fully utilized (see Table 3) including the construction of 6 new groundwater wells, 13 container indoor WASH facilities, and 26 outdoor VIP latrines. See Tables 4 and 5. All children (about 9,000, of which 51.8 percent are girls) from the schools and kindergarten in the 12 project soums have access to the improved water supply and sanitation facilities. Also completed were the operation and maintenance manual on WASH facilities in schools, kindergartens and dormitories; hygiene promotion kit that were developed in partnership with ACF; the national standard and guideline for construction of on-site sanitation facilities; and, a series of manuals on household and school water treatment and safe storage.

Table 4: Water supply facilities improvement

Soum	Facility	Source/ connection	Indoor WASH facilities	WASH Supplies	Comments/Remarks
Arbulag	School/dormitory	None	None	New	Old source – soum groundwater well
	Kindergarten	None	None	New	Old source – soum groundwater well
RenchinIkhumbe	School/dormitory	None	None	New	Old source – river
	Kindergarten	None	None	New	Old source – river
Ulaan-Uul	School/dormitory	None	None	New	Old source – groundwater well or river
	Kindergarten	None	None	New	Old source – groundwater well or river
Khankh	School/dormitory	None	In new building	New	Old source - lake
	Kindergarten	None	In new building	New	Old source – river
Tsagaannuur	School/dormitory	None	None	New	Old source - lake
	Kindergarten	None	None	New	Old source - lake
Tsagaan-Uur	School/dormitory	Connection to well	2 CT indoor WASH	New	Old source – own well connected to kitchen/InWASH
	Kindergarten	New well	In new building	New	New well connected to indoor WASH facilities

Table 4: Water supply facilities improvement (continuation)

Soum	Facility	Source/ connection	Indoor WASH facilities	WASH Supplies	Comments/Remarks
Visited Soums except ZurkhBagh					
Burentogtokh	School/dormitory	New well	2 CT for PS/ 1 CT Dorm	New	New well connected to primary school & dormitory
	Kindergarten	New well (w/school)	2 CT indoor WASH	New	New well connected to kindergarten
Galt	School/dormitory	New well	2 WASH rooms rehab	New	New well connected to school and dormitory in WASH
	Kindergarten	None	None	New	Old source – soum groundwater well
ZurkhBagh (Galt)	School/dormitory	New well	2 WASH rooms rehab	New	New well connected to school buildings
	Kindergarten	New well (w/school)	1 WASH room rehab	New	New well connected to kindergarten building
Tarialan	School/dormitory	None	5 WASH rooms rehab	New	School connected to soum groundwater well
	Kindergarten	None	2 CT indoor WASH	New	Kindergarten connected to soum groundwater well
Tunel	School/dormitory	New well	2 CT indoor WASH(b/g)	New	New well connected to boys and girls dorm
	Kindergarten	New well (w/school)	2 WASH rooms rehab	New	Old source – soum groundwater well
Khatgal Village	School/dormitory	None	None	New	Old source - lake
	Kindergarten	None	None	New	Old source - lake
Shine-Ider	School/dormitory	New	2 rehab/2 CT in PS	New	New well connected to primary school
	Kindergarten	None	None	New	Old source – soum groundwater well

WASH supplies refer to water containers, water dispensers with ceramic filter

Summary:

13 – Container type indoor WASH facilities installed (hand washing lavatories and showers) in 4 schools (8) and dormitories (1) and 2 Kindergarten (4)

12 – indoor WASH rooms rehabilitated in 4 schools (11 units) and 1 kindergarten (1 unit)

6 – Groundwater wells drilled serving 10 schools and kindergartens

26 – WASH supplies provided to 13 schools and 13 kindergartens

Table 5: Sanitation facilities improvement

Soum	Facility	Outdoor latrines	Indoor WASH facilities	Septic tank	Comments/Remarks
Arbulag	School/dormitory	2 units VIP	None	None	No indoor WASH facilities due to limited water source
	Kindergarten	1 unit VIP	None	None	No indoor WASH facilities due to limited water source
Renchinlkhumbe	School/dormitory	2 units VIP	None	None	No indoor WASH facilities due to limited water source
	Kindergarten	1 unit VIP	None	None	No indoor WASH facilities due to limited water source
Ulaan-Uul	School/dormitory	2 units VIP	None	None	No indoor WASH facilities due to limited water source
	Kindergarten	1 unit VIP	None	None	No indoor WASH facilities due to limited water source
Khankh	School/dormitory	None	In new building	None	Project provided water pumps and generator
	Kindergarten	None	In new building	None	Project provided water pumps and generator
Tsagaannuur	School/dormitory	2 units VIP	None	None	No indoor WASH facilities due to limited water source
	Kindergarten	1 unit VIP	None	None	No indoor WASH facilities due to limited water source
Tsagaan-Uur	School/dormitory	2 units VIP	2 CT indoor WASH	New	Septic tank connected to indoor WASH facilities
	Kindergarten	None	In new building	None	New building connected to well
Visited soums except ZurkhBagh					
Burentogtokh	School/dormitory	Old	2 CT for PS/ 1 CT Dorm	New	Septic tank connected to indoor WASH facilities
	Kindergarten	Old	2 CT indoor WASH	New (w/school)	Septic tank connected to indoor WASH facilities
Galt	School/dormitory	2 units VIP	2 WASH rooms rehab	New	Septic tank connected to indoor WASH facilities
	Kindergarten	1 unit VIP	None	None	
ZurkhBagh (Galt)	School/dormitory	Old	2 WASH rooms rehab	New	Septic tank connected to indoor WASH facilities
	Kindergarten	Old	1 WASH room rehab	None	Indoor WASH rooms rehabilitated& connected to well
Tarialan	School/dormitory	Old	5 WASH rooms rehab	New	Septic tank connected to indoor WASH facilities

Soum	Facility	Outdoor latrines	Indoor WASH facilities	Septic tank	Comments/Remarks
	Kindergarten	Old	2 CT indoor WASH	New	Septic tank connected to indoor WASH facilities
Tunel	School/dormitory	2 units VIP	2 CT indoor WASH(b/g)	New	Septic tank connected to indoor WASH facilities
	Kindergarten	1 unit VIP	2 WASH rooms rehab	New (w/school)	Septic tank connected to indoor WASH facilities
Khatgal Village	School/dormitory	2 units VIP	None	None	
	Kindergarten	1 unit VIP	None	None	
Shine-Ider	School/dormitory	2 units VIP	2 rehab/2 CT in PS	New	Septic tank connected to indoor WASH facilities
	Kindergarten	1 unit VIP	None	None	

WASH supplies refer to water containers, water dispensers with ceramic filter

Summary:
13 – Container type indoor WASH facilities installed (hand washing lavatories and showers)
12 – indoor WASH rooms rehabilitated
26 – outdoor VIP latrines in 9 schools (18 units) and 8 kindergartens (8 units)

Overall, the planned activities based on the revised implementation schedule were completed within the project period until end of June 2015. The processes on project planning, implementation, operation and maintenance as presented in Annex 5 taken from the Inception Report were followed covering activities such as selection of soums, specific baseline, detailed technical survey and design of WASH facilities, bidding for construction and selection of contractors, handover of facilities, training on operation and maintenance and monitoring of project activities. The provision of water supply and sanitation activities was complemented by the production and distribution of BCC materials in schools, dormitories and kindergartens; the training of school teachers and doctors from the 12 soums on hygiene promotion, followed by the training of secondary school children to do the promotion in schools. These processes are important in establishing the government's mechanisms for planning and implementing WASH in schools and kindergartens. The Project Steering Committee managed the project with the aimag level departments/offices, representatives of national government agencies and the soum governments.

Corresponding to the various project components, the final budget allocation with a programme mable amount of US$2,671,983 were fully spent in the implementation of the project. Table 6 shows the revised budget of March 2014 and the actual expenditure at the end of the project in June 2015. More than half of the total budget and total expenditures went into the construction of water supply and sanitation facilities consisting of wells, toilets, hand washing basins and pipelines which were 54.6% of the total budget and 61.5% of the total expenditures. The seeming imbalance in favor of water supply construction cost against sanitation cost arises from the fact that indoor wash facilities

construction and rehabilitation was included under water supply where technically, the toilets should be under sanitation. Project management cost is a little more than one-fourth of the expenditures at 27% consisting mostly of monitoring and evaluation and staff and operations cost. Some of the latter cost can be classified as project monitoring cost. It was also difficult to apportion the amounts under project cooperation agreements with NGO partners like MRCS, TAF and ACF as they had activities that can be classified under water supply, sanitation and hygiene promotion.

Table 6: Revised budget and actual expenditure (US$)

No.	Activities	Revised Budget	Percent of Total	Actual Expenditure	Percent of Total
Objective 1. Construction of WASH facilities					
Outputs 1.1 and 1.2		***20,305***	0.87%	***9,955***	0.37%
1.1	Select sites based on need and FS	-			
1.2	Customized guidelines for WinS/K	20,305		9,955	
Output 1.3 Construction of WS facilities		***617,616***	26.60%	***1,167,368***	43.69%
1.3.1	Conduct FS and prepare design	29,318		102,703	
1.3.2	Procure and construct WS facilities	588,298		1,064,665	
Output 1.4 Construction of HW & sanitation facilities		***651,298***	28.05%	***475,411***	17.79%
1.4.1	Prepare design and get MECS approval	10,000			
1.4.2	Procure and construct HW & sanitation facilities	641,298		475,411	
Output 1.5 - Hygiene promotion & facility maintenance		***121,265***	5.22%	***240,377***	9.00%
1.5.1	Establish Child Dev't Centers in schools/dorms	59,151		92,475	
1.5.2	Develop BCC materials/conduct training activities	62,114		147,902	

Objective 2. Establishment of effective GOM WASH mechanism					
Output 2.1 Development of broad WASH mechanism framework		***10,000***	0.43%	0	0.00%
2.1.1	Evaluate and analyze outputs - produce framework	6,000			
2.1.2	Submit framework to MECS for adoption & follow up	4,000			
Output 2.2 Effective advocacy for adoption of improved mechanisms		***46,000***	1.98%	***58,050***	2.17%
2.2.1	Promote stakeholder buying/study tours & training	30,000		58,050	
2.2.2	Promote and publish findings	16,000			
Output 3. Project Management		***703,239***	30.29%	***720,823***	26.98%
3.1	PSC formation and n-going support	10,700		5,620	
3.2	Implementation management and documentation	5,000		58,639	
3.3	Monitoring and evaluation	202,138		216,845	
3.4	Staff cost	485,401		439,718	
	Sub-total	2,169,722			
	UNICEF HQ recovery cost (7%)	151,881	6.54%		
	Total	***2,321,603***	100.00%	***2,671,983***	100.00%

Source: Grant Utilization by Activity, UNICEF Mongolia

Inside indoor WASH container van in Burentogtokh kindergarten

New VIP latrine in Galt school

Two types of dispenser in Burentogtokh school

Rehabilitated indoor WASH room in Tarialan dormitory

Box 3: Facilities in different educational institutions in Khuvskul built for the WASH Project.

2.1 Design Challenges

The design of the facilities for the schools and the kindergarten in each target soum were based on planning and design criteria covering the use of wells where feasible or appropriate alternative sources, provision of indoor hand washing rooms and toilets in existing buildings (classrooms and dormitories), showers in dormitories, on-site sewage systems (septic tanks) and outdoor VIP (ventilated improved pit) latrines in all targets schools and kindergartens, mainly for emergency purposes and demonstration. Gender, disability and child-friendliness were also included in the design considerations. UNICEF engaged a design company to visit all the selected soums to assess the existing WASH situation, and design new WASH facilities.

However, the extreme cold conditions in Khuvsgul Aimag including permafrost conditions in northern soums like Ulaan-Uul, Khankh, Khatgal and Tsagaannuur presented challenges in meeting some of the planning and design criteria given for the project. The indoor WASH facilities normally require piped flow from a water source and for waste water to be conveyed to an on-site treatment plant like a septic tank to a soak pit. Outdoor latrines need to be heated to be used comfortably during winter.

Some of the schools converted classrooms into indoor hand washing and toilet facilities. Classrooms in older school buildings were assessed not suitable for renovation or rehabilitation due to weak structures. An innovation from a previous UNICEF WASH project was adapted with the use of container vans to house the facilities and which were connected to the buildings themselves and to their heating systems. This provided children with heated toilets with hand washing facilities especially during the harsh winters with temperatures that could go as low as - 20 to - 40 degrees C. Costs of these container van types of WASH facilities were claimed to be cheaper than renovation and easier to construct.

However, clean water from well sources to the indoor WASH facilities and wastewater from the facilities to septic tanks and soak pits need to be kept flowing during sub-zero temperatures. The common practice for piped water systems in soums with centralized water and heating systems as in Tarialan was to run the water pipes alongside the heating pipes to keep water flowing during winter. This was not possible in most schools whose soums do not have such centralized water and heating systems.

Heating coils were used around the water pipes with sensors to trigger the operation of the coils when temperatures dip lower to freezing temperatures where the pipes are located. There were cases when the sensors did not work freezing the water inside the pipes which burst during winter when frozen water expanded. There were also cases when plastic pipes melted with malfunctioning heating coils. This could be the case for wastewater pipes which commonly use plastic pipes. An experienced pump operator claimed that heating coils are effective only at temperatures above -30 degrees C but not lower than that. The school principals recommended using heating pipes instead of heating coils saying these coils were not appropriate. In the meeting with UNDP, their pilot project with MCUD on centralized water and wastewater system used a system of insulation to address the heating problem. While the installation cost could be high this might be easier to maintain and less costly to operate without the need for heating the pipes.

The VIP latrines were designed to have heaters run with electricity. Since these were out in the field, the amount of heating needed becomes enormous needing 24-hour heating during winter. This has led to some schools shutting off the heaters at night resulting in condensation problems inside the latrines causing damage to the paneling and the heating system themselves. Some teachers claimed that the heating capacities were not enough to comfortably heat the toilet rooms. The location of the VIP latrines in the middle of the fields, 50-100 meters from the heated school buildings, should be reconsidered. It makes sense to have the VIP latrines as close to the buildings themselves and have them connected to the building's heating system. This will also bring the toilets closer to the indoor hand washing facilities which at the same time have children use them without going outdoors to use them in cold winters.

The adaptation of the design of household VIP latrines for communal use with heating for schools and dormitories need to be evaluated including its location relative to the school buildings housing the children. Unless the heating works whose maintenance cost is affordable to the school and are odorless, they would not be any different from the outdoor pit latrines commonly used in other schools in terms of use during winter and their effectiveness. The original VIP latrine concept, apart from the ventilation to keep the odor out, uses double pits with composting to keep the amount of feces at smaller and shallower pits with regular emptying (every 1-2 years) of totally decomposed feces for safe handling. Save the Children in DPRK is using these in its own WASH in schools programme. The household VIP latrines seen by the evaluation team in the soums are pit latrines with a vent but with deep pits that will take 5-10 years to fill with no composting provision.

A retired biochemist/microbiologist from the Institute of Microbiology under the Mongolia Academy of Science and Technology claims that they have in the institute developed a substance that enhances the decomposition process even during winter at almost the same cost most households pay for applying chlorine solution to their latrines for disinfection and odor removal. The UNICEF WASH officer confirmed that a commercial firm was promoting this in one of the exhibition on innovative solutions to sanitation held a year or two ago. The removal of the odor, regular emptying of the pits with proper maintenance may be the solution that will allow attaching the VIP latrines to schools and dormitories which at the same time will address the heating requirement especially in winter.

2.2 Construction, contracting and implementation

Construction of the facilities involved the construction of the structures, finishing and installation of equipment, fixtures and appurtenances. Civil works were contracted out to an Ulaanbaatar based company (Toono-tushaa LLC) for the container van type indoor WASH facilities and Khuvsgul Geology for renovation of existing indoor WASH facilities. Construction of the VIP latrines was done by a couple of Khuvsgul-based construction companies (Ikh-Uyen and Khuvsgul-Ekh). Construction of the septic tanks and soak pits (Uul-Uwgud LLC) and the installation of pipelines with insulation and heating were done by yet other companies (Khuvsgul Geology). Well drilling was done by another Ulaanbaatar based company (Top Drilling LLC).

Bidding and contracting were done using UNICEF procurement procedures with the participation of the Project Steering Committee members in the evaluation of the bids. UNICEF hired a consultant in the preparation of the bid documents using the specifications provided by the design company. The Department of Construction and Urban Development of Khuvsgul Aimag participated in the technical evaluation for the province. Except for the WASH supplies (water dispensers, water containers, boilers, shower sets, indoor booster water pumps) provided to each school, kindergarten and dormitory, most equipment, fixtures, appurtenances, piping and heating materials were procured under the respective contracts of the construction companies.

A number of complaints were expressed by school and kindergarten officials and teachers on the quality of construction and materials used. Among them are broken door knobs and loose faucet mounting, shower boilers that do not work, heating sensors that are not working, submersible pump that stopped working, leaking piped due to dropped stone apparently during construction and was

unearthed only when the facilities started operations after winter. It should be noted that these installations are relatively new and these complaints were reported to the evaluation team who were at the schools barely a week after the opening of classes. Some of the defects were also observed by the evaluation team during the inspection of the facilities including their stay at the school dormitory in Galt soum.

2.3 Management and technical capacity

While the coverage of the WASH facilities in each school is limited to the school, dormitory and kindergarten population (children, teaching and non-teaching staff), the planning, design, construction and installation of the facilities would require proper management of the project as that of a small water and sanitation system or utility. It also would require the same capability in managing, operating and maintaining such utility with the exception of billing and collecting tariffs from the consumers/users.

Undertaking the project in the schools and kindergartens in 12 soums requires full time attention of a project manager experienced in managing the design and construction of a water supply and sanitation project in the context of the environment of Mongolia. It should be noted that the Government has just recently piloted a combined water supply and sewerage system for one soum. ADB and World Bank contracts out technical assistance for various stages of their water supply and sanitation projects from project preparation (feasibility study and detailed design) to project implementation (procurement, contracting, construction and commissioning). To some extent, UNICEF hired individuals to undertake design, bid document preparation, construction supervision, and monitoring for limited periods.

This project would have immensely benefited from a full time project manager who could manage the different activities under the different stages of the project together with UNICEF's partners. A UNICEF WASH officer normally does not handle only one project in its programme of cooperation with the government. A full time project manager could coordinate and monitor the various activities more effectively. It should also be noted that capacity to provide technical assistance to the project at the soum level might not be adequate since sub-national level projects are normally assisted at the national level like MCUD who would have more experience with implementing soum water supply and other utility projects.

Monitoring at the soum level apparently was not adequate from the government side as well as from UNICEF. Most of the monitoring for UNICEF was done by the community development officer based at the UNICEF Field Office in Murun. She does not have the technical capability to monitor an engineering project. The school principal of Tunel blamed himself for not monitoring the construction of the facilities that had some defects. Neither were the representatives of the Department of Construction and Urban Development regularly monitoring the construction activities based on the account of school and local officials.

2.4 Hygiene promotion

Hygiene promotion activities at the 12 soums were done in partnership between the schools and kindergartens and the soum public health institutes or hospitals. The training activities conducted by the school teachers and doctors after their training in Murun were supported and assisted by the doctors, nurses and midwives from the health institutes and hospitals. School children from the various clubs and organizations under the Child Development Centers in each of the schools in the 12 soums were trained by these school and health institute staffs. The student hygiene promoters then conducted training for their classmates and lower grade students for about an hour after class hours covering various hygiene topics at least once every quarter. These activities were described during discussions with the student hygiene promoters and teachers and in the meetings with staffs of the soum public health institutes and hospitals. This was also confirmed by some parents during the focus group discussions with them in the various soums based on what their children in school were telling them.

3. Effectiveness

In the 1980s' International Water Supply and Sanitation Decade, WHO came out with a publication on maximizing the health benefits derived from water supply, sanitation and hygiene (WASH) projects that became the basis for integrating water supply, sanitation and hygiene promotion in programmes. It was based on the finding that maximum health benefits (reduction in diarrhea and other water and sanitation related diseases) were derived from combining the initiatives in communities and households. For the benefits to happen, adequate and appropriate water supply and sanitation facilities must be constructed, function well, and be properly used and maintained.

Functioning of the water supply and sanitation facilities depend on design of appropriate technology, proper construction, operation and maintenance. These in turn are dependent on technical, financial and institutional factors. Proper use depends on behavior change that is supposed to be brought about by hygiene promotion among the children and staff in the schools and kindergarten.

While a few facilities are not functioning as planned and fewer facilities were delivered as a result of funding reduction, the WASH project added new structures to existing ones that remained in use, effectively expanding the school users' access to water and sanitation. The schools and kindergartens in the 12 project soums ended up with various combinations of old and new WASH facilities.

3.1 Functioning and Use of WASH facilities

The previous section on efficiency pointed out examples of non functioning facilities due to design and construction deficiencies or due to operation and maintenance issues. Table 7 summarizes the major findings of the evaluation team from their field observations of facilities and discussions with school, kindergarten and soum officials on the functioning and use of the facilities.

Table 7: Functioning and use of visited project facilities

Soum	Design and Construction Issues	Operation and Maintenance Issues
Tarialan	• Soum well water not enough – planning issue • Rehab PS classroom small – not sufficient • Door knobs broken, dryer not working • Poor quality sewer pipe • Toilets leak when flushed	• Cleanliness of outdoor toilets, according to parents reporting what their children are saying
Galt	• Broken taps • PVC pipes melt with heating coil • Not using KG indoor flush toilet; reserved for winter (desludging a concern) • Indoor toilets not sufficient; VIP latrines sufficient (except for smell); old latrines still being used • Boilers, water tank and septic tank in new govt. built KG building have no water connection.	• Desludging a problem; no means to empty septic tank • Freezing wastewater; had to dig to unfreeze pipe to septic tank – sensor not working • No training for staff on VIP maintenance • VIP latrines costly to operate due to heating • Simple problems like "faucet mounting in dorm indoor WASH needs tightening" unattended
Shine Ider	• Plastic pipes with heating coil melt, not appropriate • Suggest running water pipes alongside heating pipes • Toilet in dormitory not used – overflows when flushed • Shower heaters/boilers not working in dorm	• Problem of emptying septic tank – aimag to provide vacuum truck • Burnt pump and motor – replaced by school • Sanitation inspectors not recommending storage in plastic tanks – claim these may be toxic • Sensors need to be set properly • VIP latrines have maintenance issue – one of two in school not being used (might be emptying issue as well).
Khatgal	• Water a big problem in the bagh – draws water from the lake; no well possible due to permafrost; • Transport of water from lake costly • Queuing in toilets – not enough	• Emptying of septic tank to be arranged with resort owners – protecting lake source of water • No training on O&M • VIP latrine heating not enough – heating cost high

Soum	Design and Construction Issues	Operation and Maintenance Issues
	toilets	
Tunel	• Pipe made of plastic – should not use heating coil • Busted pipe due to either construction or bursting of pipe due to frozen water (leak detected when snow thawed) • No monitoring of construction – only school guard present as it was vacation time • Contractor did not agree to laying pipes along heating pipes – claimed just following design • Few water dispensers • Water pipe under container van freezes; wasteful solution - continuous water flow through open faucet	• Anticipated O&M cost from earlier project (Tarialan) • Heating sensor not working – not trained to handle situation • Plastic drop pipe for well leaked - possibly HDPE material • Clogging of sewers – contractor: it is the school's problem • Concerned with filling of VIP pits – not informed on emptying of pits • Heating coil burned – discovered only when water was not flowing • Outdoor latrine difficult for children during winter – cost of heating a concern • Improper toilet use – small boys urinating in receptacle/bin for tissue paper
Burentogtokh	• Toilet bowl in PS toilet easily cracked • Not all pipes totally insulated • Pipes laid only one meter deep	• Heating for VIP latrine not good as per teachers • Capacitor for pump motor got busted 2 days before evaluation team arrived – looking for replacement in UB • Old latrines still being used – well maintained and relatively odorless • Freezing pipes during winter

Among the design and construction issues that affect the functioning and use of the some facilities by school and kindergarten children and staff are:

- Small rooms in classrooms renovated into indoor WASH hand washing and flush toilets result in crowding and queuing.
- Poor quality of materials used (broken door knobs, dryers, toilet bowls)
- Shoddy construction especially in the rehabilitation and renovation of indoor WASH facilities
- Inappropriate use of heating coils with plastic pipes
- Shower heaters not working – might just be a question of proper setting

The operation and maintenance issues affecting the functioning and use are:

- Lack of vacuum truck to desludge and empty the septic tanks leading some schools to limit the use of indoor flush toilets
- Freezing of water pipes due to non working sensors preventing use of indoor WASH facilities for hand washing and flushing toilets
- Costly heating requirement for continuous heating of outdoor VIP latrines in winter
- Delayed repairs due to spare parts availability; sourcing them from Murun and far Ulaanbaatar
- Outdoor VIP latrines' maintenance problems (controlling smell) and improper use (small boys urinating outside structures or in tissue paper receptacles).
- Small repairs not being attended to (door knobs, mounting of hand washing faucets, etc.)
- Inadequate knowledge of VIP latrines emptying; one school uses only one of two newly constructed latrines as a result
- Claims of no training on maintenance when records show that such training was conducted

Despite the problems affecting functioning and use of facilities, invariably the soum, school and kindergarten officials acknowledge that improvements in access to water and sanitation happened because of the project. It is worthwhile to note that the project brought additional WASH infrastructures to the schools and / or rehabilitated existing ones. Moreover, some operation and maintenance issues did get resolved, generally those of replacements for equipment that stopped working (heating sensors, burnt submersible pumps, pump motor capacitor, etc.) and repair of broken fittings and appurtenances (door knobs, faucets, hand dryers, etc.).

3.2 Hygiene Education

Knowledge, Attitude, Practice and Behavioral Change in Schools

Indicative findings on the differences in access to water and sanitation facilities and hygiene behavior brought about by the project were gleaned from the results of survey of school children and staff of 6 selected project soums and 2 non project soums. Findings from the survey were complemented by key informant interviews of school officials and selected parents of the children.[1]

Project soums were the beneficiaries of the project WASH infrastructures and an organized behavioral change communication strategy. For about the duration of the implementation of the project, a nationwide hygiene education programme of the Department of Health was implemented in communities and schools that covered as well the project and non-project soums. For that matter, all

[1] There is some indication that the WASH project in school increased enrolment and the access to school of herders' children but only in Burentogtokh. In an FGD, the Governor of Burentogtokh attributed the increasing school enrolment to better WASH facilities in school. Also according to the Governor, (an indirect) result of improved WASH in dormitories is increased herders' family incomes – mothers also work now because they can leave children in the dormitory without worry – a positive indication that improved WASH in dormitories also promotes equity.

or almost all student respondents in project and non-project soums said that they received hygiene education in schools. The methodology was explained in Section III. The complete results of the surveys are found in Annex 6.

Presented below are the main findings of the survey on the use of the WASH facilities and on knowledge and behavior of children. The nonfunctioning of some facilities affected their use by school children and to some extent, their hygiene behavior.

Hand washing and the use of WASH facilities in schools and dormitories

- *On hand washing in schools and in dormitories and homes* – The percentage of school children washing their hands one to two times a day in school is 69% in project soums and 45% in non- project soums. The percentage of school children washing their hands one to two times a day in dormitories or in homes are 98% and 96%, respectively for project and non project soums. Both non-project Tumurbulag and AlagErdene also have indoor hand washing facilities in the dormitories, hence the insignificant difference, suggesting as well that when hand washing is convenient, children would be more inclined to do it. In school, the difference in percentage in hand washing could be attributed to the new hand washing facilities in the schools in project soums. School children in project soums said that there are enough hand washing facilities (68%), they are near schools (62%) and near dormitories (75%) compared with the corresponding figures (45%, 32% and 8%) for non-project soums.

  The percentages seldom washing hands are about the same as those who said hand washing facilities in school are insufficient. Other factors affecting children's frequency of hand washing include distance of hand washing facility from classroom, clean but generally not available water and no soap and towel (see Table 8). To cope, some students' preferred behavior is to wait till they get home or be in the dormitory to wash hands. In addition, many girls and boys of primary schools bring their own soap and towel, use wet wipes instead of washing hands, a pervasive practice in Galt and Khatgal and the two non-project soums, a practice that cannot take the place of proper hand washing with soap and water.

Table 8: Proportion who said hand washing facilities are enough, near school / dormitory toilet, child use soap in washing hands

Soums	Enough hw facilities	Near school	Near dormitory	Water available	Water clean	Soap and towel avail	Child use soap
Burentogtokh	0.78	0.52	0.59	0.86	0.92	0.95	0.95
Galt	0.59	0.36	0.84	0.56	0.81	0.67	0.92
Khatgal	0.48	0.67	0.48	0.58	0.94	0.48	0.83
Shine-Ider	0.76	0.87	0.89	0.78	0.87	0.76	0.91
Tarialan	0.75	0.86	1.00	0.75	0.95	0.56	0.69
Tunel	0.71	0.40	0.77	0.95	0.89	0.61	0.87
Alag-Erdene	0.33	0.20	0.03	0.22	0.60	0.52	0.82
Tomorbulag	0.56	0.45	0.18	0.59	0.74	0.65	0.79
Proj	**0.68**	**0.62**	**0.75**	**0.75**	**0.90**	**0.67**	**0.86**
Non-proj	**0.45**	**0.32**	**0.08**	**0.41**	**0.67**	**0.59**	**0.80**

Source: Survey of KASP in schools, September 2015

- *On the use of school and dormitory toilets* – The percentage of school children using the school toilet always is 54% in project soums and 50% in non project soums. In the dormitories where there are fewer users per toilet, the percentages of users are 79% and 76% for project soums and non project soums, respectively. The differences are not significant. The implied percentages of non-users are substantial. For project and non-project soums, dirt and smell are the main reasons keeping the children from using the toilets although more pronounced in the non project soums.[2] Many children, more than half those in Khatgal and Shine-Ider - commented that they instead attend to their needs at home. Other reasons for infrequent use of toilets in schools are the distance of toilet facility from classroom, no privacy, locked toilet doors when electrical power goes out and smoking in toilet by older boys. The pattern of infrequent use of dormitory toilets is the same as that in school.

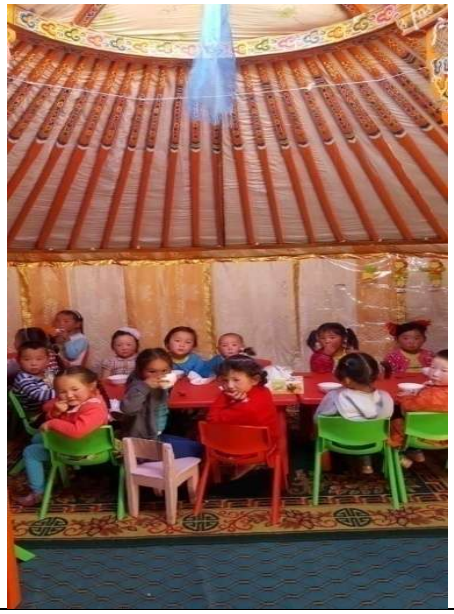
Box 4: School girls from Tarialan washing their hands in newly built

[2] Unsurprisingly, the evaluation team found evidence that some open defecation remains is still practiced in school.

- *On the use of dormitory showers* – The percentage of school children using the dormitory showers at least once a week were 95% in both project and non project dormitories although 21% in the project dormitories use them once a day or every other day compared to only 6% in the non project dormitories. There is little difference on whether there is sufficient water pressure or not with 69% of children in project dormitories saying there is enough pressure against 70% among those in the non project dormitories. Water availability in winter is higher in the project dormitories with 60% of the children saying they have water as against 55% among children in the non project dormitories. Children in project dormitories have more privacy in shower stalls at 90% against 81% for children in the non project dormitories. The hot shower is one of the more appreciated experiences with the WASH school, according to parents, and for which the project dormitories have an advantage over non-project dormitories.

- *On the use of water dispensers in school and dormitories* – The percentage of school children in the project soums getting their drinking water from water dispensers from school or dormitories are 73% and 83%, respectively. Many respondents staying at home in the soums replied no when asked if they get drinking water from school as most of them bring water from home. This could be similar to the higher percentage of those getting their drinking water from the dorm. Non project soums have no water dispensers in schools.

Box 5: School children from washing hands before meals in Shin Eder



Box 6: School children about to enjoy their meals after washing their hands in Tumurbulag.

Knowledge of school children on hygiene and behavior change

Box 7: Behaviour change communication posters as part of inculcating hygiene education in the Project schools covered.

The survey showed the extent of knowledge on hygiene gained by the school children from the hygiene promotion activities in school in both project and non project sums. It also showed how it is being promoted in the school and in their homes or dormitory. While hygiene promotion activities are being implemented in all schools and kindergartens by the Department of Health in Khuvsgul Aimag, those in the 12 project soums had the benefit of improved BCC materials, more and improved training activities at the aimag and soum levels, and tools like the hygiene promotion kits for school hygiene promoters and trained school doctors and teachers.

- *On hygiene promotion training of school children* – There is hardly any difference in the proportion of school children being taught hygiene and cleanliness in schools between those in project and non project soums except for those in the higher secondary classes. Among the children in different grade levels in the project soums, 95% in primary school, 100% in lower secondary and 99% in higher secondary were taught hygiene and cleanliness. In the non project soums, 95% in primary school, 100% in lower secondary and 88% in higher secondary were trained. The finding attests to the Department of Health's strong hygiene education programme throughout the aimag.
- *On school children being taught different hygiene topics* – The exposure to different hygiene topics of school children in project relative to non project schools is uniformly greater and substantial in topics beyond hand washing, less with the general topics on how diseases spread, personal hygiene and proper water storage, and least on the two practical topics of

proper toilet use (72.8% for project and 43.2% in non project schools) and keeping toilets clean (59.4% for project and 39.2% for non project schools). The difference is not so pronounced in topics on hand washing such as importance of hand washing (90.9% against 90.4%), when to wash hands (91.4% against 84.0%) and how to wash hands (93.1% against 90.4%) all in favor of school children in project schools. On the level of knowledge, the results point to the need for more specific focus on topics related to proper toilet use and keeping toilets clean to make sanitation interventions effective. Later sections would however show that hand washing practice as well would need strengthening.

- *On reasons for hand washing and diseases one might get* – The school children were asked why it is important to wash hands and the diseases one might get for not hand washing. For children in the project schools, the important reasons hand washing are to avoid getting sick (86.5%), to prevent the spread of diseases (48.5%) and to remove dirt (26.4%). In the non project schools, the responses for the same reasons are to avoid getting sick (86.2%), to prevent the spread of diseases (37.4%) and to remove dirt (35.0%). Colds, diarrhea and hepatitis are the diseases mentioned that one gets for not hand washing. Comparison between the responses of children from project and non project schools does not vary much for colds (82.0% against 85.4%) and diarrhea (37.3% against 34.1%) but varies significantly for hepatitis (23.6% against 18.7%).
- *On when hands should be washed* – Hands should be washed before eating, after touching garbage and before cooking are the most frequently enumerated instances for washing hands. There is little difference between project and non project groups. School children from project schools responded 87%, 85% and 81% respectively for the three enumerated instances. Responses from children in the non projects schools are 88%, 82% and 82% respectively for the same three instances. Surprisingly, after urinating and after defecation have lower responses of 79% and 73%, respectively from project school children and 74% and 78%, respectively from non project school children. The list of instances for washing hands enumerated by children can be found on Table 9. A lot more effort must be given to motivate children to wash hands after using the toilet.

Table 9: Proportions of students by enumerated instances when hands should be washed by soums and evaluation role

Soums	After urinating	After defecating	Before eating	Before cooking	After cleaning house or school	After touching garbage	After blowing nose, sneezing, coughing	After playing outside	Before taking care of baby
Burentogtokh	0.88	0.81	0.94	0.90	0.84	0.94	0.87	0.88	0.49
Galt	0.55	0.81	0.86	0.86	0.86	0.83	0.84	0.78	0.56
Khatgal	0.87	0.66	0.90	0.82	0.74	0.85	0.76	0.76	0.46
Shine-Ider	0.77	0.72	0.88	0.75	0.71	0.77	0.71	0.69	0.37
Tarialan	0.82	0.65	0.86	0.77	0.66	0.89	0.72	0.74	0.40
Tunel	0.83	0.72	0.80	0.74	0.75	0.82	0.72	0.75	0.46
Project	**0.79**	**0.73**	**0.87**	**0.81**	**0.76**	**0.85**	**0.77**	**0.77**	**0.46**
Alag-Erdene	0.81	0.82	0.92	0.85	0.79	0.87	0.79	0.81	0.42
Tomorbulag	0.68	0.75	0.84	0.79	0.71	0.78	0.65	0.71	0.38
Non-project	**0.74**	**0.78**	**0.88**	**0.82**	**0.75**	**0.82**	**0.72**	**0.76**	**0.40**

Source: Survey of KASP of school children, September 2015

- *On reminders in school and the home for practicing proper hygiene* – The school children were asked whether they are reminded on proper hygiene practices in the schools and homes through posters, by teachers and parents to change their behaviors. In project soums they are reminded in schools and dormitories through posters (83%) and by teachers and dormitory staff (83%) and in the home by parents (86%). Teacher and student promoters received training and conducted hygiene education promotion for students in schools, according to the teachers and student promoters interviewed. In the non-project soums, children are reminded in schools and dormitories through posters (88%) and by teachers and dormitory staff (76%) and in the home by parents (90%). There is no significant difference on the reminders except by school teachers and dormitory staff in schools and dormitories.

Influence of WASH in school projects in children's home

Parents are aware of the improvements in water and hygiene facilities in schools because their children talk about them and requests that they have also have them at home. Among the most appreciated facilities are the showers, hot water and flush toilets – modern facilities that parents interviewed feel their children should be at least familiar with and be aware of the "traditional practices to avoid when they are in UB". In addition, from the WASH in community project parents recognize their role in strengthening the children's hygiene education.

3.3 Improving performance and effectiveness

Keeping the facilities functioning and effective and further improving proper hygiene practices among the children in schools and kindergarten will require addressing the issues that were summarized in the last two sections on efficiency and effectiveness. The following recommendations will be presented according to the objectives of this project with the first group on the WASH components and the second on government mechanisms for institutionalizing WASH in schools and kindergartens. The project has shown a lot of lessons on how these can be improved and done better toward sustainability and replication.

WASH facilities

- Design of piping systems – consider running water and wastewater pipes running parallel to heating pipes of schools or soums. Study the feasibility of using pipe insulation used in the UNDP/MCUD pilot project by looking at installation cost against long term saving on heating which will no longer be required to prevent freezing.
- Design of indoor WASH facilities – must be designed as small water and wastewater utilities complete with source, piping and treatment and disposal systems. These should also be operated and maintained as combined small water and wastewater systems.

- VIP latrines close to school and dormitory buildings – with the redesigned VIP latrine, consider moving it closer to schools and dormitories to take advantage of the heating systems in these buildings. Proper maintenance and use must be a joint undertaking by the school and dormitory caretakers and the children. The latter will require reinforcing proper use and keeping toilets clean messages in the hygiene promotion programme.
- Design of VIP latrines – look into the feasibility of adapting a double pit concept with composting and regular cleaning at shorter intervals (1-2 years) in smaller pits. Enhance composting and odor removal not just from a properly installed vent but also with the use of the compound for enhancing decomposition as developed by the MAST's Institute of Microbiology.
- Construction supervision and monitoring – this needs to be strengthened as part of capacity building to undertake WASH projects. A system of support from MCUD/DCUD will be needed if capacities at the aimag and soum/school levels are to be developed. This will avoid shoddy construction and inferior materials and equipment from being installed and accepted.
- Connection to a soum system – the ideal case would be for schools, dormitories and kindergartens to be connected to soum utilities (communal centers) taking care of combined heating, water and waste water systems. Schools will be treated as customers and billed and served as such. The schools need not be bothered with operating and maintaining a water and wastewater utility with attendant O&M problems they are not prepared or trained to solve. Otherwise, they have to be trained and supported at the soum and aimag levels in operating and maintaining their own systems.
- Operation and maintenance – this will require technical and financial management and operations without the billing and collection. Institutionally, this will require assigning responsibilities for managing the system, operating the system, budgeting of expenses and managing costs and expenditures. Each school and kindergarten should have staff trained to take on these responsibilities. Operation and maintenance manuals specific to the equipment used should be provided. Training courses will be needed if the number of soums with WASH in schools and kindergartens will be expanded.
- Learning from others – the 12 participating soums have learned a lot of lessons from their experiences in operating and maintaining the new WASH facilities. It would be good if workshops among school managers and operators of WASH facilities are held to share experiences on problems and solutions they have encountered, whether these are technical, financial or institutional. Such workshops should also invite institutions involved in the main implementing institutions at the aimag and national levels who were involved in the planning, design, construction, monitoring and overall implementation of the project. Many water and sanitation utilities in other countries are involved in sharing experiences and helping one another

through networks and partnerships to improve O&M performance. In Mongolia, the Mongolian Public Utility Association could be one such example.

Proper hygiene, use and maintenance

- Toilet use and cleanliness – the survey shows that there is a need to improve on toilet use and cleanliness among the school children. This will be needed in helping keep the toilets clean and enhance their use by children. The responsibility for keeping the toilets clean should be shared with the users such as children and this should be part of hygiene education.

3.4 Effective government mechanisms for WASH in Schools and kindergarten

The project gave the government the experience in planning and implementing WASH in schools and kindergarten especially at the aimag and soum levels. It should build up on these experiences by strengthening the institutions in their various roles in managing such projects.

- Working with WASH sector agencies and partners – many of the problems encountered by agencies and partners in the WASH sector in planning and implementing WASH projects are unique to Mongolia's harsh environment. There are a lot of lessons to be shared especially on the solution to problems that are common to them. Regular sharing sessions and visits to successful projects will help distill such experiences that can be applied to future projects.
- Soum communal centers was service providers – with the plan to develop so called "new soums" planning should include WASH services for schools and kindergartens together with heating systems. Let the communal centers worry with the provision of water and wastewater services to schools and kindergartens.
- Minimum requirements for WASH in Schools and kindergartens – these guidelines will help in enhancing the inclusion of WASH facilities and hygiene promotion in schools and kindergartens. The Asia Foundation is advocating for its implementation. However, these requirements should be assessed as to its feasibility in terms of the capacities of the institutions required to implement it as well as the schools who will follow them, the cost to those implementing the guidelines and those who will be required to follow the guidelines so that all the costs will be considered in their implementation.

4. Sustainability

The decision of UNICEF to decentralize the governance of the project and establish the focus and arrangements of actual implementation at the sub-national (Aimag and soum) projects appears to be practical and realistic. It facilitated the building of nascent capacity at the provincial and soum level for organized decision-making and technical support for the management of a basic infrastructure and its accompanying utility support like the provision of water supply and sanitation facilities as well as promotion of hygiene behavior and practices. It

also allowed the Project to be less constrained by turf issues that are sometimes attendant to national agencies execution of WASH projects.

This section looks at the drivers of sustainability noted by the evaluation team. Identifying them in this exercise is important for the Project as it addresses the O&M and capacity issues but more importantly in going to scale. They need to be fully recognized and enhanced as drivers and examined as to how they can minimize the risks attendant to the project also discussed in this section. A net estimate of the sustainability of the Project is provided at the end of the section. .

4.1 Drivers of Sustainability

The popularity of WASH Project among the wide variety of constituents gives its base support for continuing importance and support to the project.

The need for more modern and hygienic WASH facilities in school is undoubtedly popular and highly endorsed by the cross-section of the population including the political leadership, parents, school teachers and the students themselves. Coming mostly from poor families, the students' access to these comparatively modern WASH facilities in their schools is perceived by their parents not only as an important health intervention but is also regarded as an important foundation for their children to prepare them in their future travel as they seek higher education, gainful employment and stay in the big cities like Ulaanbaatar and Darkhan and participate in more modern societies.

Box 8: Chair and members of the Project Steering Committee explaining the operations of the PSC to the evaluation team

For the teachers, the provision of WASH facilities in schools and dormitories, have given them the opportunity to complement the teaching of behavior and skills with the proper facilities. It has also enabled them to initiate innovative ways to attract nomadic parents to release their school age children from the burden of attending to their cattle and instead participate in learning in school. In Buruntoghtogh, the nomadic parents have been invited to stay with their children for a week before the school opens so they can appreciate the comfort and cleanliness of the WASH facilities that they have in the dormitories of the school. This kind of innovative strategy has visibly captured the appreciation and trust of the nomadic herders in the soum's school compared to the past when there was no WASH facility. It's also worth noting that, the performance of the school principal in particular will now include the proper management and monitoring of the construction, operation and maintenance of the new WASH facilities. This new work contract has opened up new challenges in the work assignments that he has traditionally agreed to do.

Unlike the school principals in the cities, the ones in the soums will now have to succeed in managing the WASH facilities apart from managing the academic curriculum in the school. This new development, has indeed, facilitated friendly competition among the school principals. This is in the long term supportive of sustaining this project. To the soum leaders, particularly the Governor and the Peoples Khural, the desire to upgrade the quality of their schools begin with improving its WASH facilities. Almost all the Governors that have been interviewed have emphasized their efforts to mobilize resources both from their Aimag and the national agencies as well as 'supporters' of their soum who are normally natives of the soum and have made progress elsewhere. The soum governors have also been currently engaged in tackling the issues of providing proper water system, heating and other utility support for the new WASH facilities (as in Tarialan, Galt, Tunel, etc.) that have been introduced in their soums.

This perception of relevance and importance appears to have permeated the leadership at the Aimag level both in its local government unit and the implementing departments that fall under the administrative supervision of the Aimag governor. Indeed, the popularity of the WASH project has contributed in building up the response and coordination mechanism of the Aimag government that has to be tested as major driver of sustainability. As an advocate and action man for promoting a Child-friendly aimag, the Governor has facilitated the setting up of the provincial mechanism for coordination and monitoring of the WASH project in schools directly under his office, established investment for children as a major allocation for the LDF, organized the experience exchange learning forum in partnership with MECS/MOH that mobilized all Aimags to understand and work for the endorsement of WASH in school initiative at the national level and initiated the preparation of a long-term plan that will institutionalize the foundation of WASH in schools in the whole Khuvskul Aimag.(These will be discussed accordingly in other sections).

The effective coordination between soum health center and school management developed in the Project augurs well for its sustainability.

The substantive partnership of the soum health center workers and the school managers (school principal, physician, social worker) in ensuring that effective hygiene promotion have been noted in all the soums visited. In general, the following efforts that characterize the partnership of the health workers and the schoolteachers have been observed:

- joint planning for the conduct of hygiene education and the school physician have took on the actual training with the support of the soum health promotion specialist;
- the school physicians have also taken the leadership in organizing the students various groups engaged in peer teaching on hygiene and environmental sanitation,
- joint conduct of monitoring of incidence of diseases, particularly water borne, and assessed hygiene behavior of children and
- both sectors have participated actively in the soums' Peoples Khural particularly in providing update on the progress of school and community based water, sanitation and hygiene initiatives. Both schools and soums health workers have oftentimes jointly participated in the training and capacity building initiatives undertaken by partner NGOs (i.e. World Vision, ACF, Asia Foundation) in Murun, Khuvskul or in their respective soums. This seamless partnership appears to facilitate long-term continuation of the WASH in schools/kindergarten initiative.

Adoption by MECS/MOH/MOF of Norms and Minimum requirements for WASH in schools

Adherence to established national policy, norms and guidelines have been traditionally valued in Mongolia as an important means of achieving adopted social objectives. Although at times, these policy guidelines and norms are not effectively translated into operational terms, laying out these norms greatly enhance focus for action and collective monitoring of work progress.
The tripartite adoption by MECS/MOH/MOF of the national norms and requirements for WASH in schools has been viewed by UNICEF and its partners as strategic in accelerating and sustaining action for WASH in all the schools in Mongolia. It defined the minimum facilities, capacities and responsibilities to ensure achievement of Child friendly schools. These norms will greatly facilitate a clearer understanding of both the value of health and hygiene initiatives and lay out the specific areas of investment that will be required for LGUs (aimag/soums/baghs) for implementing the WASH in schools initiative. Moreover, efforts to define responsibilities for coordination, implementation and monitoring are deemed useful in settling the inter-agency friction that has continuously plagued the water sector in the country.

Allocation of Local Development Fund (LDF) for WASH at Aimag and Soum level

The innovative allocation of the Khuvskul aimag and soums of no less than 10 per cent of their Local Development Fund (LDF) for programmes for children, including WASH facilities, has been noted to underline the commitment of the Aimag to pursue its efforts to promote budgeting for children and lays out a system of co-financing at the aimag-wide level with full

participation of the Peoples Khural (community assembly). Given the fact that there are numerous areas of competing investments and the amount of the available LDF funds available remain comparatively small, this initiative reinforces the importance it has attached to building the living and learning environment for its children. By assuming some measure of financial contribution to the WASH in schools project, it is envisaged that Khuvskul Aimag will enhance further replication and potential expansion of the Project and perhaps sustaining it in the long term.

Perspective Plan of Khuskul (2017-2020) includes institutionalization of WASH in schools

Another key initiative that is seen to facilitate long-term scaling up and investment on **WASH in** schools is the preparation by Khuvskul Aimag of its long-term Perspective Plan for the period 2017 up to 2020, which is seen to be coherent with the Comprehensive National Development Strategy (CDNS). The strategic intent to include the institutionalization of the WASH in schools initiative in the Perspective Plan is clearly based on its experience gained in implementing the project in its 12 soums. This planning and eventual budgeting exercise will facilitate the tackling of technical, institutional and financial issues and implications of an Aimag-wide exercise in creating Child friendly schools and communities. It is also envisaged that the Perspective Plan will be utilized as basis for more organized efforts for resource mobilization at the sub-national, national and international levels.

Budgetary support from MOF and MECS: Beginnings of a national WASH in school programme

From all indications observed from the KIIs and FGDs conducted at the sub-national and national levels, it appears that the budgetary commitment by the MOF and MECS for the WASH in schools project has come from “pressure from below" that was built from:

- the allocation of Khuvskul Aimag of their own LDF for WASH in schools;
- the experience exchange of the 12 soums to other non-target soums that showcase the benefits of WASH in schools project;
- the strong support of the various departments (education, health, construction and urban development, environment, etc.) to the WASH project and
- the representation of the various school principals to the central MECS for stronger financial support to the WASH project given the smallness of their Aimag/soums budget. This collective advocacy for national resource allocation for the WASH project has also been viewed as important area of investment for the poorer aimags both in the Western and Khanghai regions as emphasized in the MDG final report and the CDNS. It is worth noting at this juncture, that all the Governors from all the 6 target soums and the two that come from non-target soums, all coming from different political parties, have spoken strongly of their support for the WASH project in schools. They appear to be united with their Aimag governor for working for sustaining this project.

PSC WASH Coordinator Role Played Well

In the WASH project's efforts to build effective systems and capacities for coordination of inter-agency efforts and responsive contact with the participating soums, the Project Steering Committee has played a crucial role. Although there were a number of pitfalls in conducting project implementation oversight and technical monitoring, the PSC actively projected the leadership of the Office of the Governor in resource mobilization, guidance in reporting and monitoring, conduct of the hygiene training and technical training and most importantly stimulating experience exchange among target and non-target soums. It has also played its role well in coordinating with national partner agencies and keeping the WASH project away from the sector intramural at the national level. As a sustaining key element, the role of the experienced PSC will be central to long-term work in WASH in schools initiative.

4.2 Major Bottlenecks and Risks

Despite the presence of strong drivers for replicating and sustaining the WASH in school project, there are also potent risks that need to be attended to in its remaining period of implementation. Many of these have been discussed in the section on findings on efficiency but let me highlight at this juncture a number of these key risks confronting the project.

Capacity of schools and soums remain inadequate.

It is evident that many of the O & M issues have-not been anticipated in the project plans and therefore require a more organized and thoughtful training that focus on the key issues identified in the evaluation. These will be necessary for both the school principals/administrators and technicians (electricians/carpenters).

The soum leaders in charge of budgeting, construction and engineering need to be also trained appropriately for the WASH project, considering that O&M costs were not budgeted in the project plan and the connection to proper utilities like heating etc. need to be properly planned for.

These training will need to be conducted with the proper O&M manual already completed and ready for actual use after the training. Appreciation of technical issues and constraints like ventilation and odor of VIP latrines, effects of freezing to waste water and clean water and ground water operations in perma frost areas ,etc need to be also properly introduced.

Project oversight and M&E for a complex project of this nature

Although comparatively small in scope and project costs, the WASH in school project is complex given the following:

- the harsh climate that it has to deal with in designing the options of facilities for construction
- the uncertainty of technical and economic affordability options that it has deal with in the various soums
- capacity of contractors from urban centers who normally are able to dominate the bids for contracts and sub-contracts and
- also the lack of oversight capacity at the soum level inters of both monitoring of construction and hand-over of completed projects.

A strong oversight mechanism on the part of UNICEF, the Aimag and the soums need to have been properly designed to minimize the complaints related to poor performance and follow up of some contractors and sub-contractors. The proper coordination and communication of these oversight mechanisms could have increased the functionality and usage of the WASH facilities in the various soums.

Project of this nature requires rigorous, comprehensive and detailed design, contracting, procurement, construction, O&M and oversight planning

Key development agencies engaged in infrastructure projects of this nature (i.e., ADB, JAICA, etc.) have traditionally prepared exhaustively in all the facets of project development: from pre-feasibility, feasibility, pre-appraisal/appraisal before actual grant or loan is processed. Inability to do so would have meant the cancellation of agency involvement or investment in the project.

***GOM medium-term and long-term financing remains to be secure*d**

The clear definition of the Government's financial investment in the WASH project need to be ascertained as early as possible to determine its efficacy and importance to the overall resource base for sustaining the project at least for the next five years. Inability to do so on the part, particularly of the UN and UNICEF can be a major risk in sustainability of the project.

4.3 Overall assessment of sustainability

On balance looking at the risks and the drivers our assessment of sustainability at this point is favorable. The risks can be addressed by the recommendations in the evaluation and the drivers of sustainability summarized below constitute strong foundations of the long term sustainability of the project.

- Based on various evidence observed and triangulated, GOM and the people of Mongolia value the importance and need for WASH in school for its long-term education, health promotion and benefits of modernization.

- The experienced gained by GOM in applying the WASH in schools technology and capacity building components have been amply demonstrated in various settings, i.e. urban ger areas, arid Gobi areas and Khuvskul Aimag.

- There appears willingness and capacity of central government and local governments to continue financing for WASH in school given its high political acceptability across party lines.

- Convergent delivery of BCC messages of education. ECD and health services network at both national and sub-national levels provide strong support to WASH in school infrastructure.

- Readiness of the population to break tradition and adopt acceptable and modern technology for enhancing the learning environment and ensuring health of children.

V. Key Lessons

Apart from the major findings and conclusions already well laid out in the previous sections, the study identified key lessons emerging from the planning and implementation of the project. These lessons are as follows:

1. Complex project of this nature requires a more rigorous and comprehensive planning to avoid the various O&M and technical issues encountered. While some planning did take place on hindsight this proved inadequate given the many aspects of the project and the anticipation of the operational and technical issues as well as the financial, organizational and capacity issues were not fully undertaken. As a specific case, the Project did not define and discuss the budgetary implications of the construction of the WASH facilities to the schools and the soums which at the later stage were responsible for O&M and technical connections to the appropriate water supply, heating, waste water system, resulting to the inability of some schools and their soums to gain full usage of the WASH facilities, given their lack of O&M, technical and budgetary capacity to respond.

2. A more rigorous oversight of the project is also necessary at all times and must be executed by a fully staffed third party monitor to ensure timely monitoring and problem detection and management. Many issues were not detected and acted timely due to the absence of such permanent and focused oversight in the project.

3. The lack of oversight was compounded by the fact that community people and schools in the project like other recipients of projects do not complain for fear of rocking the boat and appearing ungrateful. In-depth FGDs in a trusting environment will be necessary for future similar undertaking.

4. While the support for the project is overwhelming the local capacity which to start with is low has not been adequately built with negative consequences on the project[3]. This goes back to the first lesson begging a more thorough and comprehensive capacity building plan that begins with a full understanding of the depth and scale of the inadequacy of capacities on the ground.

5. A WASH project with facility component often dwarfs the soft components like capacity building, O&M and organization and definition of responsibilities which are equally important to the success of the project.

6. There are positive unintended effects of the project only now surfacing in the evaluation. Expansion of the project needs to recognize such effects for optimization. The various soum leaders and school principals reported to the evaluation team about the increasing interest of nomadic families to send their children to school dormitories which have the WASH in school facilities. Reports of increasing enrollment in some soums have been attributed to the attraction of the WASH in school facilities. Soum governors have also spoken of reduction of out migration to Ulaanbaatar and the Aimag governor reconfirmed such view in the evaluation team's interview with him. While it is too early to validate such positive impact given the recent completion of the WASH facilities in the target schools, it is important that the projected expansion of the project to other aimags recognize such effects in the design and monitoring and evaluation of the future project.

7. The participation of the beneficiaries from both the soums and the schools is a major factor that contributed to successful project implementation and thus should be fully incorporated in the various phases of the project. It has been noted, however, that in many soums (Tarialan, Tunel, Galt, Shin-eder) KIIs with school principals indicated the lack of understanding of the private contractors in following suggestions being made by the school teachers and students. The private contractors have consistently argued that they are just following the construction design provided by UNICEF for the project and hence it will be difficult for them to make the necessary adjustments. It appears that failure to undertake substantive participatory planning in the design phase of the project must have caused the complaints of non-responsiveness of the project to beneficiaries' suggestions during the construction stage[4].

[3] Handover of the project is another major area where lessons in capacity at the school and soum level have been identified to be a prominent gap. The project has put a lot of importance in the role of the soum, the school and also the UNICEF field office in ensuring the acceptability of the construction conducted by various contractors. However, it has been observed that the various Soums' Working Groups appear to have no technical capacity to check the quality of most construction completed. Similarly, the school principals in most instances did not also have such technical capacity. The same point was also emphasized by the Head of UNICEF's field office in Khuvskul. It appears that on the whole, the Technical Advisory Group from the Aimag has the technical capacity to make the technical assessment, but it is clear that the stakeholders at the soum level who will have to sign the hand over letter after the completion of the project did not. Proper assessment of the match of responsibilities and capacities is an important lesson that has to be looked into in the replication of this project.

[4] In most of the soums a common complaint identified by both schools and soum officials are the lack of interest of the private contractors in following up issues of breakdowns and similar problems that they have reported

VI. Recommendations

The nine programmatic recommendations come in two sets: 1) the first set are recommendations directed at the continuation of the WASH Project in the remaining year of UNICEF'Ss country programme (2012-2016) and 2) the second set of recommendations consists of actions directed at 'going to scale' beyond 2016 that can be pursued by a consortium of partners with the participation of UNICEF and other international agencies and financial institutions with the leadership of the GOM. The technical recommendations are found in Section IV, 3.3 and 3.4.

1. **Current GOM –UNICEF Country Programme for 2016**

- It is important for UNICEF and the Khuvskul Aimag and soums to address the O&M, capacity building and technical issues that need ironing out conceivably with more rigor in design and follow up. It is important at this juncture to synthesize the lessons that have been learned in the challenging areas of O&M, technical issues and capacity building and bring these lessons to bear in future expansion.

- It is also valuable to provide support to Khuvskul Aimag in its efforts to integrate WASH in schools in the design of its Perspective Plan (2017-2030). A clear discussion and articulation of the kind of support that will be needed (planning, design, M&E, etc) will have to be spelled out to facilitate early action and response to the interest of the Aimag.

- In the same vein, it is also strategic for UNICEF to initiate discussions/negotiations with MOF and MECS with respect to their technical and related needs to pursue a potential scaling up initiatives for the WASH in school project in the next year and beyond. The request for technical assistance indicated by the two ministries should be taken seriously as an integral part of preparing UNICEF's work plan for the coming year.

- The hygiene promotion component, while on the whole effective and has great promise for sustainability, will need to develop a follow up hygiene promotion initiative to address the gaps in reaching the remaining quarter of the student population that still have to adopt behavior and practices related to hand washing after toilet use and other challenging areas that require serious attention.

immediately after project completion. In response, most contractors have argued that these breakdowns are not their responsibility and not covered with their warranty. The Evaluation team did not have sufficient time to look into this but this issue is clearly a major concern for both UNICEF and GOM especially if project replication is envisaged in the medium term.

2. Going to Scale

- UNICEF and GOM need to forge consensus on the technical package for WASH in schools that will be replicated and scaled up given the observations and lessons that have been learned thus far from the Project.

- It is also important for confirm the funding that will be coming from the GOM and other partner agencies (particularly the ADB) to ensure the expansion of the WASH project in schools.

- As UN cluster lead for WASH, UNICEF should lead in working with the GOM, the UN and other partners and develop an interagency WASH project among the agencies for the next UN Development Assistance Programme for maximum convergence. A corollary task would be to launch a joint review of the experiences particularly of UNDP, UNICEF and WHO in their previous joint WASH project in the current country programme to highlight potential areas of cooperation and further partnership in the coming years.

- It is evidently clear that the tripartite agencies (MECS/MOH/MOF) will require technical assistance in the implementation of the Norms and Minimum requirements for WASH in schools, particularly in undertaking the impact regulatory assessment implications of the norms and requirements. This will have to be considered appropriately in sustaining these guidelines. UNICEF could support this process closely.

- As the opportunity presents itself, GOM should take the leadership in developing a National Partnership Programme for WASH in Schools and (possibly communities) as Mongolia's key contribution to the implementation of the new Sustainable Development Goals (SDGs). Given the strategic importance of access to water and sanitation in Mongolia and the climate change challenge that it is faced with, the pursuit of this objective is worthy of strong advocacy and resource mobilization.

List of References

1. Assessment of WASH Financing and Budgeting in EAP, Inception Report, Oxford Policy management, Feb 2015
2. Mongolia Millennium Development Goals, 5th National Report, 2013
3. Mongolia WASH in Schools and Kindergartens, Project Design Document, 2013
4. Progress Report for the Department of Foreign Affairs and Trade, March 2015
5. State Great Khural (Parliament of Mongolia) Resolution Endorsing Millennium Development Goals-based Comprehensive National Development Strategy , Feb 2008
6. UNICEF Global Evaluation Reports Oversight System(GEROS), January 2013
7. WASH in Schools and Kindergartens Project, Inception Report to AusAid , Dec 2012
8. WASH in Schools Monitoring Package, UNICEF, April 2011
9. WASH Initiative for the Rural Poor in 21 Districts in Uganda, End of Term Evaluation, Final Report, July 2012

List of Annexes

1. List of Persons Met and Interviewed 1.docx (20.19KB)
2. A - List of Participants at the Presentation of the Preliminary Findings GOM, UNICEF and NGOs
3. B -- List of Participants at the Presentation of the Preliminary Findings UNICEF and NGOs
4. C - Activity Timeline
5. Revised Project Activities Implementation Schedule and Budget.
6. Project Baseline data
7. Project Planning, Implementation
8. Full Report on Survey on knowledge, attitude, skills, and practice of students

Annex 1: List of Persons Met and Interviewed

ULAANBAATAR

UNICEF Mongolia

1. Mr. Roberto Benes	UNICEF Representative
2. Ms. Judith Bruno	Deputy Representative
3. Mr. Batnasan Nyamsuren	Water, Sanitation and Hygiene (WASH) Officer
4. Ms. Khurelmaa Dashdorj	Monitoring & Evaluation Officer
5. Ms. Odgerel Myagmar	C4D Officer
6. Ms. Surenchimeg Vanchinkhuu	Health Specialist
7. Mr. Robin Ward	WASH Consultant
8. Ms. Bolorchimeg Bor	Education Specialist
9. Ms. Enkhnasan Nasan-Ulzii	Chief of Social Policy
10. Ms. Zoya Baduan	Community Development Officer, UNICEF Khuvsgul Field Office

Government Agencies

1. Mr. Tsogtbaatar Byambaa	Director, Public Health Institute
2. Ms. Unursaikhan S.	Head of the Environment Health & Toxicology Research Center, Public Health Institute
3. Ms. Amardulam N.	Researcher, Environment Health and Toxicology Research Center, Public Health Institute
2. Mr. Gantulga Bold	Head of Division of the Department of Coordination and Policy Implementation, Ministry of Education, Culture and Science
3. Mr. KhuyagtsogtOgnon	Head of the Budget Expenditure Division, Fiscal Policy and Planning Department, Ministry of Finance
4. Mr. SanjaadorjMijiddorj	Specialist of the Infrastructure and Utilities Budgeting of the Budget Expenditure Division, Fiscal Policy and Planning Department, Ministry of Finance
5. Mr. Badrakh Tsend	Secretary General, National Water Committee
6. Ms. Erdenetsetseg R.	Head of the Department of Housing and Public Utility Services, Ministry of Construction and Urban Development

Development Partners

1. Ms. Bunchingiv Bazartseren	Environment Team Leader, UNDP
2. Ms. Tsendsuren D.	Operations Manager & Chief Engineer, World Bank UB Clean Air Project
3. Ms. Munkhjargal Birvaa	Programme Manager, Dep't of Foreign Affairs and Trade, Australian Government

Non Government Organizations

1. Ms. Ariuntungalag D.	Director , Programme & Cooperation Department, Mongolian Red Cross Society
2. Mr. Gantulga B.	Adviser, Health Promotion Programme, Mongolian Red Cross Society
3. Ms. Oyuntuya	Officer, Health Promotion Programme, Mongolian Red Cross Society
3. Ms. Narantuya Sanduijav	WASH Specialist, Health Department, World Vision
4. Ms. NarantsetsegTsevegsuren	Health National Coordinator, Health Department, World Vision
5. Ms. BattserenTserendorj	CEO, WASH Action of Mongolia
6. Ms. Ariunaa Purevchimed	Hygiene Promotion Manager, WASH Action of Mongolia
7. Ms. Bolormaa Purevjav	Senior Project Advisor, Asia Foundation
8. Ms. Erdenechimeg Chimeddorj	Field Coordinator & Water Quality Officer, The Asia Foundation
9. Mr. Gantulga Ganbaatar	Project Officer, The Asia Foundation
10. Ms. Katherine S. Hunter	Acting Country Representative, Asia Foundation
11. Mr. Purevjav Bat-Ochir	Executive Director, Mongolian Public Utility Association

Others

1. Ms. Tsetsgee Amgalan	Water Sanitation Expert, ADB Waste Water Feasibility Study
2. Ms. Naratsetseg Togtokh, PhD	Retired Biochemist/Microbiologist, Institute of Biology, MAST

Murun – KhuvsgulAimag Center

1. Mr. Erdenebaatar, A	Governor, KhuvsgulAimag
2. Mr. Ganbold	Head, Social Policy Department, Governor's Office (GO)
3. Mr. Tumurbaatar	Head of Chancellory, GO

4. Ms. Tserendulam	Senior Specialist, Procurement Unit, GO
5. Ms. Gal-Erdene	Officer, Procurement Unit, GO
6. Ms. Otgon-Erdene	Senior Officer, Department of Education
7. Ms. Dalaijargal	Officer, Department of Education
8. Ms. Enkhjargal	Officer, Department of Construction and Urban Development
9. Ms. Oyun-Erdene	Officer (WASH), Department of Health
10. Ms. Oyumaa	Manager, Huvsgul Dalai Eej NGO
11. Ms. Uugantsetseg	Methodologist, Mongolia Red Cross Society, Khuvsgul Branch
12. Ms. Munkhoo	Manager, KhuvsgulEkh (Contractor)
13. Mr. Lhagvadavaa, G	Field Manager, IkhUyen (Contractor)
14. Mr. Enkhbat	Heating & Supply Engineer, UulUvgud (Contractor)
15. Mr. Batbold	Engineer, Khuvsgul Geology (Contractor)

TarialanSoum

1. Mr. Khuwsguldalai, Tsedew	Governor, TarialanSoum
2. Mr. Batjargal	Deputy Soum Governor
3. Mr. Baasanbat	Head of Chancellory, Governor's Office (GO)
4. Mr. Batchuluun	School Principal
5. Ms. Hishigjargal	Kindergarten Director
6. Ms. Batmuren	LLE Teacher
7. Ms. Odongerel	Primary School Teacher
8. Ms. Amartaivan	Primary School Manager
9. Ms. Bertsetseg	Secondary School Teacher
10. Mr. Batjargal	Member, Local People's Khural
11. Mr. Batchimeg	Head, Public Health Center
12. Mr. Batzorig	Chairperson, Local People's Khural
13. Ms. Dulamsuren	Chief Doctor, Public Health Center

14. Mr. Turbat	Head, Communal Center
15. Mr. Myagmarjav	State Budget Officer
16. Ms. Tuvsinjargal, P	School Doctor

TumurbulagSoum

1. Mr. Ganzorig	Governor, TumurbulagSoum
2. Mr. Tsedevsuren	Deputy Soum Governor
3. Mr. Nyamkhand	Head of Chancellory, Governor's Office (GO)
4. Ms. Otgonbayar	Specialist, Environmental Health
5. Mr. Buyan-Undrakh	Well Operator
6. Mr. Oyunchimeg, P	School Principal
7. Ms. Amarjargal, A	Kindergarten Director
8. Dr. Testsegmaa	Head, Public Health Center
9. Mr. Erdenebat	Governor, Bagh 5
10. Mr. Terbish	Head, Veterinary
11. Ms. Bolorsaihan	Midwife, Soum Hospital

Galt Soum

1. Mr. Erdenehuyag	Governor, Galt Soum
2. Mr. Galdan	School Social Worker
3. Mr. Battumur	Manager, Lower Secondary School
4. Dr. Narantsetseg	Head, Public Health Center
5. Ms. Tuvshinbayar, D	Kindergarten Director

Shine IderSoum

1. Mr. Gombosuren	Governor, Shine IderSoum
2. Mr. Amgalanbaatar	Head of Chancellory, Governor's Office (GO)

3. Mr. Bat-Erdene	Chairperson, Local People's Khural
4. Mr. Tserenbat	Member, Local People's Khural
5. Ms. Myadagmaa	Head of Soum Cultural Center
6. Mr. Enkhbat	School Principal
7. Ms. Onorjargal	School Bath House Worker
8. Mr. Chuluunbaatar	School Electrician
9. Ms. Chimidtzogzol	Manager, Primary School
10. Dr. Bayarmaa	Chief, Inter-Soum Health Center
11. Ms. Amarbayasgalan	Kindergarten Director

Alag Erdene Soum

1. Mr. Davaa	Governor, Alag Erdene Soum
2. Ms. Myagmarsuren	Head of Chancellory, Governor's Office (GO)
3. Ms. Munkhsoyol	School Principal
4. Ms. Erdenetsetseg	Kindergarten Director
5. Dr. Enkhtogtokh, Ch	Gynecologist, Soum Hospital
6. Dr. Tsetsgee, Ch	Statistician, Soum Hospital
7. Ms. Altantsetseg, T	Nurse, Soum Hospital

Khatgal Village

1. Mr. Ganbaatar Bat-Ochir	Governor, Khatgal Village
2. Mr. Batdelger	School Principal
3. Ms. Batchimeg	Kindergarten Director
4. Dr. Tserendolgor	Head Doctor, Public Health Center
5. Mr. Bayardalai	Social Worker, Public Health Center

Tunel Soum

1. Mr. Tumurbaatar	Deputy Governor, TunelSoum
2. Mr. Myagmarnaran	School Principal
3. Ms. Oyumaa	School Teacher
4. Mr. Tsogbayar	Teacher, Primary Schooll
5. Ms. Erdenetsetseg	Kindergarten Director

BurentogtokhSoum

1. Mr. Namuuntsetseg	Governor, BurentogtokhSoum
2. Ms. Amgalan	School Principal
3. Ms. Baasantsengel	School Social Worker
4. Ms. Darisuren	Primary School Teacher
5. Ms. Erdenechimeg	Manager, Primary School
6. Ms. Chimidtsogzol	Manager, Secondary School
7. Mr. Tsengel	School Teacher
8. Ms. Dariimaa	Kindergarten Director
9. Mr. Banidkhuu	Hospital Treasurer
10. Dr. Davaanyam	Hospital Social Worker

Annex 2A: Participants at the Presentation of Preliminary Findings of WASH Evaluation -UNICEF, GOM and NGOs

#	Names	Government Agencies
1	Mr. Tsogtbaatar B.	Director, Public Health Institute
2	Mr. Gantulga B.	Head of Division of the Department of Coordination and Policy Implementation
3	Mr. Khuyagtsogt O.	Head of the Budget Expenditure Division, Fiscal Policy and Planning Department, Ministry of Finance
4	Mr. Sanjaadorj M.	Specialist of the Infrastructure and Utilities Budgeting of the Budget Expenditure Division, Fiscal Policy and Planning Department, Ministry of Finance
5	Mr. BadrakhTs.	Secretary General, National Water Committee
6	Ms. Erdenetsetseg R.	Head of the Department of Housing and Public Utility Services, Ministry of Construction and Urban Development
7	Ms. Bunchingiv B.	Environment Team Leader, UNDP
8	Ms. Munkhjargal B.	Programme me Manager, Department of Foreign Affairs and Trade, Australian Government
9	Ms. Ariuntungalag D.	Director , Programme & Cooperation Department, Mongolian Red Cross Society
10	Mr. Gantulga B.	Adviser, Health Promotion Programme me, Mongolian Red Cross Society
11	Ms. Narantuya S.	WASH Specialist, Health Department, World Vision
12	Ms. NarantsetsegTs.	Health National Coordinator, Health Department, World Vision
13	Ms. Battseren Ts.	CEO, WASH Action of Mongolia
14	Ms. Ariunaa P.	Hygiene Promotion Manager, WASH Action of Mongolia
15	Ms. Bolormaa P.	Senior Project Advisor, Asia Foundation
16	Ms. Erdenechimeg Ch.	Asia Foundation
17	Mr. Gantulga G.	Project Officer, Asia Foundation
18	Katherine S. Hunter	Acting Country Representative, Asia Foundation
19	Urantsetseg Sh.	Ministry of Health
20	Mr. Tumurbaatar	Khuvsgulaimag, Head of the Governor's office
21	Mr. Ganbold	Head of the Social Development Division, Khuvsgulaimag Governor's office

22	Mr. Baatar-Ochir	Head of the Education Department, Khuvsgulaimag
23	Mr. Dashbayar	Head of the Children and Family Department, Khuvsgulaimag
24	Ms. Tsetsegmaa	Specialist Head of the Social Development Division, Khuvsgulaimag Governor's office, secretary of the CFC counsel
25	Ms. Dalaijargal	Investment Specialist, Education Department, Khuvsgulaimag
26	Ms. Batchimeg	Head of the Finance administration department, Khuvsgulaimag
27	Mr. Batnasan N.	Water and Environmental Sanitation Officer
28	Mr. Robin Ward	Water and Environmental Sanitation Consultant
29	Ms.Zoya B.	Community Development Officer
30	Mr.Roberto Benes	UNICEF Representative
31	Ms.Judith Bruno	Deputy Representative
32	Ms. Khurelmaa D.	Monitoring & Evaluation Officer

Annex 2B: Participants at the Presentation of Preliminary Findings of WASH Evaluation to UNICEF Programme me

#	Name	Title
1	Roberto Benes (Mr.)	UNICEF Representative
2	Judith Bruno (Ms.)	Deputy Representative
3	Zoya B. (Ms.)	Community Development Officer
4	Odgerel M. (Ms.)	Communication for Development Officer
5	Batnasan N. (Mr.)	Water and Environmental Sanitation Officer
6	Robin Ward (Mr.)	Water and Environmental Sanitation Consultant
7	Enkhnasan N. (Ms.)	Chief of Social Policy
8	Ariunzaya D. (Ms.)	Communication Specialist
9	Khurelmaa D. (Ms.)	Monitoring & Evaluation Officer
10	Byambaragchaa M. (Mr.)	Senior Programme me Assistant – Knowledge Management
11	Mandal U. (Ms.)	Community Development Specialist
12	Munkhjargal L. (Ms.)	Nutrition Officer
13	Tsendsuren T. (Ms.)	Early Childhood Development Officer
14	Amaraa D. (Ms.)	Child Protection Specialist
15	Bolorchimeg D. (Ms.)	Adolescents HIV-AIDS Specialist

Annex 2C: Activity Timeline – WASH in School Evaluation, Mongolia

Date		Activity/Itinerary
Jul 2015	-	Contract signing and Technical Preparations (Data collection instruments and work plan)
Aug 2015	-	Recruitment of field staff (Translator/Interpreter/enumerator); finalize travel arrangements
30 Aug	Sun	Travel to Ulaanbaatar via Beijing CA180/CA955
31 Aug	Mon	AM: **Ulaanbaatar**: Meeting with UNICEF M&E Officer on schedule of activities
		PM: Meetings with UNICEF C4D Officer; Deputy Representative and Programme me Staff
1 Sep	Tue	AM: Meeting with UNICEF Deputy Representative and Programme me Staff (Continuation)
		PM: Discussion with interpreters/enumerators; meetings with Ministry of Finance and Suren
2 Sep	Wed	AM: Meeting with Ministry of Education, Culture and Education
		PM: Meetings with World Vision and Mongolian National Water Committee
3 Sep	Thu	AM: Meetings with The Asia Foundation, Mongolian Red Cross Society and WASH Action in Mongolia
		PM: Meetings with Department of Housing and Public Utility and Public Health Institute
4 Sep	Fri	AM: Translation and reproduction of survey questionnaire
		PM: Final discussion of survey procedures with interpreters/enumerators
5 Sep	Sat	Final preparation for field activities
6 Sep	Sun	AM: Leave UB for Tarialan
		PM: Overnight (ON) in Tarialan
7 Sep	Mon	AM: **Tarialan**: Courtesy call - Soum Governor; conduct of survey of school children; survey of WASH facilities
		PM: Meetings with with parents, teachers, Kindergarten (KG) Director, School Principal
8 Sep	Tue	AM: Visit school dormitory; meeting with soum governor and ofiicials
		PM: Meeting with hygiene promoters; visit soum well/kiosk, 2 households with pit latrines; leave for Murun
9 Sep	Wed	AM: **Murun:** Meetings with Aimag officials: Department of Health; Dalai Eej (NGO); Mongolian RCS branch
		PM: Meetings with Social Policy Department, Procurement Office and Aimag Governor
10 Sep	Thu	AM: Meetings with contractors (Khuvsgul Ekh, Ikh-Uyen, Uul-Uvgud and Khuvsgul Geology)
		PM: Meetings with Department of Construction & Urban Development and Department of Education (Budget)
11 Sep	Fri	AM: **Tumurbulag**: Discussion of schedule with KG Director and School Principal; visit KG children & facilities
		PM: Meetings with School Principal, teachers and parents; conduct survey; visit school and dormitory facilities
12 Sep	Sat	AM: Visit to Public Health Center/Hospital & 2 households; meeting with health promoters and vice governor
		PM: Meeting with Soum Governor; leave for Murun
13 Sep	Sun	AM: Work on encoding Tumurbulag survey questionnaires
		PM: Leave for Galt; check-in school dormitory
14 Sep	Mon	AM: **Galt**: Meeting with Lower School Manager/ maintenance staff; visit VIP, old latrines & well; conduct survey
		PM: Meetings with Soum Governor, health promoters club (children) and parents; visit public health center
15 Sep	Tue	AM: Meetings with KG Director and school teachers; visit VIP latrine, septic tank, and KG classes
		PM: Leave for Shine Ider; met by School Director; visited indoor WASH containers in dorms & burnt well pump
16 Sep	Wed	AM: **Shine Ider**: Visited Kindergarten local WASH facilities; meeting with school principal; conduct survey
		PM: Meetings with parents, teachers and Eco-club members (children); visit public health center

Date		Activity/Itinerary
17 Sep	Thu	AM: Meetings with Soum Governor & soum officials; visit well/kiosk, central heating/public bath & house latrine
		PM: Leave for Murun.
18 Sep	Fri	AM: Murun: Meeting with DECS aimag officials; leave for Alag Erdene
		PM: **Alag Erdene**: Meetings with School Principal & KG Director; conduct survey; visit girls' dorm & KG classes
19 Sep	Sat	AM: Visit public health center; meeting with hygiene promoters (students) and teachers
		PM: Meetings with parents and Soum Governor; visit household with seat type pit latrine
20 Sep	Sun	Visit Khuvsgul Lake in Khatgal
21 Sep	Mon	AM: **Khatgal:** Meeting with School Principal; conduct survey; visit school and dormitory WASH facilities
		PM: Meetings with KG Director and Village (bagh) Governor
22 Sep	Tue	AM: Meeting with Public Health Center Head
		PM: Meetings with hygiene promoters (children) and parents
23 Sep	Wed	AM: **Tunel**: Meet School Principal; visit indoor WASH facilities in dorms & school VIP latrines; conduct survey
		PM: Meetings with School Principal, KG Director and Public Health Center staff; visit KG WASH facilities
24 Sep	Thu	AM: Meetings with School Principal and teachers
		PM: Meetings with parents and hygiene promoters; meetings with Zoya and Deputy Governor in Murun
25 Sep	Fri	AM: **Burentogtokh**: Meeting with Primary School Manager; *conduct survey*; see new well & WASH facilities
		PM: Meetings with hygiene promoters, teachers and parents
26 Sep	Sat	Meetings in Murun with Burentogtokh School Principal and Soum Governor
		Leave for Erdenet; overnight stay in Erdenet
27 Sep	Sun	Travel to Ulaanbaatar
28 Sep	Mon	Start draft of evaluation report
29 Sep	Tue	AM: Meeting with World Bank Clean Air Project Manager on past WASH Project in Ger area
		PM: Meet Water & Sanitation Expert, ADB Waste Water Feasibility Study; continue draft of evaluation report
30 Sep	Wed	AM: Meeting with UNDP Environment Team Leader on capacity building and WASH pilot projects
		PM: Continue draft of evaluation report
1 Oct	Thu	AM: Meeting with DFAT Senior Programme Manager; continue draft of evaluation report
		Continue draft of evaluation report
2 Oct	Fri	AM: Meeting with UNICEF WASH Officer; continue draft of evaluation report
		PM: Meet Executive Director, Mongolian Public Utility Association; continue draft of evaluation report
3 Oct	Sat	AM: Project Team Meeting; Preparation of Evaluation PowerPoint Presentation
		PM: Meet Retired Microbiologist, Institute of Microbiology, Mongolian Academy of Science & Technology
4 Oct	Sun	Continue preparation of presentation
5 Oct	Mon	AM: Preparation of Evaluation PowerPoint Presentation
		PM: Alcanz President courtesy call to UNICEF Representative
6 Oct	Tue	AM: Preparation of draft evaluation report and presentation materials
		PM: Preparation of draft evaluation report and presentation materials
7 Oct	Wed	AM: Final preparation of presentation materials

Date		Activity/Itinerary
		PM: Presentation of evaluation findings to UNICEF
8 Oct	Thu	AM: Presentation of evaluation findings to Government and development partners
9 Oct	Fri	Final meeting with UNICEF WASH Team and M&E officer
10 Oct	Sat	Leave for Manila via Beijing on CA902/179
11 Oct	Sun	Arrive Manila
12 - 31 Oct	-	Preparation of Final Report and submit to UNICEF

Annex 3: Revised Project Activities Implementation Schedule and Budget: March 2014

Project Name: WASH in Schools and KGT

Activity No	Activities	2012				2013				2014				2015				Fund utilized		Revised plan and budget		Total for Jan 2014-Dec 2015	Revision notes
		Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	2012	2013	2014	Jun-15	Total (USD)	
Objective 1. Construction of WASH facilities																							
Outputs 1.1 and 1.2																							
1.1	Select sites (12 schools and 12 kindegartens, based on need and feasibility study)	x	x																			0	Completed
1.2	Customised guidelines for WASH in schools and kindergartens					x	x	x	x			x	x			x	x		14,305	4,000	2,000	20,305	

Output 1.3 - Construction of Water Supply facilities																							
1.3.1	Conduct feasibility study for construction of water facilities and prepare designs					x	x	x	x									13,595	15,723			29,318	Completed
1.3.2	Procure and construct Water supply facilities						x	x			x	x							321,298	267,000		588,298	Reduced number of activities
Output 1.4 - Construction of Hand washing and Sanitation facilities																							
1.4.1	Prepare designs and get approval from MECS			x	x	x	x	x	x										10,000			10,000	
1.4.2	Procure and construct HW and Sanitation facilities						x	x			x	x							321,298	320,000		641,298	Reduced number of activities
Output 1.5 - Hygiene Promotion and WASH facility maintenance																							

1.5.1	Establish Child Development Centres in each school or dormitory					x	x	x	x	x	x	x	x						59,151		0	59,151	Completed
1.5.2	Develop BCC materials based on needs assessment and conduct training activities				x	x	x			x	x			x	x			4,114	10,000	24,000	24,000	62,114	
Objective 2. Establishment of effective GoM WASH mechanisms																							
Output 2.1. Development of broad WASH mechanisms framework																						0	
2.1.1	Evaluate and analyse project Outputs and produce framework					x	x	x	x	x	x	x	x							6,000		6,000	
2.1.2	Submit framework to MECS for adoption and follow up									x	x	x	x	x	x	x	x			2,000	2,000	4,000	

Output 2.2. Effective advocacy for adoption of improved mechanisms																						0	
2.2.1	Promote key stakeholder buy-in by study tours and trainings					x	x			x	x			x	x			0	0	25,000	5,000	30,000	
2.2.2	Promote and publicise findings																	0	0	11,000	5,000	16,000	
Output 3 Project management																						0	
3.1	Steering Committee formation and on-going support	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	2,848.1	1,852	3,000	3,000	10,700	
3.2	Implementation management and project documentation	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			2,000	3,000	5,000	
3.3	Monitoring and Evaluations (including Inception Report)			x	x			x	x			x	x			x	x	26,012	81,126	30,000	65,000	202,138	2014-monitoring cost only 2015-final

																							evaluation+ monitoring
3.4	Staff cost	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	111,118	164,283	140,000	70,000	485,401	Proposed project ends date: June 2015
	Sub-total																	139,105	985,368	834,000	179,000	**2,169,722**	
	UNICEF Headquarters recovery cost (7%)																	10,470	94,179	63,065	13,475	151,881	
	TOTAL																	149,575	1,079,547	897,065	192,475	2,321,603	

Source: 2014-03-17 Revised Project Activities Implementation Schedule and Budget- AusAID

Annex 4: Project Baseline Data and Verifiable Indicators (Amended March 2014)

Narrative summary	Revised Objectively verifiable Indicators (March 2014)	Data/information required	Baseline data
Project Goal Support Mongolia in developing child friendly schools and kindergartens to enhance achievement of the Millennium Development Goals, National Development Strategy, and the UNICEF Country Programme	1. School and kindergarten enrolment *BL: Kindergarten: 66% and Schools: 90%* *Target: Kindergarten: 75% and School: 95%*	• No of school aged children in the community • No. or percentage of children enrolled in school	7,947 (or 90%) enrolled in school (Source: WASH project baseline survey, 2012)
		• No. of children 3-5years in the community • No. of children enrolled in kindergarten	1,432 (or 66%) enrolled in kindergarten (Source: WASH project baseline survey, 2012)
	2. Incidences of water borne and water washed diseases in the project schools *%of children suffering diarrhea* *BL: Kindergartens: 10.8% and Schools: 26 cases in 12 schools (in winter)* *Target: Kindergarten and schools: 50% reduction*	• Percentage of children suffering diarrhea in the last month	10.8% kindergarten aged (0-59 months) children with diarrhea in last fortnight. (Source: mini MICS preliminary data of Khuvsgul aimag) 26 cases out of 7,947 school children in 12 schools during 1 Sept to 22 Dec 2012 (Source: *Aimag* Education Department/ School Records)
	%of children suffering Hep A *BL: 3 cases in 12 schools* *Target: 0*	• Percentage of children suffering Hep A in the last month	3 cases out of 7,947 schoolchildren in 12 schools during 1 Sept to 22 Dec 2012 (Source: *Aimag* Education Department/ School Records)
	3. Improved government mechanisms for WASH in schools kindergarten *Baseline: 0* *Target: WinS Working Group and PSC*	• WASH in School (WinS) Working Group at national • Project Steering Committee (PSC) at Aimag level	Not existing

Narrative summary	Revised Objectively verifiable Indicators (March 2014)	Data/information required	Baseline data
Project Objective:			
1. Suitable sustainable WASH facilities and appropriate hygiene behaviours by staff and children in all project. schools /kindergartens by EoP	4. Number of project schools/ kindergartens upgraded with suitable sustainable WASH facilities. *Baseline: 0;* *Target (Indoor WASH): 6 schools and 3 KGs* *Target (Outdoor VIP): 6 schools, 9 KGs* *Target (Water supply – groundwater well):6 schools* *Target (Water supply – Alternative): 5 schools)*	• Number of schools with improved WASH facilities • No. of kindergartens with improved WASH faculties	0 schools with improved WASH facilities 0 kindergartens with improved WASH faculties
	5. % of children practicing washing hands at critical times (after using toilet and before eating) *BL:43.2% and 41.1% always wash their before eating and after using toilets respectively* *Target: 70% (before eating and after using toilet)*	• % of children practicing washing hands at critical times such as after using toilet and before eating	The project did not conduct a survey of this indicator. However, the project has used the survey results of WHO/MoH'sGlobal School-based Student Health Survey, 2010 which gives information of hand washing practice in school. It is as follows; "Hand-washing habits were assessed based on whether the children wash their hands before eating a meal or after going to the restroom, as well as whether they use soap when washing their hands. About two in five students (43.2%) answered that they always washed their hands before eating meals during the last month, while 32.9% of them usually washed their hands before eating meals. A small but significant percentage of students (7.8%) rarely or never wash their hands before eating meals.

Narrative summary	Revised Objectively verifiable Indicators (March 2014)	Data/information required	Baseline data
			After using the toilet, 41.1% of students always wash their hands while 27.4% usually wash their hands. There is little difference between male and female participants in this indicator. Almost one in seven students (14.7%) never or rarely wash their hands after using toilet. Encouragingly, 90.4% of participants always or usually use soap when washing their hands. A small number of students (1.5%) answered that they never use soap when washing their hands."
	6. % of selected schools systematically prompting appropriate hygiene behaviors *BL: 0%,* *Target:> 80%*	• No. of schools/KGs with hygiene practice materials posted inside the building/ bathrooms • Inclusion of hygiene promotion in the class curriculum • No. of school regularly teaching hygiene education • No. of schools addressed the importance of hand washing with soap in the curriculum • No. of teachers and staff received training on teaching hygiene or any formal curriculum	All of the targeted schools have hygiene promotion included in the school curriculum, with 92% of the schools reporting they have a system for promoting hygiene behaviors. Although the schools and kindergartens have hygiene promotion system, it is not systematic and there is a need for improving quality. There are no guidelines for hygiene education and promotion in schools. Behavioral change communication materials and hygiene promotion approaches are also not consistent in the country. None of the outdoor latrines have hand washing facilities nearby. There are no standard hygiene promotion training modules for teachers. Based on the qualitative information and observation from the field, the project concludes that none of the schools are systematically promoting good hygiene

Narrative summary	Revised Objectively verifiable Indicators (March 2014)	Data/information required	Baseline data
			behaviors. (Source: WASH project baseline survey, 2012)
	7. % of selected schools systematically undertaking routine maintenance *BL:77% of existing WASH facilities* *Target: 100% of the improved indoor/outdoor WASH facilities*	• No. of schools/KGs with an operation and maintenance worker who is responsible for maintaining the water and sanitation facilities • No. of schools/KGs with someone tasked with cleaning the latrines • Frequency of latrine cleaning In schools and KGs	77%of schools and kindergartens reported that they are undertaking systematic routine maintenance of existing WASH facilities. Cleaners, heating system technicians and water carriers are the responsible staff members for water collection, storage, and maintenance of water supply related works. In addition, some schools have assigned school teachers for monitoring the water supply works. Cleaners and guards have also been assigned for cleaning and maintaining sanitation facilities. After construction of indoor WASH facilities and VIP latrines, the existing staffs, which are responsible for operation and maintenance works, need training on maintenance and repair of new WASH facilities. (Source: WASH project baseline survey, 2012)
2. Effective Gum mechanisms for WASH in	8. Mechanisms for WASH in schools and kindergarten	• Establishment of mechanism for WASH in schools and kindergarten	Not applicable

Narrative summary	Revised Objectively verifiable Indicators (March 2014)	Data/information required	Baseline data
schools and kindergartens are established	*BL: 0* *Target: Mechanism established*		
Project Outputs:			
1.1 School Selection	9. Revised schools chosen for indoor WASH facilities and Outdoor WASH facilities	Not Applicable	Not applicable
1.2 Customized guidelines	10. Guidelines prepared on time covering items in notes under Output 3.2 *BL: 0* *Target: WASH in Schools guidelines on Standard Designs, Monitoring System, Hygiene Promotion and O&M system*	• WASH in schools guidelines covering Standard Designs, Monitoring System, Hygiene Promotion, O&M system, etc	Guidelines not available
1.3 Sufficient fit-for-purpose water and water facilities available and accessible at all times for personal hygiene, food preparation, cleaning and laundry by EoP in 24 schools and kindergartens with at least 75% complete by year 3	11. No. of water supply facilities meeting customised guidelines (indicators) related to water (see note 1.3) *BL: 0, Target:13*	• No. of facilities meeting customised guidelines • No. of children served meeting customised guidelines	0 Availability of water in schools: 2.3 L/student/day (including dormitories). This does not include water for shower rooms. Availability of water in kindergarten: 5 L/child/day (Source: WASH project baseline survey, 2012)
1.4 Sufficient, accessible, private, secure, clean, culturally appropriate and gender sensitive latrines/toilets for school	12. No of sanitation facilities meeting customised guidelines related to sanitation (see note 1.4)	• No. of facilities meeting customised guidelines • No. of children served meeting customised guidelines	0 Student: toilet ratio in schools and kindergartens is 34 and 18 respectively. 100% of toilets are unimproved pit latrines

Narrative summary	Revised Objectively verifiable Indicators (March 2014)	Data/information required	Baseline data
children and staff by EoP in 24 schools and kindergartens with at least 75% complete by year 3	*BL: 0, Target:13*		which do not meet the customised guidelines. (Source: WASH project baseline survey, 2012)
1.5 Correct use (esp. hand washing) and maintenance of WASH facilities is ensured through target sustained hygiene promotion and facility maintenance procedures in 24 schools and kindergartens with progress matching construction.	13. No of schools/KGs meeting customised guidelines on hygiene education and hygienic toilets (see notes 1.5) *BL: 0, Target:20*	• No. of facilities meeting customised guidelines • Number of children served meeting customised guidelines	0 (Source: WASH project baseline survey, 2012)
2. Effective GoM mechanisms for WASH in schools and kindergartens are established			
2.1 Broad WASH mechanism framework for schools and kindergartens documentation at EoP	14. Framework produced on time covering items in notes (project doc Annex B) *BL: 0* *Target: UNICEF/WHO's WASH standards for Schools in Low-cost Settings*	• Customised guidelines based on UNICEF/WHO's WASH standards for Schools in Low-cost Settings	No customised guidelines
2.2 Effective advocacy of adoption of improved mechanism	15. No.of capacity building activities BL: n/a	• Nil	Not Applicable

Narrative summary	Revised Objectively verifiable Indicators (March 2014)	Data/information required	Baseline data
	Target: Nil		
	16. Action plans for WASH by key government stakeholders and institutionalized implementation BL: n/a Target: *One WASH in Schools Working Group at national level and* *One press trip/visibility trip*	• Level of collaboration with government and other participating agencies • No. of policy briefs for decision makers • No. of WASH in school Working Group meetings and project reviews • Press trips and visibility activities	Not applicable
3. Project Management			
3.1 On-going project management	17. Satisfactory completion to acceptable quality and with acceptable outcomes *BL: n/a* *Target: PSC formation*	• Project Steering Committee formation • Frequency of Steering Committee meeting	Not applicable
3.2 Inception Report	18. Comprehensive report submitted prior to end of Year 1 *BL: n/a* *Target: Inception report*	• Inception report	Not applicable
3.3 M&E	19. M&E as per design document *BL: n/a* *Target: Baseline survey, midterm and final evaluations*	• Baseline surveys, midterm and end of project evaluation	1 - WASH project baseline survey, 2012 Data from other surveys was also used, including Initial assessment 2012, mini-MICS (preliminary data) 2012, *Aimag* Education Department/ School Records 2012,

Narrative summary	Revised Objectively verifiable Indicators (March 2014)	Data/information required	Baseline data
			WHO/MoH's Global School-based Student Health Survey, 2010.

Note:

1.3 Indicators for "no. of newly built water supply facilities meeting customised guidelines related to water"

- Escherichia coli or thermo tolerant coliform bacteria are not detectable in any 100- ml sample.
- Drinking-water from unprotected sources is treated to ensure microbiological safety
- Water meets national standards concerning chemical parameters
- There are no tastes, odors or colors that would discourage consumption of the water.
- Water that is not of drinking-water quality is used only for cleaning, laundry and sanitation.
- Basic quantities of water required
    - Day schools 3 liters per person per day for all children and staff
    - Dormitories and kindergartens15 liters per person per day for all residential schoolchildren and staff
- A reliable water point, with soap or a suitable alternative, is available at all the critical points within the school, particularly in toilets and kitchens
- One shower is available for30-40 users (check local MECS standards) in boarding schools (users include schoolchildren and residential staff). Separate showers, or separate showering times, are designated for staff and schoolchildren, and separate showers or times are designated for boys and girls. At least one shower should be accessible for people with disabilities.
- Laundry facilities, with soap or detergent and hot water or chlorine solution (or both), are provided in boarding schools

1.4 Indicators for "No of newly built sanitation facilities meeting customised guidelines related to sanitation"

- Sufficient toilets are available — one per 25 girls and one for female staff; one toilet plus one urinal (or 50 cm of urinal wall) per 50 boys, and one for male staff (compared with local MECS standards)
- Toilets are easily accessible to all, including staff and children with disabilities. Male and female toilets are completely separated.
- Ratio of children to suitable toilets in school and kindergarten
- Toilets provide privacy and security
- Toilets are appropriate to local cultural and social conditions, are age and gender appropriate and accessible for children with disabilities or suffering from chronic diseases (i.e. toilets are child friendly).
- Where water flushing toilets are used, add
  For pour flush toilets: 1.5 liters per person per day. For conventional cistern flushing toilets: 10 liters per person per day.

1.5 Indicators for "No. of schools/KGs meeting customised guidelines on hygiene education and hygienic toilets"

- Hygiene education is included in the school curriculum.
- Positive hygiene behaviors, including correct use and maintenance of facilities, are systematically promoted among staff and schoolchildren
- Facilities and resources enable staff and schoolchildren to practice behaviors that control disease transmission in an easy and timely way.
- Toilets are hygienic to use and easy to clean.
- Toilets have convenient hand washing facilities close by.
- A cleaning and maintenance routine is in operation, and ensures that clean and functioning toilets are available at all times.

Annex 5: Project Planning, Implementation

Process steps			Outputs		Prime Responsibility		Current status
Identification stage	Set up project area selection criteria		Selection criteria		*Aimag* Governor Office/UNICEF		Done
	Undertake multi-sectorial initial assessment of all *soums* to set up baseline		Assessment report		UNICEF		Done
	Selection of project areas for WASH activities		List of prioritised *soums*		UNICEF		Done
	Dissemination of prioritised communities/schools/kindergartens to *Aimag* Governor office		Endorsement of the selected *soums* by Governor office		UNICEF		Done
	Aimag Governor office checks the consistency with priorities						Done
	Agree on the priority *soums* (communities) by UNICEF and government partners		List of priority *soums* by year		*Aimag* Governor Office and UNICEF		Done
Planning and studies	Project Steering Committee (PSC) formed including writing up ToR and approval from the Governor		Nomination of PSC members and approved ToR		*Aimag* Governor Office		Done
	Pre-visit to the selected schools and kindergartens by UNICEF staff to verify WASH needs		Verification of the needs completed		UNICEF/*Aimag* Department of Education (DoE)		Done
	WASH specific baseline and detailed technical survey, and designs of WASH facilities		Baseline data Draft design report		UNICEF/DoE		In progress
	Presentation of the draft designs to the schools and kindergartens including school management and schoolchildren representatives		Comments on draft designs		UNICEF/DoE		Planned in Jan/Feb 2013
	Finalize the designs and cost estimates incorporating feedback from the schools and kindergartens		Final design reports –ready for tendering		UNICEF		Feb 2013
Selection of contractors	Inventory of potential contractors and drilling companies in the *Aimag*		List of contractors and drillers		UNICEF/*Aimag* DoCUD		Done
	Bidding documents preparation in consultation with the Ministry of Education and Science		Final bidding documents		UNICEF		Feb 2013
	Announcement of bids for construction/rehabilitation of WASH facilities		Construction bids received		UNICEF		Feb/Mar 2013 and 2014

	Selection of contractors together with the PSC members and MES representative (through *Aimag* level meeting)		Contractors selected		PSC/UNICEF		Mar
	Contract preparation – agreement with the contractors		Contract documents signed		UNICEF		Mar/Apr
	Agree with contractor to include O&M workers in the construction process for skills and knowledge sharing		On-the-job training to O&M workers – improved skills and knowledge		School/kindergarten		Mar/Apr
Implementation	Formation of Construction Committee at the *soum* level (members including teachers, parents, student council, DoE and DoCUD representatives) and agree on ToR		Construction committee formed and ToR agreed		PSC		Mar/Apr
	Selection of O&M workers at the school/kindergarten level		O&M workers selected		School/kindergarten		Mar/Apr
	Construction/rehabilitation of WASH facilities		Systems being built		PSC/ Construction Committee		May-Aug
	Regular meeting of the Construction Committee		Progress reviewed and reported to PSC/UNICEF		School/kindergarten		May-Aug
	Regular monitoring visit by PSC members and project team		Quality control progress report to Governor/ UNICEF		PSC		May-Aug
	WASH facilities completion and commissioning		Facilities commissioned for use		PSC/UNICEF		Sept
Post Construction	Training of O&M workers and distribution of tool kit		Improved skills, knowledge and equipment for conducting O&M		DoCUD/DoE/UNICEF		Nov
	School/kindergarten level meeting among parent, children and teacher representatives for O&M planning		O&M plan developed		School/kindergarten		
	Follow up visit and support by the PSC members for at least one year post commissioning		Functionality of WASH facilities assessed		PSC/UNICEF		
	Document lessons learnt		Final report		MES/UNICEF		

Source: "WASH in Schools and Kindergartens" Project, Inception Report to AusAID, Government of Mongolia/UNICEF Mongolia, Ulaanbaatar, December 2012

Annex 6: Full Report on Survey on knowledge, attitude, skills and practice of students

The information came from a sample of high secondary, lower secondary and primary school children from 6 project soums (Burentogtokh, Galt, Khatgal, Shine-Ider, Tarialan and Tunel) and 2 non-project soums (Alag-Ider and Tomorbulag). By design, each level comprises about 1/3 of the total 62-68 students from each soum. Of the total 517 respondents (10 percent of total student population), about 24 percent were from non-project schools. [5] The inclusion of the two non-project areas in the KASP survey enriched the context for the interpretation of findings, and provided indications of changes that did not take place because the schools were not included in the project.

Time limitations restricted data gathering to one of rapid assessment that could be cross-checked with the findings from interviews of other respondent students (hygiene promoters), school authorities, and WASH maintenance personnel, observations of school facilities and interviews of selected parents by the evaluation team. The school authorities were requested to select student respondents based on criteria defined by the evaluation team: 62-68 student respondents from the entire school of which each level comprises 1/3 of the total respondents; numbers of girls and boys, dorm and non-dorm residents that are representative of actual distribution of students across gender and residence characteristics, and facility for self-administered questionnaires.

The actual student respondents compared with SY 2014-2015 student populations are in Table A 1, reflecting the divergence from planned sample distributions across key characteristics.

Table A 1: Student populations and respondents by percent girls and percent living in dormitories, by soum

Soum	Total student population as of September 2015			Survey respondents, September 2015			
	Total number	% girls in SY 2014-15	% in dorms	Number	% of total enrolled	% girls	% in dorms
Burentogtokh	519	49	23	67	15	60	29.9
Galt	892	48	33	64	7	69	46.9
Khatgal	654	51	18	68	11	54	44.1
Shine-Ider	480	55	27	65	14	65	46.2
Tarialan	1122	53	14	65	6	68	40.0
Tunel	450	52	21	65	13	51	41.5
Project	**4117**	**51**	**22**	**394**	**10**	**61**	**41.4**

[5] Kindergarten pupils were not included in the KASP. Instead, light conversations with groups of kindergarten aged children were conducted, revealing that they are taught the proper way of handwashing.

Soum	Total student population as of September 2015			Survey respondents, September 2015			
	Total number	% girls in SY 2014-15	% in dorms	Number	% of total enrolled	% girls	% in dorms
Alag-Erdene	400	48	25	62	16	66	41.9
Tomorbulag	672	53	25	61	9	63	30.2
Non-project	**1063**	**51**	**25**	**123**	**12**	**65**	**36.0**

Girls and specially dorm residents are overrepresented in the sample in both project and non-project groups, most pronounced in Galt and Tarialan for gender and Galt, Shine-Ider and Khatgal for dorm residents. There are relatively more female respondents in non-project soums and substantially more dorm residents in project soums. Nevertheless, because of the nature of many of the questions asked, e.g., state of users' access and experience in the utilization of WASH facilities installed by the project that are common to students, comparisons among respondents in project schools and between project and non-project sites remain valid.[6]Nevertheless, the variables gender, residency and soum differences in the KASP are given attention in the report when appropriate.

WASH at home background of respondents

Respondent children were asked about basic WASH information in their home: source of water, type of toilet and facility for hand washing. At home, the well is the predominant source of water of respondent children (64 percent and 68 percent for project and non-project soums), followed by the surface water from the lake or river. Khatgal residents have access to the famed blue waters of Lake Huvsgul. Different from the project soums are 26 percent of Tarialan student respondents who source water from the well and then piped into their homes.

The current data for the project soums would not be inconsistent with progress in the WASH in communities project whose baseline information were established in 2013 in a data gathering by Asia-Foundation commissioned by UNICEF. The same information source categorized 4 project soums (Burentogtokh, Galt, Shine-Ider and Tarialan) as low-risk for water borne diseases as a result of relatively protected water source and some care in water collection and storage. Khatgal and Tunel are low- to moderate-risk.

The pit latrine is the most common toilet type at home for project (80 percent) and non-project (86 percent) groups and individual soums. The FGDs indicate that this is the situation. Best

[6] To the extent that their selection probably was in both project and non-project soums similarly biased in favor of the more articulate among the students, the comparison are likely to yield upper bound estimates but remains valid for evaluating the influence of the project on hygiene knowledge of students.

endowed is Tarialan where 30 percent of children said that they have flush toilets at home while 19 percent have VIP toilets. Additional information from the FGDs with local government officials and parents suggest that Tarialan's advantage is to some extent enjoyed by its school children –piped water source and heating, while Burentogtokh is managing comparatively well given the problems of WASH facilities.

Hand washing facilities appear to be where significant difference between project and non-project soum lie - the children from the project soums have better access at home to hand washing facilities (none below 86 percent in all project soums), more than 10 percentage points compared to those of respondent students from the two non-project soums.

MAIN FINDINGS

The WASH in schools project, school enrolment and students in dormitories

There is some indication that the WASH project in school increased enrolment and the access to school of herders' children but only in Burentogtokh.

In Figure A.1, the first six soums are project participants while the last two are the non-project soums.

For the comparable data available to the evaluation in SY2013-2014, SY2014-2015 and SY2015-2016, there is no clear indication that the project coincided with increased enrollment in school. The biggest increase in student populations occurred for Burentogtokh and Khatgal that grew 20 percent and 12 percent over three school years. Shine-Ider's hardly changed, Tunel's enrollment contracted, while the two non-project soums are similar to the trends in Galt and Tarialan.

In an FGD, the Governor of Burentogtokh attributed the increasing school enrolment to better WASH facilities in school. Also according to the Governor, (an indirect) result of improved WASH in dormitories is increased herders' family incomes – mothers also work now because they can leave children in the dormitory without worry – a positive indication that improved WASH in dormitories also promotes equity.[7]

[7]An aspect where improved WASH facilities can also positively impact on equity is in motivating more herder parents to send their children to school. No supporting evidence from absolute or relative numbers of dormitory residents over the 3-year period was found in schools where the WASH project was implemented.The data shows no difference in dormitory occupancy over the years between the project and non-project soums.

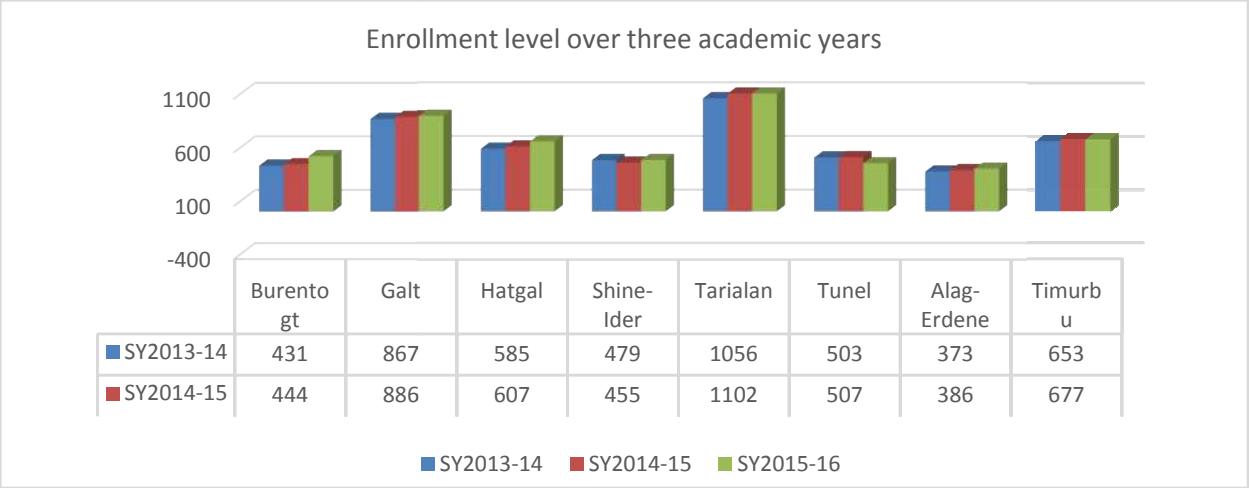


Figure A. 1: Enrollment level over three academic years

Hygiene education

There is a slight but palpable difference in the proportions of students in project and non-project soums who reported receiving hygiene education, in favor of those with WASH in schools.

The implementation of the WASH in school project coincided with the Department of Health's programme to promote hygiene education in communities and schools. From all indications from the FGDs, the role of the local hospital and health facilities has been strong in health and hygiene training and promotion for communities and schools, including for the schools' hygiene promoters.[8]Project and non-project schools are all benefited and thus, it can be expected that the impact of the Department of Health initiative in hygiene education would to some extent weakens whatever impact there is of the WASH in schools hygiene education component.

Data from the survey lend some support to the above – the proportion of students who reported receiving hygiene education is high (90 percent or more) for both project and non-project groups. A slight difference between project and non-project schools remains: only 82 percent of Tomorbulag's high school students and 86 percent of Alag-Erdene's primary school students – both non-project schools - said they received hygiene education. If not for these two outliers, project and non-project schools do not differ, overall.

The proportion of students learning about hygiene by specific topics in project relative to non-project schools is uniformly greater and substantial beyond hand washing but it is only in the

[8] In Tarialan, each teacher was provided ACF hygiene promotion kit. Apparently, teachers, students and parents also received training in hygiene practices, clean environment and proper water storage.

topics toilet use and keeping toilet clean are project soums as a whole statistically better than non-project soums.

The next table (Table A 2) shows the proportions of students who reported receiving (confounded) hygiene education by topic.[9] Three observations stand out: (1) both groups of children are most familiar with topics around hand washing and least with the two practical topics of proper toilet use; (2) the general topics on how diseases spread and the practical personal hygiene and proper water storage also appear to receive less emphasis compared to hand washing; and (3) beyond hand washing, the exposure to hygiene topics of students in project relative to non-project schools is uniformly greater and substantial. The results point to the need for more expanded strengthening on basic knowledge on theory and hygiene practice beyond hand washing, even for schools covered by the WASH project.

At 95 percent confidence intervals, only in the variables toilet use and keeping toilet clean are project soums as a whole statistically better than non-project soum. By specific soum, Tomorbulag was statistically disadvantaged compared to the average project soum with respect to both variables while Alag-Erdene was worse only in the variable toilet use. It is worth noting that toilet use and keeping toilet clean are topics that make more sense with improved access to toilets that children are capable of keeping clean – which is to some extent what the project delivered to covered schools.

[9] The question called for three most important topic but the students ticked all topics that they learned in school. The denominators for this table and the next ones are total number of respondents.

Table A 2: Proportions of students who reported receiving hygiene education by topic

Sums	Importance of hand washing	When one should wash hands	Hand washing how-to	How diseases spread	Personal hygiene	Proper water storage	Proper use of toilet	Keeping toilet clean
Burentogtokh	0.881	0.881	0.955	0.806	0.866	0.821	0.716	0.597
Galt	0.938	0.953	1.000	0.922	0.922	0.828	0.797	0.641
Khatgal	0.956	0.926	0.897	0.750	0.912	0.824	0.618	0.632
Shine-Ider	0.815	0.877	0.877	0.662	0.738	0.769	0.692	0.523
Tarialan	0.908	0.938	0.938	0.677	0.785	0.662	0.723	0.508
Tunel	0.954	0.908	0.923	0.677	0.877	0.769	0.831	0.662
Project	**0.909**	**0.914**	**0.931**	**0.749**	**0.850**	**0.779**	**0.728**	**0.594**
Alag-Erdene	0.903	0.871	0.919	0.806	0.758	0.806	0.468	0.452
Tomorbulag	0.905	0.810	0.889	0.556	0.825	0.571	0.397	0.333
Non-project	**0.904**	**0.840**	**0.904**	**0.680**	**0.792**	**0.688**	**0.432**	**0.392**

Hand washing knowledge and attitudes

Student learning about why hands should be washed often and when do not differ between the project and non-project respondents.

Student respondents from the project areas appeared to be similarly aware that hand washing helps them to avoid getting sick of diseases, of which colds were most frequently mentioned. There is little awareness that gastro-intestinal diseases principally diarrhea and hepatitis, an identified health problem in Mongolian communities and schools, are likewise transmitted thru dirty hands. Hepatitis was mentioned by less than 1/5 of children, mostly the high school students in both project and non-project schools. Preventing the spread of disease as a reason for hand washing was mentioned by 60 percent of primary school respondents and around 40 percent of both lower school and high school students. Comparable figures for the non-project areas are about 10-15 percentage points less. Nevertheless, a general response, avoiding getting sick was mentioned by more than 86 percent of both project and non-project children so that if this is enough motivation for students, then they might remember to wash their hands often.

At a 95 percent confidence level, the two groups are indistinguishable. Minor differences between project and non-project groups in their basic knowledge about hand washing that might be able to strengthen motivation towards the practice did not turn out to be statistically significant.

When hands should be washed

There is little difference between project and non-project groups and between girls and boys in cited instances when hands should be washed.

Hands should be washed before eating, after touching garbage and before cooking are the most frequent answers to the multiple response questions. Still even in project schools, about 15-25 percent of children will not wash hands in the three instances mentioned above, suggesting that hygiene education on the importance and skills in washing hands presented in an earlier table might not translate into practice for a sizeable proportion of children. As a case in point, only about 73 percent in project sums cite the need to wash hands after defecating, even proportionately lower than that in non-project sums.

Washing hands in school, at home or in the dormitory

Going into practice, the percentages of students reporting that they seldom or do not wash their hands in school are substantial (32 percent from project and 55 percent from non-project schools) but appear partly conditioned by available facilities.

At home or in the dormitory, almost all children report washing hands at least once a day, with about half (twice as many girls as boys) washing hands as many times as needed, using soap (86 percent and 80 percent for project and non-project students respectively). The percentages seldom washing hands are consistent with those who said hand washing facilities in school are insufficient. Other factors affecting children's frequency of hand washing include distance of hand washing facility from classroom, clean but generally not available water and no soap and towel. To cope, some students' preferred behavior is to wait till they get home or be in the dormitory to wash hands. In addition, many girls and boys of primary schools bring their own soap and towel, use wet wipes instead of washing hands, a pervasive practice in Galt and Chagall and the two non-project soums, a practice that cannot take the place of proper hand washing with soap and water.

Behavior modification and coping strategies are important to consider when assessing the children's hygiene practices and solutions. Interestingly, the above information surfaced because the data gathering mode allowed for more interaction between interviewer and the primary school students. It is unknown whether the older children of the lower and higher secondary schools also engaged in the same or other strategies to make up for inadequacies of hygiene facilities.

In adequacy of facilities and supplies for hand washing, the schools of Burentogtokh seem to have fared better than others: higher proportions of child respondents said that the soum has enough hand washing facilities, clean water, soap and water for more students; 95 percent of students use soap in hand washing. Burentogtokh seem to be the best performer in this set of questions, and in the general management of WASH facilities as interviews of local government officials, teachers and parents revealed.

Nevertheless, the findings overall suggest that the children (1) generally do not frequently wash hands (40 percent) even at home or in the dormitory; (2) avoid utilizing school facilities for washing hands; and (3) apparently find hand washing facilities in the dormitories better than those in schools. There is an indication from the finding that children's hand washing behavior is to a large extent conditioned by available facilities; however (1) also suggests that a significant percentage might need to be convinced more of the benefits of washing hands.

Use of toilet facilities in school

High proportions of student respondents do not, or seldom, use the school toilets and dorm toilets to a less extent, the primary reason being the dirt and smell.

The proportions, not significant difference between project and non-project sites, are 0.46 and 0.50 for project and non-project schools respectively and 0.21 and 0.24 for dormitories. Pit latrines and VIP toilets have the reputation for the smell but here are some other reasons why children avoid using the school toilets: in two project schools, young students complained that older boys use the toilets too much – to smoke. In another project school with inadequate latrines and long queues for the VIP toilets, the Team also observed that boys used receptacles for toilet paper as urinals. In one non-project school where no additional "modern" facilities were constructed, the evaluation team found evidence that open defecation is practiced. While poor hygiene behavior can be the result of unchecked bad habits, inadequate facilities and lack maintenance are also part of the reason for unhygienic practices and behavior.

Many children, more than half those in Khatgal and Shine-Ider - commented that they instead attend to their needs at home. Other reasons for infrequent use of toilets in schools are the distance of toilet facility from classroom, no privacy and locked toilet doors when electrical power goes out.

The pattern of infrequent use of dormitory toilets is the same as that in school and not presented.

Dispensers in schools and dormitories

Water dispensers in school and dormitories do not always work and water is not potable so students bring water from home, boil drinking water in the classroom or drink only when at home.

On average, more than 3 out of 4 students of project schools said their school and dormitory dispensers have water, notably in Burentogtokh and Tarialan. However a non-trivial number (27 percent in school and 17 percent in the dormitories) do not agree. Moreover, there are problems with the water dispensers: some are not working and the water is not potable, according to students.

Children's shower experience in the dormitories[10]

<u>According to students of WASH project in living in dormitories, the showers have sufficient water pressure (69 percent), there is water in winter (60 percent) and the shower affords privacy (90 percent)</u>.

The heated shower is one of the more appreciated experiences with the WASH school, according to parents, and for which the project dormitories have an advantage over non-project dormitories most specifically in sufficient water pressure (69 as against 50 for non-project). Heating is however a common problem; even with the project, some schoolchildren in Burentogtokh,Khatgal and Galt find need to use nearby public showers, not unlike those in non-project Tomorbulag. The cost is about MNT1000, more expensive in Khatgal at MNT2000. Many households rely on public showers too that are usually far from home.

<u>Students transmit modern WASH concepts and to some extent influence WASH facilities at home</u>

Key informant interviews with parents show that they are aware of the improvements in water and hygiene facilities in schools because their children talk about them. In Tarialan, children request parents if they can have similar indoor WASH at home. Earlier, the students' survey revealed that Tarialan has the highest proportion of students whose homes have flush toilets (30 percent) and piped water (26 percent). Parents, notably those of Shine-Ider, are also aware of defects of some of the installed facilities.

In Burentogtokh and Galt, parents see improvement in cleanliness and frequent hand washing behavior in their children. Parents in Tunel contribute to WASH supplies of children in school. In the two non-project schools, hygiene education is likewise strong in non-project Alag-Erdene where children are taught hygiene and "21 hygienic practices" since kindergarten. Parent interviewees in Tomorbulag aspire to have "flush toilets similar to those in the apartments of Ulaanbaatar."[11]

Among the most appreciated facilities by students and parents are the showers, hot water and flush toilets – modern facilities that interviewed parents feel their children should be at least familiar with and the "traditional practices to avoid when they are in Ulaanbaatar". Hygiene

[10]About 1 out of 2 girls in project schools and 1 out of 3 in non-project schools said they received lessons on menstruation and managemement. The project high school in Tunel appeared to be ahead of the other soums with 82 percent reporting that they received lessons on the topic in contrast to the non-project schools where substantially less than half do. As can be assessed from the girls answers, the girls provide for their needs as far as menstruation is concerned. This is as far as what can be assessed from the information on the topic.

[11]The soum also won the World Vision hygiene competition. Half of the 6 thousand price went to the local school. The World Vision donated 100 VIP latrines to about 10 percent of households in Tomorbulag.

education is undertaken at both sides – children in school and parents in the community, led by the doctor and health personnel of local hospitals and school health staff. Parents recognize their role in strengthening the children's hygiene education.

Communication for behavioral change

Teachers, other school staff and parents are the sources of messages and reminders on personal hygiene and proper sanitation aside from behavioral communication materials "sometimes" according to many students.

Teachers and school staff appear to reach more students from project schools while parents play a greater role in behavioral change reminders for non-project soum children. Notwithstanding this distinction, hygiene education and promotion appear to have a wide coverage. All project schools have teacher-students hygiene promoters; IEC materials and manuals were disseminated. Posters with hygienic messages are placed in the areas of the water dispenser, hand washing, and toilets. Teachers and student promoters train, and promote messages in hygiene behavior and proper use of WASH facilities led by the local hospital doctor or staff of the local health facility.

Nevertheless, students frequently attached an addendum ("sometimes") to the questions on behavioral communication reminders from school authorities, so this might be an area where adequate and strategically positioned reminders on personal hygiene and care of facilities – e.g. posters in or near hand washing areas, toilets, water dispensers and sleeping rooms in the dormitories – could expose children to the messages more frequently and complement behavioral change topics in the classrooms.

Hygiene activities and club membership strengthen hygiene knowledge, skills and practice and provide opportunities for mainstreaming the topics in academic or extracurricular aspects of children's schooling. In both project and non-project soums, only 6 out of 10 students say they join hygiene activities. Hygiene club membership is much lower – 4 out of 10 in project and less than 3 out of 10 in non-project schools.[12]

Impact on water and hygiene related diseases

Infectious diseases brought about by contaminated water and unhygienic practices were common problems in the schools of Khuvskul aimag. The implementation of the WASH programme in schools that involves installation of water and sanitation facilities with a hygiene

[12]The question is what could have been the appropriate level of child involvement in hygiene activities given the many challenges faced by the WASH in school projects? It would be meaningless to create opportunities for children's involvement in hygiene and sanitation issues and might not be advisable to do so until the adults solve the bigger problems of the project.

education component for school children appeared to have brought down the incidence of infectious diseases of which gastrointestinal diseases and acute respiratory infections were the most frequent. Below is a summary of cases from water borne and hygiene-related diseases.

In Burentogtokh, no case of hepatitis, diarrheal diseases, pneumonia (cold winter) were registered in the last three years. In Galt, no hepatitis nor diarrhea case in kinder and older school children were reported since 2010.

In Khatgal, there were 3-4 dysentery cases among tourists and residents during the summer but none among school children. In the last two years, 7 cases of diarrhea of children under 2 years of age were treated in the hospital and 10 at home. There were no cases of the hepatitis in the same period.

In Shine-Ider, the Inter soum hospital had no hepatitis case among students since 2012 although there were diarrhea incidences in some children's home. The cases of ARI had gone down as well in Shine-Ider.

The public health records on the Tarialan school shows that in the period 2013-2015, dysentery cases were reduced from 7 to 2 and finally to zero in 2015. There were 3 recorded cases of hepatitis in 2013 – after which no student got sick of the disease in the last two years. No diarrhea cases occurred in the Tarialan school in the last three years although there were cases in some in households in the area.

In Tunel, the only information regarding sickness from hygiene-related condition was zero incidence of hepatitis in the last 3 years.

The non-project soum are not far behind. In the last three years, Alag-Erdene did not have cases of diarrhea and water borne diseases, dysentery nor hepatitis. There were no relevant morbidity reports from Tomorbulag.

Additional notes: the WASH in schools project was not the only stimulus to changes in access to improved water and sanitation. Project resources were effectively complemented by the Ministry of Health, local government funds and NGO activities beyond those contributed to the WASH in Schools Project: Action Against Hunger (Tarialan), World Vision (Tomorbulag), Peace Corps (Alag-Erdene) were the ones mentioned by parents and teachers assisting in community hygiene and education and/or providing VIP latrines. Thus the project impact has many confounding factors.