Initial Environmental Examination

PUBLIC

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Mongolia: Sustaining Access to and Quality of Education During Economic Difficulties Project (Additional Financing)

Prepared by Ministry of Education and Science (MES) for the Asian Development Bank (ADB).

CURRENCY EQUIVALENTS

(As of 01 September 2023)

Currency unit	=	Mongolian Togrog (MNT)
MNT1.00	=	$0.00028794
$1.00	=	MNT3472,98

ABBREVIATIONS

ACM	–	Asbestos Containing Materials
ADB	–	Asian Development Bank
ASI	–	Agency for Specialized Inspection
DPR	–	Detailed Project Report
EA	–	Executing Agency
EIA	–	Environmental Impact Assessment
EMoP	–	Environmental Monitoring Plan
EMP	–	Environmental Management Plan
GAE	–	General Authority for Education
GASI	–	General Agency for Specialized Inspection
GOM	–	Government of Mongolia
GRM	–	Grievance Redress Mechanism
IA	–	Implementing Agency
IEE	–	Initial Environmental Examination
MET	–	Ministry of Environment and Tourism
MES	–	Ministry of Education and Science
MOF	–	Ministry of Finance
UMED	–	Ulaanbaatar Metropolitan Education Department
VOC	–	Volatile Organic Compound

WEIGHTS AND MEASURES

1 Cusec	–	Measure of flow rate (28.317 liters per second)
1 ha. (hectare)	–	10,000 sq. m
1 km (kilometer)	–	1,000 m
1 kV	–	kilovolt (1,000 volts)
1 kW	–	kilowatt (1,000 watts)
1 kWh	–	1 kilowatt-hour = 1000 watts

NOTE

In this report, "$" refers to US dollars.

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GLOSSARY OF TERMS USED

General Terms

Aimag	:	*Aimag*
Soum	:	Smallest administrative unit of *Aimag*
Bagh	:	Smallest administrative unit of *Soum*
District	:	Smallest administrative unit of UB city
Khoroo	:	Smallest administrative unit of District
Ger	:	Mongolian traditional dwellings
Ger area		Area in the cities which families mostly reside in *gers*
Khashaa Plot	:	Fencing around Ger owned by households
Construction Blueprint	:	Technical and detailed drawing for construction of building

For the Purposes of this IEE

Sub-project	:	Individual Schools/kindergartens selected and included in the project for expansion and new construction

EXECUTIVE SUMMARY

1. The growth of Mongolia's economy has rapidly decelerated due to declining foreign direct investment and falling commodity prices. This slowed growth has caused serious economic difficulties, including large revenue shortfalls and cuts in government investment, which are expected to continue beyond 2018 and further require the government to reduce inefficiency in public spending. The tightening education budget, compounded by the growth of school age population and high costs of operating kindergartens and schools because of the low population density and harsh winters in Mongolia, will aggravate difficulties with sustaining access to and quality of education, especially for disadvantaged children and schools.

2. ADB is preparing an additional financing for ongoing project loan 3594-MON: Sustain Access to and Quality of Education Economic Difficulties to help the Government of Mongolia sustain access to and quality of pre-primary, primary, junior, and senior secondary education during the economic difficulties. The overall project (refers to the ongoing and additional financing) will have five outputs: (i) enrolment capacity of schools and kindergartens enhanced, (ii) curriculum, assessment and evaluation updated and implemented in line with education standards, (iii) availability and affordability of quality educational resources improved, (iv) school and kindergarten leaders and teachers' knowledge and skills upgraded, and (v) systems for increasing efficiency in public spending on education developed. The Ministry of Finance (MOF), the Ministry of Education and Culture (MES) and ADB[1] agreed that the executing agency of the project will be MES, and that the MES and, Ulaanbaatar Metropolitan Education Department (UMED) will remain to be implementing agencies for the ongoing project while the General Authority for Education (GAE) will the implementing agency for the additional financing. The ongoing project will be implemented from April 2018 to February 2025 while additional financing will be implemented from February 2024 to December 2026.

Components and Summary Environmental Issues

3. The IEE report comprises of baseline data on the existing condition of the physical and biological environment, the anticipated environmental impacts, proposed mitigation measures, monitoring frameworks, grievance procedure and public consultations. The consultant team undertook field surveys to sub-project sites to assess the physical and biological environment – factors such as site ecology, management of construction, sanitation, use of equipment and machineries, environmental health and safety, occupational hazard etc. The environment management and monitoring plan have been dealt with in detail in the respective sections of the report. A generic environment management plan has been attached separately. However, a summary list of key impacts on environment parameters are briefly enumerated in **Table 1** below:

Table 1: Summary Impacts on key environment parameters

#	Environmental Parameter	Type of Impact	Reason	Proposed Mitigation Measures
1	Air Quality	Low	Insignificant air emission from the construction activity except during stacking/storage of soil, construction material at site	Sprinkling of water, proper handling of excavated soil, proper construction material storage
2	Water Quality	Low	The project will require small quantity of water for construction. No hazardous effluent is envisaged to be discharged during	The required water will be sourced from tankers by the construction company. Domestic effluent shall be discharged in holding tanks which

[1] As per MOU signed between ADB and MOF, MES

#	Environmental Parameter	Type of Impact	Reason	Proposed Mitigation Measures
			construction	will be cleaned regularly, and waste thrown at urban body's solid waste management site.
3	Soil Quality	Low	Land is available-having open/vacant areas within the school premises for expansion projects and government land for new schools.	Construction company to ensure proper housekeeping, sanitation and cleanliness at work site.
4	Noise Quality	Low	The construction activity may lead to noise pollution during concreting etc. for the residents of the area. Small noise related installations within shell structure may continue beyond school holidays	The schools shall be closed for summer vacation during shell construction of the new building to minimize disruption. Noise monitoring will be done at regular intervals. If any night construction activity that is noise intensive is undertaken, neighbourhood must be consulted to determine suitable timings.
5	Hazardous Substance – e.g., Asbestos, Volatile Organic Compounds (VOCs)	Minimal	The expansion projects will not impact the main buildings of the schools	Sections of buildings, if they contain any hazardous material, will not be selected for improvement actions.
6	Terrestrial Ecology	Low	No ecologically sensitive place (protected area/reserved forest/Important flora and fauna species) within 5 km radius from each sub-project site	Tree replantation/transplantation to be carried out inside school by construction company if any trees are cut.

4. Additional financing covers 9 educational buildings; 8 of which are already included in the project IEE and one new kindergarten in Murun, Khuvsgul. As previous buildings are still under construction and the project implementation is on-going, the updated IEE includes all 30 subcomponents. **Table 2** below gives key features, including environmental issues (if any) for the sub-projects:

Table 2: Key features and environmental issues for each Sub-project

No	Sub-Project components	Location	Key features of sub-project component	Environmental Issues
A	**Kindergartens**			
A 1	Kindergartens under expansion			
1	Kindergarten No.164	UB, Bayangol District, 4th *khoroo*	Existing 2 floor building is established in 1973, connected to central heating, electricity, water, and sewage system. The wall of existing building is constructed by limestone bricks so has many cracks and loses much heat. The expansion will be a separate two floor new building in the back side within premises.	Dund Gol river is 1.8 km, Tuul river is 5 km and the Bogd Khan SPA is 10 km away from site. No other wildlife sanctuary or ecological sensitive area within the 1.8 km vicinity of the school.
2	Kindergarten No.22	UB, Bayanzurkh District, 1st *khoroo*	Existing 2 floor building is established in 1970, connected to central heating, electricity,	Selbe river is 0.7 km, Tuul river is 12 km and the Bogd Khan SPA is 18 km away from site. No other

No	Sub-Project components	Location	Key features of sub-project component	Environmental Issues
			water and sewage system. The kindergarten has 3400 m^2 land area and expansion will be a separate two floor new building in the back side within premises.	wildlife sanctuary or ecological sensitive area within the 1 km vicinity of the kindergarten.
3	Kindergarten No.8	UB, Bayanzurkh District, 16th *khoroo*	Kindergarten has 2 floor old building constructed in 1957. The building connected to central heating, sewage and water supply system. The current building washrooms have poor sanitation condition, walls and ceiling of classrooms are breaking down, and water and wastewater plumbing systems have deteriorated. Access road is available. The expansion will be separate new building in the back yard of kindergarten.	The land is in the middle of city and surrounded by apartment buildings, services and far from any protected area, National Park.
4	Kindergarten No.82	UB, Bayanzurkh District, 16th *khoroo*	Existing 2 floor building is established in 1980, connected to central heating, electricity, water and sewage system. The wall of existing building is constructed by limestone bricks so has many cracks and loses much heat. The kindergarten has 7420 m^2 land area and expansion will be a separate two floor new building in the back side within premises.	Uliastai river is 8 km, Tuul river is 10 km and the Bogd Khan SPA is 13 km away from site. No other wildlife sanctuary or ecological sensitive area within the 8 km vicinity of the kindergarten. There are 115 trees and bushes in the kindergarten's premises.
5	Kindergarten No.65	UB, Khan-Uul District, 2nd *khoroo*	Existing 2 floor building is established in 1972, connected to central heating, electricity, water and sewage system. The expansion will be a separate two floor new building in the back side within premises.	Dund Gol river is 0.6 km, Tuul river is 3 km and the Bogd Khan SPA is 8 km away from site. No other wildlife sanctuary or ecological sensitive area within the 0.6 km vicinity of the kindergarten.
6	Kindergarten No.72	UB, Khan-Uul District, 2nd *khoroo*	Existing 2 floor building is established in 1976, connected to central heating, electricity, water and sewage system. The wall of existing building is constructed by limestone bricks so has many cracks and loses much heat. The expansion will be a new two floor separate building in the back side within premises.	Dund Gol river is 1 km, Tuul river is 3 km and the Bogd Khan SPA is 8 km away from site. No other wildlife sanctuary or ecological sensitive area within the 1 km vicinity of the kindergarten.
7	Kindergarten No.84	UB, Songinokhairkhan District, 6th *khoroo*	Existing 2 floor building is established in 1948, connected to central heating, electricity, water and sewage system. The plumbing systems of the current building are too old. Kindergarten has 10172 m^2 area of land. The expansion will be separate building in its premises.	Tuul river is 15 km, Dund Gol and the Bogd Khan SPA is 9 km away from site. No other wildlife sanctuary or ecological sensitive area within the 5 km vicinity of the kindergarten.

No	Sub-Project components	Location	Key features of sub-project component	Environmental Issues
8	Kindergarten No.104	UB, Songinokhairkhan District, 12th khoroo	Existing 1 floor building is established in 1986, connected to central heating, electricity, water and sewage system. Kindergarten has 10172 m^2 area of land. The expansion will be separate building in its premises.	Tuul river is 8 km and the Bogd Khan SPA is 9 km away from site. No other wildlife sanctuary or ecological sensitive area within the 5 km vicinity of the kindergarten.
9	Kindergarten No.107	UB, Songinokhairkhan District, 14th *khoroo*	Existing 1 floor building is established in 1986, connected to central heating, electricity, water and sewage system. Kindergarten has 8861 m^2 area of land. The expansion will be separate building in its premises.	Tuul river is 8 km, Dund gol river is 5 km and the Bogd Khan SPA is 9 km away from site. No other wildlife sanctuary or ecological sensitive area within the 5 km vicinity of the kindergarten.
10	Kindergarten No.110	UB, Songinokhairkhan District, 15th *khoroo*	Existing 1 floor building is established in 1987, connected to central heating, electricity, water and sewage system. Kindergarten has 10026 m^2 area of land. The expansion will be 2 floor separate new building in its premises.	Tuul river is 8 km, Dund Gol river is 5 km and the Bogd Khan SPA is 9 km away from site. No other wildlife sanctuary or ecological sensitive area within the 5 km vicinity of it.
11	Kindergarten No.176	UB, Songinokhairkhan District, 31st *khoroo*	Kindergarten has 1 floor building which established in 2005, has no connection to central heating, water and sewage system and has individual heat only boiler, holding tank and water well. Kindergarten has 1388 m^2 area of land. The expansion will be additional floor on the top of building. The heat	Tuul river is 13 km, Dund Gol river is 2 km and the Bogd Khan SPA is 17 km away from site. No other wildlife sanctuary or ecological sensitive area within the 2 km vicinity of the kindergarten.
12	Kindergarten No.68	UB, Sukhbaatar District, 3rd *khoroo*	Existing 2 floor building is established in 1973, connected to central heating, electricity, water and sewage system. The expansion will be a two-floor separate new building in the back side of the premises.	Dund Gol river is 1.5 km, Tuul river is 3 km and the Bogd Khan SPA is 8 km away from site. No other wildlife sanctuary or ecological sensitive area within the 1.5 km vicinity of the school.
13	Kindergarten No.160	UB, Sukhbaatar District, 3rd *khoroo*	Kindergarten has 2 floor old building constructed in 1972. The building connected to central heating, electricity, sewage and water supply system. Access road is available. The expansion will be a separate new building in the back side of kindergarten premises.	The land is in the middle of city and surrounded by apartment buildings and 7 km far from Bogd Khan Strictly Protected Area.
14	Kindergarten No.17	UB, Sukhbaatar District, 10th *khoroo*	Kindergarten's existing building is 2 floor and constructed in 1963. Kindergarten has 3950m^2 premises and out of it 810m^2 area is under the building. The existing building connected to central heating, electricity, water supply and sewage system. The expansion will be a two-floor separate new building in the own	Selbe river is 2 km and the Bogd Khan SPA is 15 km away from site. No other wildlife sanctuary or ecological sensitive area within the 2 km vicinity of the kindergarten.

No	Sub-Project components	Location	Key features of sub-project component	Environmental Issues
			premises in the left side of old building.	
15	Kindergarten No.88	UB, Bayangol District, 18th *khoroo*	Existing 2 floor building is established in 1982, connected to central heating, electricity, water and sewage system. The expansion will be a separate two floor new building in the back side within premises.	Tuul river is 7 km and the Bogd Khan SPA is 12 km away from site. No other wildlife sanctuary or ecological sensitive area within the 7 km vicinity of the school.
16	Kindergarten No.5	Govisumber, Sumber *Soum*, 3rd *bagh*	*Aimag* Government owned 300m^2 land area is available. Blueprint is developed. The area is located nearby the school dormitory and school. Access road is available.	The land is in the middle of Ger area and surrounded by small buildings and 65 km away from Ikh Nart Nature Reserve.
17	Kindergarten No.6	Khuvsgul, Murun *soum*, 8th *bagh*	The building was put into operation in 1976 with the capacity to receive 120 children. It is a "P"-shaped 2-storey brick structure, which consists of 3 block parts.	The north side of the existing kindergarten land is idle. Environmentally it is not a significant area.
A 2	Kindergartens under new construction			
1	New kindergarten	UB Bayanzurkh District, 24th *khoroo*	The land allocated for this site currently used by branch of kindergarten # 168 using 4 Gers as classrooms. Has individual electric heating, no holding tank for wastewater and uses dug pit and transported drinking water.	The land is surrounded by Ger Khashaa plots. Environmentally it is not a significant area.
2	New kindergarten	UB, Nalaikh District, 7th *khoroo*	District Government owned land 6,000m^2 area situated near the “Sport Complex”, close with Khashaa plots in left side. Access road is available. The area is at least 500m away from District Heating Plant, water supply and sewage system.	Tuul river is 9 km and Bogd Khan SPA is 16 km away from site. No other wildlife sanctuary or ecological sensitive area within the 5 km vicinity of the kindergarten.
3	New kindergarten	UB, Songinokhairkhan District, 25th *khoroo*	District Government owned 300m^2 land area is available. Blueprint is developed. The area is located nearby main road and surrounded by Ger khashaa plots and small services. Access road is available. There is no central heating, water supply and sewage system available in the area.	The land is in the middle of Ger area and surrounded by small buildings and 19 km away from Bogd Khan SPA.
B	**Schools:**			
B 1	Schools under expansion:			
1	School No.51	Bayangol District, UB	Existing 3 floor building constructed in 1974 by brick. Connected to centralized electricity, heating, water supply, sewage system. The expansion will be a separate building behind the existing school building.	Dund Gol river is 5 km and Bogd Khan SPA is 10 km away from site. No wildlife sanctuary or ecological sensitive area within the 10 km vicinity of the Schools/Kindergartens.
2	School No.18	UB, Khan-Uul District	Existing 3 floor building is established in 1979, connected	Dund Gol river is 1 km, Tuul river is 3 km and the Bogd Khan SPA is

No	Sub-Project components	Location	Key features of sub-project component	Environmental Issues
			to central heating, electricity, water and sewage system. The expansion will be additional floor on the roof and have permission of Specialized Inspection Agency to add one more floor on top.	8 km away from site. No other wildlife sanctuary or ecological sensitive area within the 5 km vicinity of the school.
3	"Erdmiin Orgil" Complex	UB, Nalaikh District	Existing 1 floor building is established in 1971, connected to central heating, electricity, water and sewage system. The expansion will be 3 floor separate building with capacity of 640 students, in the school yard inside premises.	Tuul river is 13 km and the Bogd Khan SPA is 17 km away from site. No other wildlife sanctuary or ecological sensitive area within the 8 km vicinity of the school.
4	"Ireedui" Primary School	UB, Songinkhairkhan District	Existing 2 floor building was established in 1983, connected to central heating, electricity, water supply and sewage system. The school has 14281.7 m^2 area. The expansion will be additional floor on the roof of building. Has permission of Specialized Inspection Agency to add one more floor on top.	Dund Gol river is 5 km, Tuul river is 8 km and the Bogd Khan SPA is 10 km away from site. No other wildlife sanctuary or ecological sensitive area within the 5 km vicinity of the school.
5	"Ireedui" Secondary School	UB, Songinokhairkhan District	Existing 2 floor building is established in 1983, connected to central heating, electricity, water and sewage system. The school has 14602.2 m^2 area. The expansion will be additional floor on the roof of building. Has permission of Specialized Inspection Agency to add one more floor on top.	Dund Gol river is 5 km, Tuul river is 8 km and the Bogd Khan SPA is 10 km away from site. No other wildlife sanctuary or ecological sensitive area within the 5 km vicinity of the school.
6	School No.122 (green school)	UB, Songinokhairkhan District, 22nd *khoroo*	School has 18000 m^2 land area and 4 floor building, constructed in 2013. The existing building has capacity with 640 students but currently 1500 students are enrolled at this school. The school building has individual heat only boiler for heating, water reservoir for keeping transported water and individual holding tank for wastewater, connected to central electricity line. The expansion will be 3 floor building with capacity of 640 students and has a blueprint for building.	Takhilt (small seasonally flowing creek) river is 0.3 km and Bogd Khan SPA is 19 km away from site. No other wildlife sanctuary or ecological sensitive area within the 10 km vicinity of the school.
7	School No.6	UB, Sukhbaatar District	Has permission of Specialized Inspection Agency to add one more floor on top.	No other wildlife sanctuary or ecological sensitive area within the 5 km vicinity of the school.
8	Khantaishir	Govi-Altai, Altai soum	The school is in the one floor old building constructed in 1961, which is proposed to be used as office of construction company	The school is in the middle of town and surrounded by buildings and 50 km far from Khasagt Khairkhan National Park. No other

No	Sub-Project components	Location	Key features of sub-project component	Environmental Issues
			temporarily. The building is connected to central heating, water supply and sewage system. School has possession of 3567 m^2 land and the expansion will be a new 3 floor building, with capacity of 320 students and can be constructed in front of old building.	wildlife sanctuary or ecological sensitive area within the 25 km vicinity of the site.
B 2	Schools under new construction :			
1	New school	Songinokhairkhan District, 7th *khoroo*	The new construction site is situated in the edge of Ger Khashaa Plot area. Total of 10000 m^2 area for this site and it owned by District Government. The area is empty but included in town development plan, has no central heating, water supply and sewage system infrastructure.	Baruun Salaa river is 0.1 km and Bogd Khan Mountain SPA is 20 km away from site. No other wildlife sanctuary or ecological sensitive area within the 1 km vicinity of the kindergarten.
2	New school	Darkhan, Mangirt, 15th *bagh*	Construct new school building with capacity of 960 students.1.5 ha area is available with a possibility to connect to central heating, sewage and water supply system. The site is included in new development area and no other buildings in vicinity of new kindergarten close to this site.	Kharaa river is 9 km and Tujiin Nars NP is 90 km away from site. No other wildlife sanctuary or ecological sensitive area within the 10 km vicinity of the kindergarten.

NP = National Park, SPA = Strictly Protected Area

5. Potential impacts are mostly temporary, predictable, and reversible, and can be mitigated through adherence to national[2] and international standards[3], design criteria, and/or implementation of Environment Management Plan (EMP). Schools/Kindergarten are proposed on government land and the location of Schools/Kindergarten avoided any sanctuary/protected areas or any other environmentally sensitive areas. Utilization of the best available technology and best management practices are built-in to the project design and listed through the Generic EMP and more specifically through the EMP.

6. IEE including EMP has been prepared to mitigate the potential adverse impacts of construction. The new Schools/Kindergartens are proposed are proposed only on land owned by the Government and therefore acquisition of land will not be required from the surrounding communities. The proposed expansion of schools/kindergartens will be located on existing government lands or those lands that are allotted to MES by Government of Mongolia. All proposed new schools/kindergartens have been identified to have possession of vacant land area; whereas the schools/kindergartens where expansion is to be done in their existing land, there is no need to acquire land.

7. For most of the proposed new Schools/Kindergarten, their blueprint design (technical reports) will be finalized after conducting detailed physical survey of the land through architect firms engaged by the EA under the project. The expansion/new construction will be done

[2] Relevant Mongolian Standards mentioned in section 2 later.

[3] World Bank/IFC Environment Health and Safety guidelines 2007

avoiding existing apartment/housing, other buildings, trees or any other existing settlement directly related with the livelihood of people. As assessed, the project benefits outweigh the negative impacts. The negative environmental impacts are likely to be associated with construction activities of the Schools/Kindergartens, noise during construction, transportation of construction material to site, disposal of waste soil, inconvenience to neighbouring communities due to increased traffic due to new building construction activities.

8. During the site visits, the officials and consultants made numerous observations and held discussions with school managements concerned to assist in proper design of new schools with respect to the following: (i) location of proper access roads, laydown area for materials to be used by the construction companies to use without disturbing the school working and minimizing utilization of playground areas, (ii) avoidance of underground existing pipes for water, heating, sewage etc. at these proposed work sites, (iii) right of way for construction vehicles and provide traffic safety during construction to local residents living adjoining these schools, (iv) traffic caused by construction of new buildings/expansion projects by use of concrete, dump trucks etc. transporting materials inside school premises; traffic safety for children and their parents during operations of school in normal work hours (September 2017 onwards), (vi) lack of safety equipment such as smoke alarms in most old buildings and the need for adequate firefighting extinguishers and imparting evacuation drills and emergency response procedures training, (vii) distances of these schools from non-sensitive biodiversity areas and cultural heritage sites to ensure no impact, (viii) dust and noise emissions from the construction subprojects and their impacts on school children and apartment dwellers adjoining the school area, (ix) noises from any surroundings areas during construction and operations, (x) avoid any shadow projection onto adjoining buildings due to new structures to be constructed as part of this project, (xi) any banned substances generated as part of any expansion project such as asbestos etc., (xii) emissions from coal based heating and water boilers (some cases), (xiii) if insulation works are required in schools to ensure energy efficiency, i.e. loss of heat due to old walls, (xiv) check presence of any associated facilities, and (xv) determine potential climate change impacts of project activities.

9. The team along with district officials and school/kindergarten managements conducted group consultation and discussions with the apartment dwellers/public residing in these sub-project areas to sensitize them about project activities, their impacts and get their suggestions.

10. Very small number of trees exist in the sites selected for expansion subprojects; whereas there are no trees situated in the land proposed for new buildings. No endangered or protected species of flora or fauna are reported at any of the subproject sites. Locational orientation of the schools/kindergarten will be finalized in a manner to avoid or minimize the shadow falling on adjoining structures. Before start of construction, the construction company shall procure all requisite regulatory approvals from all concerned authorities. Adequate provisions have been made for the environmental mitigation and monitoring of predicted impacts, along with their associated costs in the IEE. Adverse impacts if noticed during implementation will be mitigated using appropriate design and management measures as per the EMP by the construction company.

11. For some schools/kindergarten sub-projects, the blueprint development is underway. The data regarding soil, topography, contour, land cutting and filling required, distance from water body and distance from major roads, details of trees can be affected, land details will be collected by engineering firms. If sites are changed other than those indicated in the IEE, supplementary information will be supplied for each of new location for these subprojects by MES to ADB for prior approval before finalizing design drawings.

12. According to the MET regulation requires development of a generic Environment Impact Assessment (EIA). According to Government of Mongolia's (GOM) EIA Notification, projects are not listed as environmental sensitive projects and hence no clearance is required from Ministry of Environment and Tourism (MET); however, clearance from General Agency for Specialized

Inspection (GASI) and urban bodies is required.

13. Since the project does not involve activities that have significant adverse impacts, an IEE has been developed comprising development of an environmental management plan and monitoring plan as per ADB's Safeguard Policy Statement (SPS) 2009. The IEE report conforms to national environmental regulations and is also consistent with ADB SPS 2009. Accordingly, the environmental classification for the project is "Category B" as per ADB SPS 2009.

1.0 INTRODUCTION

1.1 Background

1. Peaking in 2011, the growth of Mongolia's economy has rapidly decelerated due to declining foreign direct investment and falling commodity prices. This slowed growth has caused serious economic difficulties, including large revenue shortfalls and cuts in government investment, which are expected to continue beyond 2018 and further require the government to reduce inefficiency in public spending.[4] Their negative impacts have already started being felt in the education sector, such as overcrowded classes and schools operating in multiple shifts, acute shortages of pre-primary classes, and lack of textbooks, teaching-learning materials, tools, and equipment, especially in rural areas, due to reductions in education expenditures. The tightening education budget, compounded by the growth of school age population and high costs of operating kindergartens and schools, will aggravate difficulties with sustaining access to and quality of education, especially for disadvantaged children and schools. Against this background, the government requested Asian Development Bank's (ADB) support.[5]

2. Strategic context. Since 1991 ADB's operations supported (i) rebuilding basic education infrastructure and strengthening the foundation for quality improvements during the transition period from a centrally planned to market-based economy; (ii) shifting a 10- to 12-year education system in line with international standards; and (iii) maintaining access to pre-primary education during the financial crisis and improving early childhood education, health, and nutrition. The project will be built on these experiences as well as ADB's ongoing operations in the education sector. It is in line with one of the two strategic pillars of ADB's interim country partnership strategy (2014–2016) for Mongolia—inclusive social development—and its sector focus on basic and secondary education.

3. The Sustaining Access to and Quality of Education during Economic Difficulties Project (the project) is included in the 2017 firm pipeline with a proposed loan amount of $50 million from the ordinary capital resources of the Asian Development Bank (ADB). The Ministry of Finance (MOF), the Ministry of Education and Culture (MES), Ulaanbaatar Metropolitan Education Department (UMED) and Asian Development Bank have developed a list of school and kindergarten expansion and construction sites to be included in the project.

4. **List of school and kindergarten expansion and construction sites.** MOF, MES, UMED and the Mission reviewed and agreed on the list of school and kindergarten expansions and new construction sites on which safeguard, and technical due diligence was conducted (**Annexure 1**). The list was developed through the following procedures: (i) a preliminary list of school and kindergarten expansion and construction sites in Ulaanbaatar was prepared by UMED, while another list containing both school and kindergarten expansion and construction sites in Ulaanbaatar and 21 *aimags* was prepared by MES; (ii) these preliminary lists were screened and shortened by considering (a) positive impacts on the reduction of 3-shift schools, (b) positive long-term impacts on enrolments in primary and pre-primary education and the reduction of class size in Ulaanbaatar, especially in *ger* districts and new residential areas, and some *aimag* centers, (c) availability of land, (d) absence of significant potentially category A environmental impacts which can be caused especially by the demolition of existing buildings, and (e) absence of significant potentially category A involuntary resettlement.

1.2 Impacts, Outcome, and Outputs

[4] ADB. 2016. Asian Development Outlook 2016: Asia's Potential Growth. Manila.
[5] The project preparatory technical assistance under the title of Inclusive Rural Education Support is included in ADB. 2016. Country Operations Business Plan: Mongolia, 2016. Manila.

5. The project's impact will be the number of children completing basic and secondary education of improved quality increased (aligned with Mongolia's Sustainable Development Vision 2030). The outcome will be access to and quality of basic and secondary education sustained during economic difficulties.

6. The outputs will be (i) enrolment capacity of schools and kindergartens enhanced, (ii) curriculum, assessment and evaluation updated and implemented in line with education standards, (iii) availability and affordability of quality educational resources improved, (iv) school and kindergarten leaders and teachers' knowledge and skills upgraded, and (v) systems for increasing efficiency in public spending on education developed.

(i) Output 1. The project will support the construction, expansion, and rehabilitation of schools and kindergartens in *ger* districts and new residential areas of Ulaanbaatar and some *aimag* centers to increase enrolments and reduce three shift schools and class size which negatively impact on the quality of education. Inclusive (age, gender, special needs), energy efficient (improved insulation, and heating systems), and disaster resilient features will be built into new and expanded schools and kindergartens, taking into account innovative designs introduced by the government and other development partners.

(ii) Output 2. The project will support the updating and implementation of curriculum statements, student learning assessment criteria and methodologies for basic and secondary education, and framework for school, teacher and teaching evaluation with a view to improving student learning outcomes. The curriculum statements will incorporate conventional and blended learning approaches and consider all learners including students with learning difficulties and special learning needs. The student learning assessment criteria and methodologies will be reviewed based on clearly defined learning outcomes to match the curriculum standards. Moreover, the frameworks for schools included in the school improvement plan will be updated to better assist self-evaluation of performance and reporting in the school report card. The existing competency-based standards for teachers will be revised to include differentiated competency levels and encourage self-appraisal ad continuing professional development.

(iii) Output 3. The project will improve the provision of quality educational resources, including textbooks, teaching-learning materials, tools, and equipment for students and teachers in pre-primary, primary, and secondary education. Standards of teaching and learning materials (TLM) for each grade of primary and secondary education and equivalency programs (textbooks, teachers' guides, books, science laboratory and ICT equipment) and for pre-primary education will be developed to reduce disparities in the provision of TLM among schools and kindergartens. A plan for re-launching the textbook rental scheme and textbook revolving fund will be prepared and implemented on a pilot-basis to improve availability and affordability of textbooks for secondary education. To enhance the availability of TLM and assist blended learning approaches, e-learning, e-textbook, and e-library policy and implementation plan will be developed and support for the implementation will be provided.

(iv) Output 4. The project will upgrade school and kindergarten leaders and teachers' knowledge and skills to implement the updated curriculum statements, assessment and evaluation. Curriculum for pre-service teacher education programs will be reviewed in line with the updated curriculum statements, student learning assessment criteria and methodologies, and competency-based standards for teachers. The capacity of the General Authority for Education will be strengthened to provide continuing professional development (CPD) programs for pre-primary, primary and secondary teachers through online platforms. Moreover, CPD programs for school and kindergarten leaders, Ulaanbaatar and *aimag* education and science department staff will be developed to enable them to provide leadership in the course of implementing the

updated curriculum standards, assessment and evaluation. CPD programs on assessment of learning outcomes, and child-centered teaching approaches will also be developed.

(v) Output 5. The project will develop systems for increasing efficiency in public spending on education in the medium-term by identifying measures to save operational costs of kindergartens and schools and strengthening the institutional capacity in the education sector. A centralized real-time information system for identifying school and kindergarten construction, expansion and rehabilitation needs will be developed, taking into account population and enrolment growth projections, and trends in internal migration. Catchment areas of schools and kindergartens will be reviewed and measures to strengthen its enforcement will be identified to improve the planning and management of school and kindergarten construction, expansion, and rehabilitation. A plan to reintroduce the school cluster system, especially at the senior secondary level, and mechanisms to share support staff between kindergartens will be developed with a view to increasing efficiency.

7. The project is estimated to cost $50.69 million, of which $50 million will be provided through loans from ADB's ordinary capital resources. The total cost of the project includes physical and price contingencies, interest, and other charges during implementation. The government will provide $0.69 million (1%), in-kind (taxes and duties).

8. The Ministry of Education and Culture (MES) will be the project executing agency. The implementing agencies will be MES and UMED. It was also agreed that a project implementation unit will be established by MES to manage day-to-day activities of the project. The project will be implemented from April 2017 to December 2026.

1.3 Scope of Work and Methodology Adopted

9. The broad scope of the Environmental Assessment study is:

i) To conduct field visits to collect data relevant to the study area and also collect secondary data so as to establish the baseline environmental status of the study area;
ii) To assess the impacts on environmental attributes due to the location, design, construction and operation of the proposed project;
iii) To prepare a mitigation plan outlining the measures for protecting the environment including institutional arrangement and environmental monitoring;
iv) To identify critical environmental attributes required to be monitored subsequent to the implementation of the proposed project;
v) To carry out consultation with local people to identify the public perception of the project; and
vi) To establish the Environment Monitoring Plan (EMoP) for the MES to submit environmental monitoring reports to ADB at regular intervals.

10. Each proposed school/kindergarten on the list was further examined for conformance to ADB's safeguards and technical due diligence confirmed for support before the design of the project is finalized in March 2017. Accordingly, transect walks and field surveys were undertaken to assess physical and biological environment in January/March 2017. However, the exact location of some Schools/Kindergarten may vary after the exact demarcation of locations by the Architects preparing construction blueprints (technical drawings) and General Agency for Specialised Inspection (GASI) requirements.

11. The IEE report comprises baseline data on existing condition of physical, ecological, economic, and social information, together with the anticipated environmental impacts and proposed mitigation measures. This report is prepared on the basis of preliminary survey, field study and consultations with the help of available secondary data of different sites, articles and report.

12. Detailed assessment of secondary source baseline environmental data for Ulaanbaatar and concerned *aimags/soums* was done to support the findings of the field survey by consultants. Public consultations were held with affected persons such as apartment dwellers, other stakeholders, and government officers of the project area. **Annexure 6** gives details of places and persons who attended these consultations. The field studies were supported by data collected from secondary sources such as internet, forest atlas, published data from GOM documents, population census statistics data, as well as documents from MES and documents from other government departments etc.

2.0 POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

2.1 Mongolian - National, Local, Other Applicable Environmental Laws, Regulations, and Standards as applicable to the project.

2.1.1 Specific Environmental Regulatory and Policy Framework

13. Mongolia has enacted a comprehensive policy and legal framework for environmental assessment and management. It has policies, legislation and strategies in place to manage the protected estate, to satisfy its international obligations, and to protect the quality of the environment for the health and well-being of its citizens. The hierarchy of policies and legislative provisions for environmental management in Mongolia comprises five layers ranging from the Constitution to international treaties, and to environment and resources protection laws[6].

14. The main policy documents are the National Environmental Action Plan of 1996, the State Environmental Policy of 1997, the National Plan of Action to Combat Desertification, the Biodiversity Conservation Action Plan, and the National Plan of Action for Protected Areas, all developed under the Ministry of Nature Environment and Tourism (MNET) auspices, as well as the Mongolian Action Program for the 21st Century. The National Environmental Action Plan was updated in 2000 and the National Action Plan for Climate Change was added in the same year. Several program documents (e.g., National Water Program, National Forestry Program, Program of Protection of Air, Environmental Education, Special Protected Areas, and Protection of Ozone Layer) were also completed at the turn of the decade. State policy on Environmental Impact Assessment was in place in 1998. In addition, other guidance documents with important environmental repercussions were developed under the auspices of other ministries and these include the Roads Master Plan, the Power Sector Master Plan, the Tourism Master Plan, and the Renewable Energy Master Plan. Other documents, such as the annual Human Development Reports have increasingly incorporated environmental aspects.

15. A fundamental principle of the Mongolian state environmental policy is that economic development must be in harmony with the extraction and utilization of natural resources and that air, water and soil pollution will be controlled. In April 1996, Mongolia's National Council for Sustainable Development was established to manage and organize activities related to sustainable development in the country. The country's strategy is designed for environmentally friendly, economically stable and socially wealthy development, which emphasizes people as the determining factor for long-term sustainable development.

2.1.2 Mongolian Policy, Legal and Administrative Framework

16. The Government of Mongolia undertook a major environmental law reform in 1990 including the law of land, protected areas, water, forest, wildlife, and native flora resources. The legislation base is extensive as evidenced by the following table of key environmental legislation as shown in **Table 2.1** and their applicability to the project.

Table 2.1: Key Mongolian Environmental Legislation

No	Name of the Law	Year adopted	Associated regulations
1	Law on Environmental Protection	1995 revised in 2006, 2008, 2012	4
2	Law on Land	Jun 2002	
3	Law on Land Cadastre and Mapping	Dec 1999	
4	Law on Land Fees	Apr 1997	

[6] UNDP. 2008. *Institutional Structures for Environmental Management in Mongolia*. Ulaanbaatar and Wellington.

No	Name of the Law	Year adopted	Associated regulations
5	Law on Land Possession	Jun 2002	
6	Law on implementation of regulations related to Land Possession Law	Jun 2002	
7	Law on Geodesy and Cartography	Oct 1997	
8	Law on Special Protected Areas	Nov 1994	16
9	Law on Buffer Zones	Oct 1997	
10	Law on Water	Apr 2004	
11	Law on Water and Mineral Water Resource Fee	May 1995	21
12	Law on Forests	Mar 1995	38
13	Law on Fees for Timber and Fuelwood Harvesting	May 1995	
14	Law on Prevention of Steppe and Forest Fires	May 1996	
15	Law on Reinvestment of Natural Resource Use Fees for Conservation	Jan 2000	
16	Law on Natural Plants	Apr 1995	3
17	Law on Natural Plant Use Fees	May 1995	
18	Law on Protection of Plants	Mar 1996	
19	Law on Hunting	2000, 2003	6
20	Law on Fauna	2000	
21	Law on regulation of export and import of endangered species of flora and fauna	Nov 2002	
22	Law on Hunting Reserve Use Payments and on Hunting and Trapping Authorization Fees	May 1995	
23	Law on Underground Resources	Dec 1994	18
24	Law on Minerals	1997, revised in 2006	
25	Petroleum Law	1991	
26	Law on Air	Mar 1995	n.a.
27	Law on Hydrometeorology	Nov 1997	n.a.
28	Law on Protection for Toxic Chemicals	Apr 1995	18
29	Law on Environmental Impact Assessment	1998, revised in 2002	
30	Law on Tourism	1998	n.a
31	Law on Solid Waste	Nov 2003	
32	Law on prohibiting export and transportation of Hazardous Waste	Nov 2000	

17. Other Mongolian orders, regulations and guidelines related to water and wastewater are listed in the **Table 2.2**. **Tables 2.3 and 2.4** list key Mongolian orders for Hazardous waste and Hazardous chemicals respectively.

Table 2.2: Key Mongolian Orders, Regulations and Guidelines Related to Water and Wastewater

Name of Guideline, Order or Regulation	Year Adopted
Regulation of Fees on Water Pollution in 1992.	1992
Regulation of River and Water Source Protection Zone in 1992.	1992
Regulation of Lining Septic Tanks for Wastewater in 1995.	1995
Regulation for Registering Water Resource Pollution, Water Scarcity, Rehabilitation in 1996.	1996
Regulation on Water Resource Protection from Pollution in 1997.	1997
Regulation of Water Spring and Its Protection in 1998.	1998
Regulation of Establishing Wells and Water Points and Repair	2005
Regulation of Conducting Water Source Inventory and Registration in 2006.	2006
Regulation of Creating Water Source Database and Cadastre in 2006.	2006

Table 2.3: Key Mongolian Orders, Regulations and Guidelines Related to Hazardous Waste

Name of Guideline, Order or Regulation	Year Adopted
Guideline on Reporting and Recording of Storage and Disposal of Hazardous Wastes by Order No: 127 of MNET on 1 July 1, 2003.	2003
Classification and Specification and Hazardous Level of Wastes by Order No: 324/318/336 of Minister for Nature, Environment, and Tourism, Minster for Health, and Minister for Education, Culture and Science in 2006.	2006
"Regulation on Types of Landfills and Disposal Facilities and Centralized Waste Disposal Sites, Relevant Requirements and Specifications, and Procedures to be Conducted by Economic Entities and Individuals to Bury and Destroy Hazardous Wastes" by Order No: 404 of Minister for Nature, Environment and Tourism in 2006.	2006
Regulation on Issuing of Passport for Hazardous Wastes by Government Resolution No: 268 in 2006.	2006
Payment Calculation Methodology for Hazardous Wastes by MNET in 2006.	2006
Regulation of National Reporting and Inventory of Hazardous Wastes by MNET in 2009.	2009

Table 2.4: Key Mongolian Orders, Regulations and Guidelines Related to Hazardous and Toxic Chemicals

Name of Guideline, Order or Regulation	Year Adopted
List of Products Containing Toxic and Hazardous Chemicals (Renewed In 2008) by Joint Order No: 126/171 by MNET and MOH on July 1, 2003.	2003
Methodology of Calculating Waste Norms" by MNET, in 2006.	2006
Regulation on Trans-Boundary Movement, Trade, Transportation, Export, and Import of Toxic and Hazardous Chemicals by Joint Order No; 92/90 of Minister for Nature, Environment, and Tourism and Minister for Foreign Affairs on December 29, 2008.	2008
Guideline On Methodology and Technology to Dispose, Storage, Transportation, Collection of Chemical Wastes; (2009)	2009
Regulation On Use, Transportation, and Import of Toxic and Hazardous Chemicals (renewed in 2009)	2009
Guideline on Transportation, Storage, Use, And Disposal of Toxic and Hazardous Chemicals and b) Guideline on Developing Risk Assessment of Toxic and Hazardous Chemicals" by Joint Order No: 28/40/29 of Minister for Health, Minister for Environment, Nature, and Tourism, and Chairman of National Emergency Management Agency on February 3, 2009.	2009
Guideline on Classification of Hazardous and Toxic Chemicals Was Approved In 2009.	2009

18. **Table 2.5** lists all Mongolian laws as they are applicable to the project.

Table 2.5: Key Mongolian laws applicable to the project

#	Laws	Date of approval and ammendment	Applicable articles and paragraphs to project's ESS	
			Environmental safeguard	Social safeguard
1	Law on Land	Approved in 2002.06.07. Amended in: 2015.07.08, 2015.06.26, 2015.06.19, 2015.02.12	4.1.2, 4.1.4, 4.1.5, paragraph 11-16, 18.1.3, 19.2.2, 20.1.4, 20.2.2, 20.2.6, 22.1.2, 22.2.1, 22.2.3, 23.2.10, 23.2.16, 24.1,	4.1.6

#	Laws	Date of approval and ammendment	Applicable articles and paragraphs to project's ESS	
			Environmental safeguard	Social safeguard
		2013.12.26, 2012.05.17 2010.07.01, 2009.12.17, 2009.07.16, 2009.07.09, 2006.12.22, 2005.07.01, 2005.01.27, 2004.04.22, 2003.06.12, 2003.01.02	27.5, 31.3, 31.4, 33.4, 34.2, 34.4, 34.11	
2	Law on land ownership to Mongolian citizens	Approved in 2002.06.27. Amended in: 2012.05.18, 2011.02.10 2008.05.22, 2005.07.07 2005.06.23	5.1.6.1, 5.1.6.2, 6, 9.1.4, 9.1.5, 10.1.4, 12.1.4, 14.1.5, 27.1.1, 27.1.5, 27.1.8, 27.2.5, 27.2.6, 27.2.7, 27.2.8, 28.1.3, 29.6, 29.7, 30.1, 32 and 38, 39.1	5.1.1
3	Law on land use payment	Approved in 1997.04.24. Amended in: 2012.05.22, 2009.12.24 2006.12.08, 2005.07.01	paragraph 4 and 6.	
4	Law on cropland	Approved in 2004.04.22. Amended in: 2009.05.14, 2006.06.29	16.7, 17.2.2, 17.2.5	
5	Law on mineral resources	Approved in 2006.07.08. Amended in: 2015.06.04, 2015.02.18, 2015.02.13, 2015.01.23 2014.07.01, 2014.05.15, 2014.01.24, 2014.01.09 2013.10.03, 2012.05.17 2011.12.23, 2011.02.10 2010.07.01, 2009.10.15, 2009.07.16, 2009.01.08 2008.12.19	8.1.5, 11.1.23, 12.1.2-12.1.4, 13.5, 14.4-14.6, 14.8-14.9, 17.2.2, 17.3.3, 17.3.5, 19.2.3, 19.10, 24.4.2, 24.5, 25.1.6-25.1.7, 26.2.2, 27.1.13, 28.1.3, 35.2.2, 35.3.3-35.3.4, 35.3.7, 35.5, 35.10, paragraph 37, 41, 44 and 45, 53.3, 54.2, 55.3.2, 56.1.3, 56.1.5, 56.1.7-56.1.8, paragraph 63, 66.3- 66.4,	
6	Law on Protected Areas	Approved in 1994.11.15 Amended in: 1997.10.23 2014.07.01, 2014.05.15, 2008.12.19, 2006.12.22, 2004.04.22, 2003.01.02 2002.07.10, 2002.06.07,	5.1-5.2, paragraph 7-24, 25.2, 26.3-26.6, paragraph 27, 28.3, 29.3, paragraph 30-32, 33.1, 36.2-36.3, paragraph 37, 39, 40.1.2, 43.2-43.3	
7	Law on Protected Area Bufferzone	Approved in 1997.10.23 Amended in: Ongoing	3.1, 4.1, 5.1, 7.4, 8.2, 9.1	
8	Law on Water	Approved in 2012.05.17 Amended in:2012.08.17	8.1.1-8.1.2, 10.1.24, 12.1.1, 13.1.3, 15, 17.1.6-17.1.9, 17.1.12, 17.2, 18.1.3, 19.1.3, 22- 25, 29 and 30, 32.5, 33.1.13-33.1.14	
9	Law on repayment for polluting the water	Approved in 2012.05.17	4.1, paragraph 5-8, 10.1.1	
10	Law on Water resources	Approved in 2007.07.05 Amended in: 2014.07.01		
11	Law on Construction	Approved in 2008.02.05 Amended in:	4.1.3, 5.1.7, 6.1.2, paragraph 9-11, 13.5, 14.5.1, 15.4, 15.5,	paragraph 8, 14.11

#	Laws	Date of approval and ammendment	Applicable articles and paragraphs to project's ESS	
			Environmental safeguard	Social safeguard
		2015.07.02, 2014.05.15, 2011.01.20, 2009.04.23, 2008.02.05	paragraph 16, 18, 20, 22.2	
12	Law on traffic road	Approved in 1998.01.02 Amended in: 2014.05.15, 2009.08.25, 2007.08.03, 2006.12.22, 2005.01.27, 2003.01.02 2002.07.01, 2000.09.01	5.15, 6.1.5, 6.1.6, 13.7, 17.3.1, 17.3.2, 17.3.3	
13	Law on Transportation	Approved in 1999.06.04 Amended in: 2012.08.17, 2011.10.06, 2011.02.10, 2011.01.20, 2009.05.07, 2008.12.19 2008.10.09, 2008.05.29, 2006.12.22, 2005.01.27, 2003.11.28, 2003.05.15 2002.07.10, 2001.11.30, 2001.11.08	7.4, 10.1.1, 10.2.7, 10.2.8, 10.2.9, 17.1	
14	Law on Air	Approved in: 2012.05.17 Amended in:2015.01.23, 2013.12.12	All	
15	Law on repayment for air pollution	Approved in: 2010.06.24 Amended in:2012.05.17	All	
16	General law on administration	Approved in: 2015.06.19	28.1.1-28.1.2, 48.2.2, 49.3.3, 49.3.5, 56.3, 62.2, 73, 75.1, 79, 81.2, 86.2, 92.1, 96.1, 97.1.1, 98.1.2-98.1.3, 100.1, 101.2, 104	13.2-13.4, 26.1, 74.1-74.2
17	Citizen's law	Approved in: 2002.01.10 Amended in:2015.07.02, 2014.12.05, 2014.05.15, 2013.01.10, 2011.12.15, 2011.10.06,2010.04.23, 2009.07.09, 2005.07.07	9-13, 21, 56, 92-95, 101-103, 106, 108, 116-118, 128.1, 134-140, 146.1, 150-151, 189, 228-230, 443-444, 497-514,	
18	Law on Use of sett-lement water supp-ly and sewagge water system	Approved in: 2011.10.06	4.1.1, 5.1.5, 7.1.2, paragraph 11 and 16, 17.3-17.4, 17.8, paragraph 18.	6.1.4, 21.2
19	Law on transferen-cy of information and right to get information	Approved in: 2011.06.16	7.1.5, 7.1.9	
20	Law on public audition	Approved in: 2015.07.08	4.2.2, 6.4	
21	Law on Mongolian administrative	Approved in: 2006.12.15 Amended in: 2015.07.08, 2015.01.23	paragraph 4, 12.1.7, 20.1.6-20.1.7, 20.1.9, 20.1.12, 28.1.3-28.1.9, 28.1.15,	17.1.8,18.1.2з, 18.1.2к, 18.1.2л,

#	Laws	Date of approval and ammendment	Applicable articles and paragraphs to project's ESS	
			Environmental safeguard	Social safeguard
	units and their organization and management	2013.07.05, 2012.12.20, 2012.09.14, 2010.10.29 2009.04.16, 2009.03.12 2008.05.06	29.1.1б, 29.1.5в, 31.1.1	22.1.12, 22.1.16,28.1. 228.1.13,29.1 .330.1.6,30.1. 13
22	Law on land replanning and redevelopment in urban and settlement areas	Approved in: 2015.06.26	3.2, 6.1.1, paragraph 7, 8.1.1, 8.1.5, 8.1.6, 9.1.1, 10.1.1, 11.2, 12 зүйл, 14.1, 14.4, 14.7, paragraph 15-18, and 25,	11.1.5, 14.2, 14.5
23	Law on Urban development	Approved in: 2008.05.29 Amended in: 2015.06.26 2015.02.12	4.1.2, 5th paragraph, 7.1.3, 11.4, 12.4, 12.6, 12.8, 12.9, paragraph, 14, 16, 20 and 23-24,	Paragraph 17-18
24	Law on Solid Waste	Approved in: Nov.2003	Paragraph 3, 8, 9, 11, 12, 22 Articles 7.2, 9.2, 9.3, 9.4, 11.2, 22.1, 22.2	
25	Law on Hygiene	Approved in: 04 Feb, 2016	Article 3.1, Paragraph 4, 5, 8,11, articles 13.1.3, 14.1.1, 14.1.2, 20.1.3,	

2.1.3 Environmental Assessment Requirements of Mongolia

19. The EIA requirements of Mongolia are regulated by the Law on Environmental Impact Assessment (1998, amended in 2002). The terms of the law apply to all new projects, as well as rehabilitation and expansion of existing industrial, service or construction activities and projects that use natural resources. The purpose of this law is to protect the environment, prevent ecological imbalance, ensure minimal adverse impacts on the environment from the use of natural resources, and regulate relations that may arise in connection with the assessment of environmental impacts of and approval decisions on regional and sectoral policies, development programs and plans and projects.

20. **Table 2.5** lists all classification of projects that require General EIA according to the Mongolian laws.

Table 2.5: Classification of projects obligatory to General Environmental Impact Assessment (According to the Law on EIA)

No	Project type	Executor	
		Central Government Authority for Nature and Environment	The Governors offices of *Aimag*s and the Capital city
1.	Mining	Exploration of all kinds of minerals	Exploration of common minerals to be used within local area
2.	Heavy industry	All types	-
3.	Light and Food industry	Big industries owned by Government	Local SMEs
4.	Agriculture	• Water reservoir • Irrigation system • Plantation of fallow	Other industries and services
5.	Infrastructure	• Energy production more than 1 MW capacity • Electricity transmission line more	• Energy production up to 1 MW capacity • Electricity transmission line

No	Project type	Executor	
		Central Government Authority for Nature and Environment	**The Governors offices of *Aimag*s and the Capital city**
		than 35 kV voltage • Heat distribution pipes • Hydro station • Railway • Airport • Road international and inter cities. • Communication international and inter cities	up to 35 KV voltage • Heat distribution pipes local • Road and communication local
6.	Service	• Hotel, resort, sanatorium and other service organizations with capacity more than 50 bed day • Tourism	• Hotel, resort, sanatorium and other service organizations with capacity up to 5O bed day
7.	Other projects: • Town planning • Defensive and civil protection • Water supply system • Water treatment plant • Solid waste disposal and others	• Water supply, water treatment and solid waste disposal in urban areas with more than 10000 inhabitants • State owned facilities for defence and civil protection	• Water supply, water treatment solid waste disposal in urban areas with up to 10000 inhabitants • Local facilities for defence and civil protection
8.	Biodiversity	• Fisheries (big size) • Population, use and other activities relative to animal and plants,	• Hunting and forestry, tribe • Fishery for local market
9.	Chemicals, radioactive substances, and hazardous wastes	Treatment, use, storage, transport and disposal of chemicals, radioactive substances, and hazardous wastes	
10.	Activities to be conducted at special protected areas	Activities to be conducted in boundaries of special protected areas	Activities to be conducted at locally protected areas.

2.1.4 Approvals of Environmental Assessment/IEE

21. The definition on “Environmental Baseline assessment” stated in the paragraph 3.1.4 of the Mongolian Law on EIA as following:

3.1.4 “Environmental baseline assessment” shall mean an assessment that are carried out during the preparation of a feasibility study, design and drawing of any projects and formulation of national, regional and sector development programs and plans in order to establish the existing conditions and state of nature and environment of the territory, in which the proposed projects, programs and plans are to be implemented and to identify any environmental considerations that the project, programs, plans and policies need to incorporate;

22. In paragraph 6.1 of the law on EIA, about the obtaining clearance for IEE is mentioned as following:

Para 6.1 Environmental Baseline Assessment

6.1.1 The project implementer is responsible for commissioning the assessment referred to in Article 3.1.4 to identify potential impacts of the project.
6.1.2 The project implementer shall ensure that the environmental baseline assessment is performed with the due participation from the licensed professional entity and research institutions and if necessary, shall seek guidance from the state central administrative organization in charge of nature and environment (Currently the Ministry of Environment and Tourism).

23. However, there is no other definition about IEE in the EIA law as shown in Article 7 below:

Article 7. Environmental Impact Assessments
7.1 An environmental impact assessment shall consist of the following two assessments:
7.1.1 General environmental impact assessment
7.1.2 Detailed environmental impact assessment
7.2 Applications for a license for the use of natural resources, extraction of petroleum and minerals, and possession and use of land for business purposes and an approval for any other projects are subject to a prior general environmental impact assessment.
7.3 The project implementer shall apply for a general environmental impact assessment to the state central administrative organization in charge of nature and environment or the *aimag* and capital city governor's office, whichever is applicable according to the classification annexed to this law, by submitting a brief description of the project, the feasibility study, the engineering design and drawings, baseline description of the proposed project environment, a written opinion of the relevant *soum* and district governor and other related documents.
7.4. General environmental impact assessments for all new projects and existing plants, factories, services and building facilities that are planned to be renovated and expanded and projects that will make use of natural resources in one way or another shall be performed by an assessment expert who shall complete the assessment within 14 working days and issue a formal opinion.
7.4.1. The project should not be permitted or rejected on the grounds that it is likely to cause considerable harm to the environment by virtue of its proposed technology, technique and activities; that it is absent in the land management planning; that its activities are inconsistent with the state policy, the strategic assessment opinions or relevant legislation.
7.4.2. The project may be implemented without a detailed environmental impact assessment subject to specific conditions.
7.4.3 The project requires detailed environmental impact assessment.
7.5 If deemed necessary, the time period specified in Article 7.4 may be extended once by 14 days at the decision of the chief expert.

24. There are two types of EIAs defined in the Law:

(i) **General EIA (screening)** - to initiate a General EIA, the project implementer submits to MNET (or *Aimag* government) a brief description of the project including feasibility study, technical details, drawings, and other information. The General EIA may lead to one of four conclusions: (i) no detailed EIA is necessary, (ii) the project may be completed pursuant to specific conditions, (iii) a Detailed EIA is necessary, or (iv) project cancellation. The General EIA is free and usually takes up to 12 days.

(ii) **The Detailed EIA** – the scope is defined by the General EIA. The Detailed EIA report must be produced by a Mongolian company which is authorized by the MNET by means of a special procedure. The developer of the Detailed EIA should submit it to the MNET (or *Aimag* government). An expert of the organization who was involved in conducting General EIA should make a review of the Detailed EIA within 18 days and present it to MET (or *Aimag* government). Based on the conclusion of the expert, the MET (or *Aimag* government) takes a decision about approval or disapproval of the project.

(iii) **The Detailed EIA** must contain the following chapters: (i) Environmental baseline data; (ii) Project alternatives; (iii) Recommendations for minimizing, mitigation and elimination of impacts; (iv) Analysis of extent and distribution of adverse impacts and their consequences; (v) Risk assessment; (vi) Environmental Protection Plan; (vii) Environmental Monitoring Program; and (viii) Opinions of residents on whether the project should be implemented.

25. The type and size of the planned activities define responsibility for the Ministry of Environment and Tourism (MET) or *Aimag* (provincial) government in making EIA.

26. The EIA process in Mongolia is summarized in **Figure 2.1**.

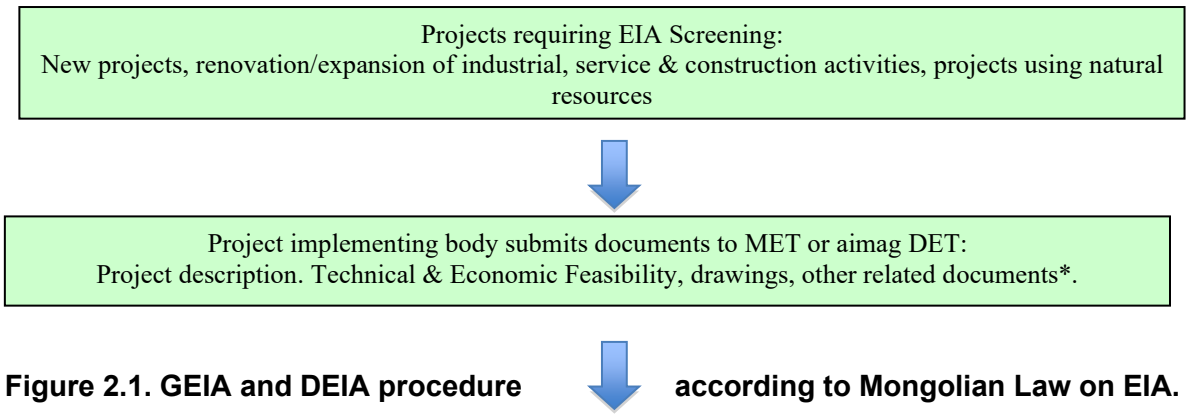
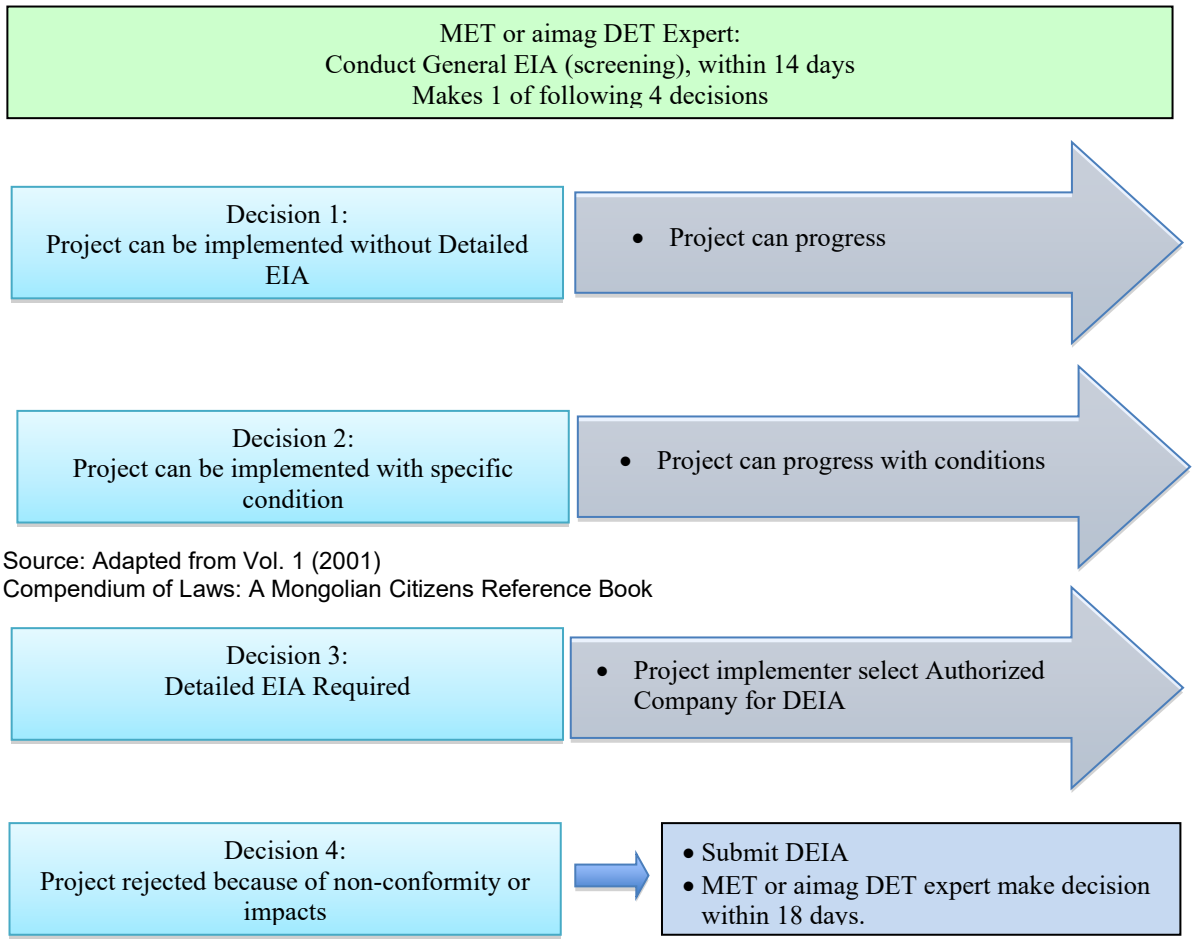


Figure 2.1. GEIA and DEIA procedure according to Mongolian Law on EIA.



Source: Adapted from Vol. 1 (2001)
Compendium of Laws: A Mongolian Citizens Reference Book

27. The Division for Environmental Impact Assessment of MET is responsible for making any comments to this IEE. This IEE addressed the specific requirements from MET on this component.

2.2 Other International Environmental Requirements

28. The World Bank Group's Environmental, Health, and Safety (EHS) Guidelines are technical reference documents with general and industry-specific examples of Good International Industry Practice (GIIP). The EHS Guidelines are provided in a General Set in four major categories (Environmental, Occupational Health and Safety, Community Health and Safety, Construction and Decommissioning.) These general guidelines are applicable to all sub-projects and supplemented by relevant industry sector specific EHS guidelines.

29. According to ADB SPS 2009 "During the design, construction, and operation of the project the borrower/client will apply pollution prevention and control technologies and practices consistent with international good practice, as reflected in internationally recognized standards such as the World Bank Group's Environment, Health and Safety Guidelines. These standards contain performance levels and measures that are normally acceptable and applicable to projects. When host country regulations differ from these levels and measures, the borrower/client will achieve whichever is more stringent. If less stringent levels or measures are appropriate in view of specific project circumstances, the borrower/client will provide full and detailed justification for any proposed alternatives that are consistent with the requirements."

2.2.1 Mongolia School/Kindergarten building Environmental Infrastructure

30. The consultants reviewed environmental issues related to development of infrastructure at schools and kindergartens in Mongolia. The project preparation technical assistance would ensure that project design proposes measures to address constraints in carrying out safe construction and expansion activities of school/kindergarten buildings as per national and international norms.

31. The project design must include development of overall environmental infrastructure, a systematic technological evaluation of appropriate, cost-effective, and sustainable solutions to wastewater, connections to centralized sewerage systems, effective solid waste management, connected water supply and energy efficient heating system infrastructure at school and kindergarten facilities in urban and rural settings.

32. Most schools in Ulaanbaatar are served by central water supply, wastewater collection and treatment facilities, centralized drainage systems, centralized heating systems and available electrical supply. However, regional environmental infrastructure systems are somewhat lacking in many cases, especially in Ger areas of Ulaanbaatar and outside, in rural areas. Additional Financing is also being made to schools and kindergartens in *aimags* and *soums* where many of the problems outlined above are more serious in other parts of Mongolia.

33. **Green Building Concept**[7]. A preliminary draft of a green building rating system was developed by Mongolia Green Building Council (MGBC) in 2014 by order of the Ministry of Environment, Green Development and Tourism of Mongolia (MEGDT). The draft system consists of ten main and 26 sub- criteria, covering the four thematic areas of energy, water, environment, and innovation (as shown in **Table 2.7**).

[7] Source of information Design and Technology Options - Analysis for a Green Public Kindergarten in Mongolia February 2016 Prepared by Mongolian Green Building Council and Building Technologies LLC for Global Green Growth Institute and Ministry of Environment.

Table 2.7 Criteria of the MGBC's Green building rating system

Energy	Implementation of the requirements of standard criteria of the A, B, C heating/thermal categories specified in BND 23-02-09 - Mongolian Building Standard
	Usage of energy efficient equipment
	Usage of interior and exterior lighting of the building
	Usage of renewable energy sources
Water saving	Water saving equipment installation
	Reuse of grey water futures
	Reuse of rainwater
Environmental aspects	Location: External planning, playground, car parking, bike parking and greenery should be designed according to BND Connectivity to the public transport
	Building: Usage of resource saving building material Usage of Green marked building material
	Interior air quality: Internal air temperature, humidity, and noise level according to BND Usage of green labelled material in Interior design.
	Environmental management: Usage of environmental management program and environmental monitoring plan during construction. Construction company or client has ISO 14001 environmental management standard. Maximum natural lighting in design.
Innovation	Usage of innovative technology, idea and material not directly related to green building rating system, but incorporated into GBRS

(Source: Mongolia Green Building Council, 2014, report)

34. The criteria of the draft rating systems helped inform the choice of green design and technology options for the green public kindergarten in Mongolia. The design concept of the green public kindergarten (developed by Green Technology Center-Korea (GTCK)) examined design and technology options across five areas, as follows:

- Building materials: Insulation
- Interior: LED, others
- Energy: Energy Efficiency of Building: Insulation of building for heat loss prevention; Heating: Four types of electrical and renewable heating systems - Electric floor heating, Night heat saver, Power saving heating and usage of Hybrid systems
- Water and sanitation: Drinking Water: Solar panel to work the bore-well for drinking water; Wastewater: Biological treatment systems for wastewater.
- Exterior: Landscaping etc.
- Other: Septic Tank for Solid waste

2.3 Mongolia and Multilateral Environmental Agreements (MEAs)

35. The health of Mongolia's natural ecosystems and populations of wild species is of both national and global importance. The country forms an important part of the global ecosystem in the ecological transition zone in Central Asia, where the great Siberian taiga, the Central Asian steppe, the high Altai Mountains, and the Gobi Desert converge. In recognition of its global responsibilities, Mongolia has acceded to a number of international environmental conventions and the key ones are tabulated below under four clusters in **Table 2.8**.

36. Each of these conventions places obligations on signatory governments ranging from the provision of a legislative basis for implementation, to adherence to the requirements and conditions of each convention, to monitoring implementation performance on a regular basis, to reporting on a regular basis and to the conference of parties.

Table 2.8 International Environmental Conventions Signed by Mongolia

No	Convention	Year of Accession
A	Nature conservation	
1	Convention on the Protection of Wetlands of International Importance-Ramsar Convention on Wetlands	1998
2	CITES (Convention on International Trade in Endangered Species of Fauna and Flora)	1996
3	CBD (Convention on Biological Diversity)	1993
B	Hazardous material	
1	Stockholm Convention on Persistent Organic Pollutants (POPs)	2004
2	Basel Convention on the Control of Trans-boundary Movement of Hazardous Waste and Their Disposal	1997
3	Rotterdam Convention on Prior Informed Consent (PIC) for certain Hazardous Chemicals and Pesticides in International Trade	2000
C	Atmospheric emissions	
1	UNFCCC (United Nations Framework Convention on Climate Change)	1994
2	Kyoto Protocol	1999
3	UNCCD (United Nations Convention to Combat Desertification)	1996
4	Montreal Protocol (on Ozone Depleting Substances)	1996
5	Vienna Convention for the Protection of the Ozone Layer	1996
D	World Heritage	
1	World Heritage Convention	1990

2.4 Asian Development Bank's Safeguards Policies

2.4.1 Asian Development Bank's Environment Classification

37. The ADB's Safeguard Policy Statement (SPS), 2009 is applicable to all projects. These projects can be categorized as A, B, C or FI. **Table 2.9** below provides a list of categorizations of the activities related to Environment, Safeguards, as per ADB's Safeguard Policy Statement 2009 requirements:

Table 2.9: Environment Safeguards Categorization: Definition

Category	Environment
A — Significant	Investments that anticipate significant adverse environmental impacts that are irreversible, diverse, or unprecedented. These impacts may affect an area larger than the sites or facilities subject to physical works.
B — Less Significant	Investments with potential adverse impacts that are site-specific, few if any of them are irreversible, and in most cases mitigation measures can be more readily designed than for Category A investments.
C — Minimal or impact	Investments that have minimal or no adverse environmental impacts.
FI — Financial Intermediation	Investment of ADB funds through financial intermediaries (FI)

2.4.2 ADB Prohibited Investment Activities List (PIAL)

38. At an initial stage of identifying project activities, the ADB's Prohibited Investment Activities List (described below) will apply. If the investment involves a prohibited activity, IA will not consider the investment.

39. The following type of projects do not qualify for Asian Development Bank financing:
(i) production or activities involving harmful or exploitative forms of forced labour[8] or

[8] Forced labor means all work or services not voluntarily performed, that is, extracted from individuals under threat of force or penalty

child labour[9];'

(ii) production of or trade in any product or activity deemed illegal under host country laws or regulations or international conventions and agreements or subject to international phase outs or bans, such as (a) pharmaceuticals[10], pesticides, and herbicides[11],(b) ozone-depleting substances[12], (c) polychlorinated biphenyls[13]and other hazardous chemicals[14],(d) wildlife or wildlife products regulated under the Convention on International Trade in Endangered Species of Wild Fauna and Flora[15], and (e) trans-boundary trade in waste or waste products[16];

(iii) production of or trade in weapons and munitions, including paramilitary materials;

(iv) production of or trade in alcoholic beverages, excluding beer and wine[17];

(v) production of or trade in tobacco;

(vi) gambling, casinos, and equivalent enterprises;

(vii) production of or trade in radioactive materials[18],including nuclear reactors and components thereof;

(viii) production of, trade in, or use of unbonded asbestos fibers[19];

(ix) commercial logging operations or the purchase of logging equipment for use in primary tropical moist forests or old-growth forests; and

(x) marine and coastal fishing practices, such as large-scale pelagic drift net fishing and fine mesh net fishing, harmful to vulnerable and protected species in large numbers and damaging to marine biodiversity and habitats.

2.4.3 ADB SPS Requirements (SR1): Environment Policy

40. ADB's SPS sets out the policy objectives, scope and triggers, and principles for the environmental safeguards. To achieve the policy objectives and deliver the policy principles, ADB carries out the actions described in the "Policy Delivery Process" (subsection "B" of the SPS). To help borrowers/clients and their projects achieve the desired outcomes, ADB adopts a set of specific safeguard requirements that borrowers/clients are required to meet in addressing environmental and social impacts and risks. ADB staff, through their due diligence, review, and supervision, will ensure that borrowers/clients comply with these requirements during project preparation and implementation. These safeguard requirements are as follows:

Objectives: The objective of ADB's due diligence for the Project loan is that EA ensures the environmental soundness and sustainability of projects and to support the integration of environmental considerations into the project decision-making process.

Scope and Triggers: Environmental safeguards are triggered if a project is likely to have potential environmental risks and impacts.

Policy principles:

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[9] Child labor means the employment of children whose age is below the host country's statutory minimum age of employment or employment of children in contravention of International Labor Organization Convention No. 138 "Minimum Age Convention" (www.ilo.org).

[10] A list of pharmaceutical products subject to phaseouts or bans is available at http://www.who.int.

[11] A list of pesticides and herbicides subject to phaseouts or bans is available at http://www.pic.int.

[12] A list of the chemical compounds that react with and deplete stratospheric ozone resulting in the widely publicized ozone holes is listed in the Montreal Protocol, together with target reduction and phaseout dates. Information is available at http://www.unep.org/ozone/montreal.shtml.

[13] A group of highly toxic chemicals, polychlorinated biphenyls are likely to be found in oil-filled electrical transformers, capacitors, and switchgear dating from 1950 to 1985.

[14] A list of hazardous chemicals is available at http://www.pic.int.

[15] A list is available at http://www.cites.org.

[16] As defined by the Basel Convention; see http://www.basel.int.

[17] This does not apply to investee companies who are not substantially involved in these activities. Not substantially involved means that the activity concerned is ancillary to an investee company's primary operations.

[18] This does not apply to the purchase of medical equipment, quality control (measurement) equipment, and any equipment for which ADB considers the radioactive source to be trivial and adequately shielded.

[19] This does not apply to the purchase and use of bonded asbestos cement sheeting where the asbestos content is less than 20%.

- Use screening process for each proposed project to determine the appropriate extent and type of environmental assessment so that appropriate studies are undertaken commensurate with the significance of potential impacts and risks.
- Conduct an environmental assessment for each proposed project to identify potential direct, indirect, cumulative, and induced impacts and risks to physical, biological, socioeconomic (including impacts on livelihood through environmental media, health and safety, vulnerable groups, and gender issues), and physical cultural resources in the context of the project's area of influence. Assess potential transboundary and global impacts, including climate change. Use strategic environmental assessment where appropriate.
- Examine alternatives to the project's location, design, technology, and components and their potential environmental and social impacts and document the rationale for selecting the particular alternative proposed. Also consider the no project alternative.
- Avoid, and where avoidance is not possible, minimize, mitigate, and/or offset adverse impacts and enhance positive impacts by means of environmental planning and management. Prepare an environmental management plan (EMP) that includes the proposed mitigation measures, environmental monitoring and reporting requirements, related institutional or organizational arrangements, capacity development and training measures, implementation schedule, cost estimates, and performance indicators. Key considerations for EMP preparation include mitigation of potential adverse impacts to the level of no significant harm to third parties, and the polluter pays principle.
- Carry out meaningful consultation with affected people and facilitate their informed participation. Ensure women's participation in consultation. Involve stakeholders, including affected people and concerned nongovernment organizations, early in the project preparation process and ensure that their views and concerns are made known to and understood by decision makers and taken into account. Continue consultations with stakeholders throughout project implementation as necessary to address issues related to environmental assessment. Establish a grievance redress mechanism to receive and facilitate resolution of the affected people's concerns and grievances regarding the project's environmental performance.
- Disclose a draft environmental assessment (including the EMP) in a timely manner, before project appraisal, in an accessible place and in a form and language(s) understandable to affected people and other stakeholders. Disclose the final environmental assessment, and its updates if any, to affected people and other stakeholders.
- Implement the EMP and monitor its effectiveness. Document monitoring results, including the development and implementation of corrective actions, and disclose monitoring reports.
- Do not implement project activities in areas of critical habitats, unless (i) there are no measurable adverse impacts on the critical habitat that could impair its ability to function, (ii) there is no reduction in the population of any recognized endangered or critically endangered species, and (iii) any lesser impacts are mitigated. If a project is located within a legally protected area, implement additional programs to promote and enhance the conservation aims of the protected area. In an area of natural habitats, there must be no significant conversion or degradation, unless (i) alternatives are not available, (ii) the overall benefits from the project substantially outweigh the environmental costs, and (iii) any conversion or degradation is appropriately mitigated. Use a precautionary approach to the use, development, and management of renewable natural resources.
- Apply pollution prevention and control technologies and practices consistent with international good practices as reflected in internationally recognized standards such as the World Bank Group's Environmental, Health and Safety Guidelines. Adopt cleaner production processes and good energy efficiency practices. Avoid pollution, or, when avoidance is not possible, minimize or control the intensity or load of pollutant emissions and discharges, including direct and indirect greenhouse gases emissions, waste generation, and release of hazardous materials from their production, transportation, handling, and storage. Avoid the use of hazardous materials subject to international bans or phase-outs. Purchase, use, and manage pesticides based on integrated pest management approaches and reduce reliance on synthetic chemical pesticides.

- Provide workers with safe and healthy working conditions and prevent accidents, injuries, and disease. Establish preventive and emergency preparedness and response measures to avoid, and where avoidance is not possible, to minimize, adverse impacts and risks to the health and safety of local communities.
- Conserve physical cultural resources and avoid destroying or damaging them by using field-based surveys that employ qualified and experienced experts during environmental assessment. Provide for the use of “chance find” procedures that include a pre-approved management and conservation approach for materials that may be discovered during project implementation.

2.4.4 Other documents relevant to ADB’s Safeguard Policy Statement, 2009

(i) World Bank Group’s Environment, Health and Safety (EHS) Guidelines, 2007 which are currently under revision.
(ii) ADB’s Environmental Safeguards: A Good Practice Sourcebook-Draft Working Document (November 2012).
(iii) International Labor Organisation (ILO) Core Labor Standards.

3.0 DESCRIPTION OF THE PROJECT

3.1 The Project

41. The project will help to sustain access to and quality of pre-primary, primary, junior and senior secondary education during the economic difficulties. The project will have five outputs: (i) enrolment capacity of schools and kindergartens enhanced, (ii) curriculum statements, assessment and evaluation updated and implemented in line with education frameworks, (iii) availability and affordability of quality educational resources improved, (iv) school and kindergarten leaders and teachers' knowledge and skills upgraded, and (v) systems for increasing efficiency in public spending on education developed. The overall project is expected to be implemented from April 2018 to December 2026.

42. For the ongoing project, as of 30 June 2023, a total of 84% (or 5.2 years) of the project implementation period elapsed, and an overall non-financial physical implementation progress for 2018-2024 was at 80%, increased by 5% compared to the previous year. As of the 20 September 2023, total of 13 civil works (9 kindergartens and 4 schools) commissioned, and 8 civil works (5 kindergartens and 3 schools) are ongoing with a performance status of 45-95%.

43. The MES requested additional financing to complete the civil works which were dropped from the original scope of the ongoing project due to construction materials price increases. The proposed activities will be creating additional 9 schools and kindergarten of 910 beds at 6 kindergartens, and 960 seats at 3 schools in Ulaanbaatar city and Khuvsgul *aimag*.

3.2 Justification of the Project

44. The low population density and harsh winters in Mongolia, coupled with the limited capacity of the central and local governments to plan and manage education services in a coordinated manner, have caused inefficiency in public spending on education. With more than one quarter of population engaged in semi-nomadic herding, the school dormitory system is essential to ensure access to education. To keep students in kindergartens, schools, and dormitories during extremely cold winter months (November–March), constant heating is necessary. Besides, kindergartens and schools built in the 1970s and 1980s have run down, becoming increasingly energy inefficient. All these come with high costs. Moreover, the short curriculum reform cycle (less than 4 years) in the course of transitioning from a 10- to 12-year education system (2004–2015) has further drained public resources. On the other hand, the decentralization of education administration in 2014 has led to the random opening of senior secondary classes in some areas with fewer students than the standard class size. Investments in kindergarten and school buildings and facilities need to be coordinated and optimized at the central and local levels, taking into account the existing enrolment capacity and trends in population growth and internal migration.

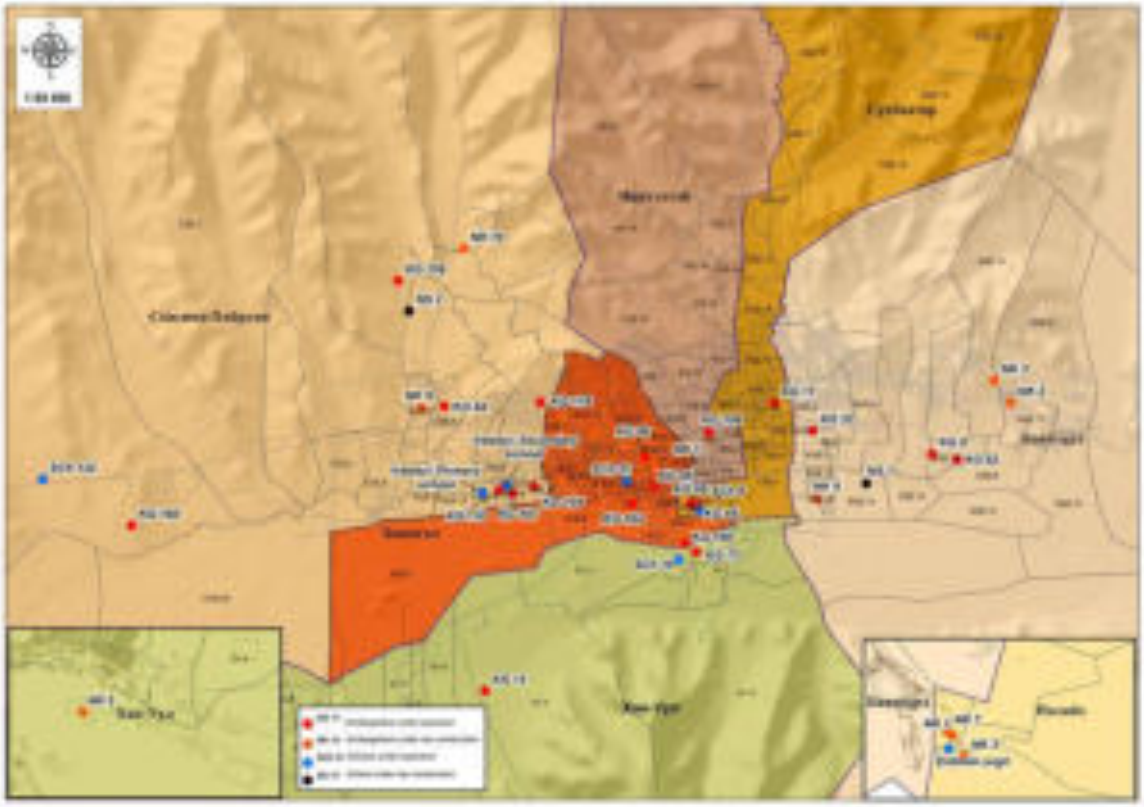
45. By 2026, about 2 schools and 3 kindergartens will be newly constructed, and 8 schools and 17 kindergartens will be expanded; and there will be no schools operating in three shifts.

3.3 Location

Figure 3.1 provides the detailed map of Mongolia. **Figure 3.2** provides the location of ADB's funded sub-projects in Ulaanbaatar city.

Figure 3.1 Map of Mongolia and location of sub-projects implementing *aimags*.

46. **Figure 3.2** provides location map of the subproject's sites in the Ulaanbaatar city.



Figures 3.2. Location map of project sites in Ulaanbaatar city

47. **Figures 3.3-3.6** provide location map of project sites in other *Aimags* respectively.

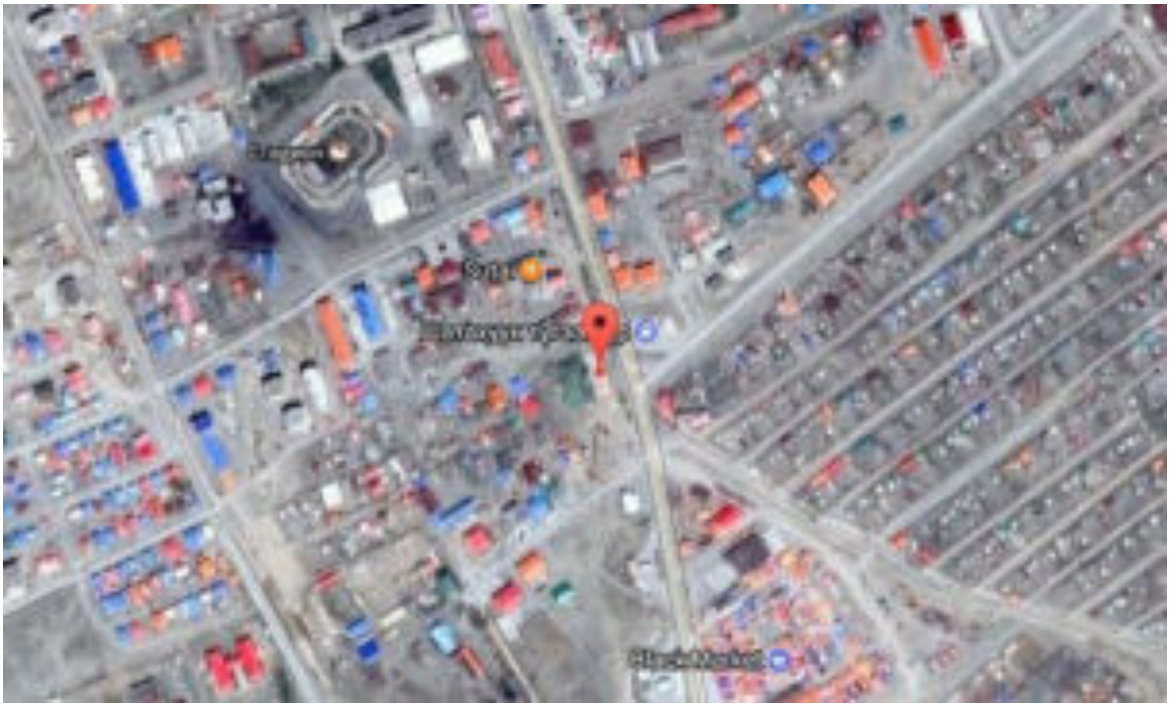


Figure 3.3: Location of Khantaishir school in Govi-Altai *Aimag*, Altai

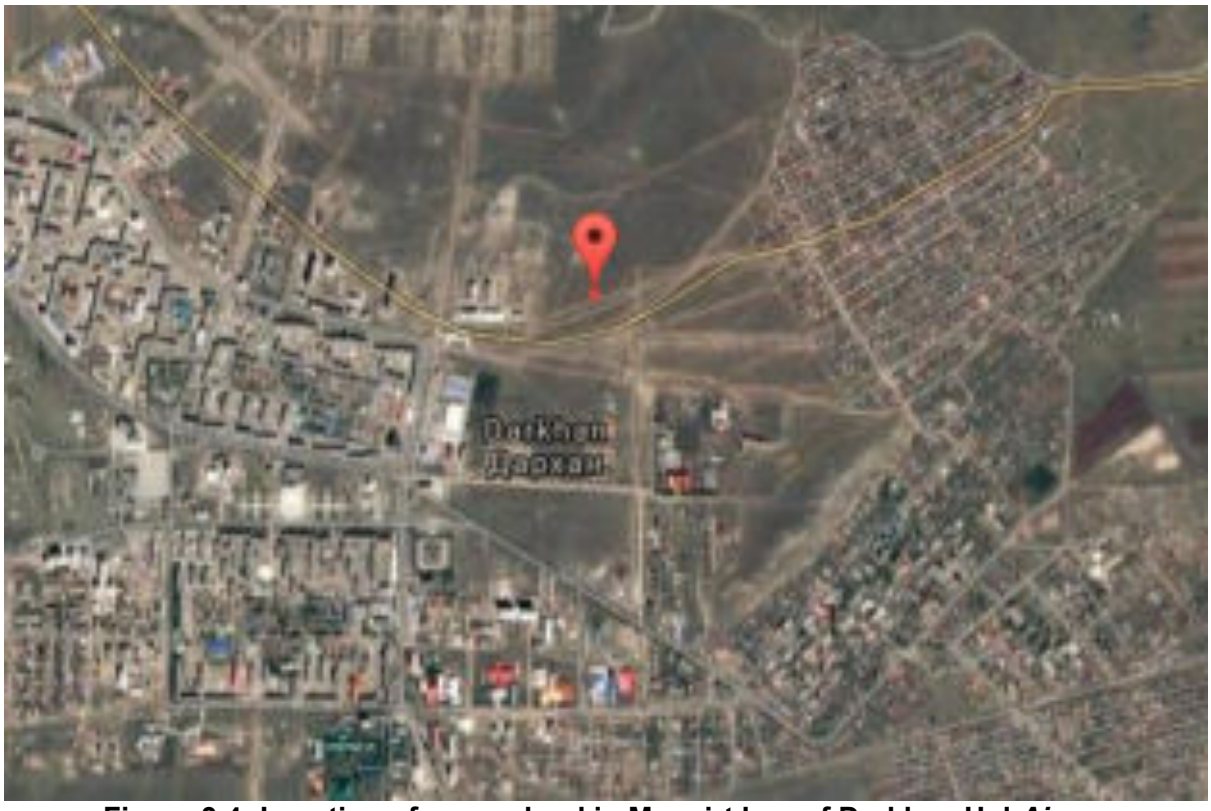


Figure 3.4: Location of new school in Mangirt bag of Darkhan Uul *Aimag*

Figure 3.5: Location of new kindergarten in Sumber *Soum* of Govisumber *Aimag*

Figure 3.6: Location of kindergarten No.6 in Murun *Soum* of Khuvsgul *Aimag*

3.4 Size and Magnitude of Operation

Project components

48. Table **3.1** shows sub-projects and their associated key features under funded by ADB.

Table 3.1: Sub-project components and their key features

No	Sub-Project components	Location	Key features of sub-project component
A	**Kindergartens**		
A 1	Kindergartens under expansion		
1	Kindergarten No.164	UB, Bayangol District, 4th *khoroo*	Existing 2 floor building is established in 1973, connected to central heating, electricity, water and sewage system. The wall of existing building is constructed by limestone bricks so has many cracks and loses much heat. The expansion will be a separate two floor new building in the back side within premises.
2	Kindergarten No.22	UB, Bayanzurkh District, 1st *khoroo*	Existing 2 floor building is established in 1970, connected to central heating, electricity, water and sewage system. The kindergarten has 3400 m^2 land area and expansion will be a separate two floor new building in the back side within premises.
3	Kindergarten No.8	UB, Bayanzurkh District, 16th *khoroo*	Kindergarten has 2 floor old building constructed in 1957. The building connected to central heating, sewage and water supply system. The current building washrooms have poor sanitation condition, walls and ceiling of classrooms are breaking down, and water and wastewater plumbing systems have deteriorated. Access road is available. The expansion will be separate new building in the back yard of kindergarten.
4	Kindergarten No.65	UB, Khan-Uul District, 2nd *khoroo*	Existing 2 floor building is established in 1972, connected to central heating, electricity, water and sewage system. The expansion will be a separate two floor new building in the back side within premises.
5	Kindergarten No.72	UB, Khan-Uul District, 2nd *khoroo*	Existing 2 floor building is established in 1976, connected to central heating, electricity, water and sewage system. The wall of existing building is constructed by limestone bricks so has many cracks and loses much heat. The expansion will be a new two floor separate building in the back side within premises.
6	Kindergarten No.84	UB, Songinokhairkhan District, 6th *khoroo*	Existing 2 floor building is established in 1948, connected to central heating, electricity, water and sewage system. The plumbing system of the current building is too old. Kindergarten has 10172 m^2 area of land. The expansion will be separate building in its premises.
7	Kindergarten No.107	UB, Songinokhairkhan District, 14th *khoroo*	Existing 1 floor building is established in 1986, connected to central heating, electricity, water and sewage system. Kindergarten has 8861 m^2 area of land. The expansion will be separate building in its premises.
8	Kindergarten No.110	UB, Songinokhairkhan District, 15th *khoroo*	Existing 1 floor building is established in 1987, connected to central heating, electricity, water and sewage system. Kindergarten has 10026 m^2 area of land. The expansion will be 2 floor separate new building in its premises.
9	Kindergarten No.176	UB, Songinokhairkhan District, 31st *khoroo*	Kindergarten has 1 floor building which established in 2005, has no connection to central heating, water and sewage system and has individual heat only boiler, holding tank and water well. Kindergarten has 1388 m^2 area of land. The expansion will be additional floor on the top of building. The heat
10	Kindergarten No.68	UB, Sukhbaatar District, 3rd *khoroo*	Existing 2 floor building is established in 1973, connected to central heating, electricity, water and sewage system. The expansion will be a two-floor separate new building in the back side of the premises.

No	Sub-Project components	Location	Key features of sub-project component
11	Kindergarten No.17	UB, Sukhbaatar District, 10th *khoroo*	Kindergarten's existing building is 2 floor and constructed in 1963. Kindergarten has 3950m^2 premises and out of it 810m^2 area is under the building. The existing building connected to central heating, electricity, water supply and sewage system. The expansion will be a two-floor separate new building in the own premises in the left side of old building.
12	Kindergarten No.5	Govisumber, Sumber *Soum*, 3rd *bagh*	*Aimag* Government owned 300m^2 land area is available. Blueprint is developed. The area is located nearby the school dormitory and school. Access road is available.
13	Kindergarten No.104	UB, Songinokhairkhan District, 12th *khoroo*	Existing 1 floor building is established in 1986, connected to central heating, electricity, water and sewage system. Kindergarten has 10172 m^2 area of land. The expansion will be separate building in its premises.
14	Kindergarten No.160	UB, Sukhbaatar District, 3rd *khoroo*	Kindergarten has 2 floor old building constructed in 1972. The building connected to central heating, electricity, sewage and water supply system. Access road is available. The expansion will be a separate new building in the back side of kindergarten premises.
15	Kindergarten No.82	UB, Bayanzurkh District, 16th *khoroo*	Existing 2 floor building is established in 1980, connected to central heating, electricity, water and sewage system. The wall of existing building is constructed by limestone bricks so has many cracks and loses much heat. The kindergarten has 7420 m^2 land area and expansion will be a separate two floor new building in the back side within premises.
16	Kindergarten No.88	UB, Bayangol District, 18th *khoroo*	Existing 2 floor building is established in 1982, connected to central heating, electricity, water and sewage system. The expansion will be a separate two floor new building in the back side within premises.
17	Kindergarten No.6	Khuvsgul, Murun *soum*, 8th *bagh*	The building was put into operation in 1976 with the capacity to receive 120 children. It is a "P"-shaped 2-storey brick structure, which consists of 3 block parts with an axis of 33.5x10.3m (11.7mx10.5m) x2 and is connected to a centralized engineering network. In 2015, 2019, and 2021, the state inspector's conclusions were issued regarding the quality and condition of the building, and it was determined that it did not meet the requirements for use. Conclusion No. 23.07.028/115 dated September 24, 2021.
A 2	Kindergartens under new construction		
1	New kindergarten	UB Bayanzurkh District, 24th *khoroo*	The land allocated for this site currently used by branch of kindergarten # 168 using 4 Gers as classrooms. Has individual electric heating, no holding tank for wastewater and uses open pit and transported drinking water.
2	New kindergarten	UB, Nalaikh District, 7th *khoroo*	District Government owned land 6,000m^2 area situated near the "Sport Complex", close with Khashaa plots in left side. Access road is available. The area is at least 500m away from District Heating Plant, water supply and sewage system.
3	New kindergarten	UB, Songinokhairkhan District, 25th *khoroo*	District Government owned 300m^2 land area is available. Blueprint is developed. The area is located nearby main road and surrounded by Ger khashaa plots and small services. Access road is available. There is no central heating, water supply and sewage system available in the area.
B	**Schools:**		
B 1	Schools under expansion:		
1	School No.51	Bayangol District, UB	Existing 3 floor building constructed in 1974 by brick. Connected to centralized electricity, heating, water supply, sewage system. The expansion will be a separate building behind the existing school building.
2	School No.18	UB, Khan-Uul District	Existing 3 floor building is established in 1979, connected to central heating, electricity, water and sewage system. The

No	Sub-Project components	Location	Key features of sub-project component
			expansion will be additional floor on the roof and have permission of Specialized Inspection Agency to add one more floor on top.
3	"Erdmiin Orgil" Complex	UB, Nalaikh District	Existing 1 floor building is established in 1971, connected to central heating, electricity, water and sewage system. The expansion will be 3 floor separate building with capacity of 640 students, in the school yard inside premises.
4	"Ireedui" Primary School	UB, Songinokhairkhan District	Existing 2 floor building was established in 1983, connected to central heating, electricity, water supply and sewage system. The school has 14281.7 m^2 area. The expansion will be additional floor on the roof of building. Has permission of Specialized Inspection Agency to add one more floor on top.
5	"Ireedui" Secondary School	UB, Songinkhairkhan District	Existing 2 floor building is established in 1983, connected to central heating, electricity, water and sewage system. The school has 14602.2 m^2 area. The expansion will be additional floor on the roof of building. Has permission of Specialized Inspection Agency to add one more floor on top.
6	School No.122 (green school)	UB, Songinokhairkhan District, 22nd *khoroo*	School has 18000 m^2 land area and 4 floor building, constructed in 2013. The existing building has capacity with 640 students but currently 1500 students are enrolled at this school. The school building has individual heat only boiler for heating, water reservoir for keeping transported water and individual holding tank for wastewater, connected to central electricity line. The expansion will be 3 floor building with capacity of 640 students and has a blueprint for building.
7	School No.6	UB, Sukhbaatar District	Existing 2 floor building is established in 1973, connected to central heating, electricity, water supply and sewage system. The expansion will be additional floor on the roof.
8	Khantaishir	Govi-Altai, Altai *soum*	The school is in the one floor old building constructed in 1961, which is proposed to be used as office of construction company temporarily. The building is connected to central heating, water supply and sewage system. School has possession of 3567 m^2 land and the expansion will be a new 3 floor building, with capacity of 320 students and can be constructed in front of old building.
B 2	Schools under new construction :		
1	New school	Songinokhairkhan District, 7th *khoroo*	The new construction site is situated in the edge of Ger Khashaa Plot area. Total of 10000 m^2 area for this site and it owned by District Government. The area is empty but included in town development plan, has no central heating, water supply and sewage system infrastructure.
2	New school	Darkhan, Mangirt, 15th *bagh*	Construct new school building with capacity of 960 students.1.5 ha area is available with a possibility to connect to central heating, sewage and water supply system. The site is included in new development area and no other buildings in vicinity of new kindergarten close to this site.

49. For some of the school/kindergarten sub-projects, location specific blueprints are under development through accredited architects in Mongolia. The data regarding soil, topography, contour, land cutting and filling required, distance from water body and distance from major roads, details of forest/non-forest, fruit/non-fruit trees that can be affected, land details will be collected by engineering firms. However, if sites are changed other than those indicated here in the IEE, supplementary information will be supplied for each of new location for subprojects proposed by MES to ADB for prior to approval before finalizing design drawings.

4.0 DESCRIPTION OF ENVIRONMENT (Baseline Data)

50. The Schools/Kindergartens subprojects funded under the PPTA are situated in districts of Ulaanbaatar city and Govi-Altai, Govisumber, Darkan-Uul *aimag*s. This chapter focuses on the present environmental conditions of the sub-project areas in Ulaanbaatar and other *aimag*s.

51. Most sub-project activities will have minimal impacts to the environment and will not be influenced by current environment conditions. Thus, the main emphasis of this chapter is the description of physical, biological, and socioeconomic conditions in Ulaanbaatar and at other *Aimags*, and more specifically the environment at the schools/kindergartens.

4.1 Physical Environment of Mongolia

4.1.1. Topography

52. Although most of the country is flat, with rolling hills, there are several significant mountain ranges, notably the Altai, Khangai, Knentii and Khuvsgul. About half of the land is at an altitude of about 1,400 m or more above mean sea level. The altitudes range from 560 m (above sea level) at the lowest point of Khokh Nuur in the eastern steppes, to the highest of 4,374 m (above sea level) at Khuiten peak in the Altai Mountains.

53. The Khuvsgul *aimag* is considered to be one of the most beautiful places of Mongolia with its snowcapped majestic mountain ranges, deep blue lakes, thick forests, vast river valleys. The 24 sums are divided into three regions, High Mountain, Low Mountain, and Forrest-Steppe. Khuvsgul *aimag* is rich with mineral resources. Deposits containing many thousands of tons of phosphate, coal, graphite, gold, iron ore, limestone, mineral colors, marble, and granite have been explored in this region. By natural zonation the area is the forest steppe zone and belongs to *aimag* of Khangai vaulted massive mountain with the typical dark chesnut soil type of steppe valley and depression group. The area belongs to the sporadic permafrost region according to permafrost zones.

4.1.2. Climate

54. Mongolia lies in a transitional zone at 42º – 52º N, between the boreal forests of Siberia and the Gobi Desert, spanning the southernmost border of the permafrost and the northernmost deserts of Central Asia. Large distances and high mountain chains separate the country from the oceans. It has an extreme continental climate with marked differences in seasonal and diurnal temperatures and low precipitation. Mean annual observed precipitation ranges from 38.4 mm at Ekhiin gol in Bayankhongor *Aimag* (*aimag*) to 389.3 mm at Dadal in Khentii *aimag*. Most of the rainfall occurs in summer, between June and August. Mean monthly temperatures for the last thirty years range from -11.8ºC (January) to 25.2ºC (July) at Ekhiin gol, the warmest place, and from -32ºC (January) to 12.8ºC (July) at Rinchinlhumbe, the coldest place in Mongolia.

55. Mongolia has a severe continental climate. Ulaanbaatar is the coldest national capital in the world, with temperatures ranging from approximately -37 ^{0}C to +25^{0}C. The country is also prone to severe winters, known as *dzud* which means any condition that stops livestock getting to pasture. The winters of 1999, 2000, 2001 and 2010 were *dzud* years, which resulted in the deaths of more than 25% of the livestock population. Ulaanbaatar is located at 1,350m altitude in the valley of four mountain ranges which rise to 1,650 to 1,949m altitude. Due to its location, the city experiences many temperature inversions. At least 80% of these inversions occur from October to April when air temperatures are from 7.5 to 11.7 ^{0}C and land temperatures are from minus 21 to minus 39^{0}C. The average depth of the inversions is 650 to 920 m.

56. Khuvsgul, Murun *soum* is influenced by the local steppe climate. There is little rainfall

throughout the year. According to Köppen and Geiger, this climate is classified as BSk. The average temperature in Moron is -0.9 °C. The rainfall here averages 230 mm. The driest month is January, with 1 mm of rainfall. The greatest amount of precipitation occurs in July, with an average of 69 mm. The warmest month of the year is July, with an average temperature of 16.8 °C. The lowest average temperatures in the year occur in January, when it is around -21.7 °C. The difference in precipitation between the driest month and the wettest month is 68 mm. The variation in temperatures throughout the year is 38.5 °C. Murun city is in the Delgermurun river valley and Bulgan city is in the basin of Orkhon river. Bulgan and Khuvsgul *aimags* have a subarctic climate with long, dry, very cold winters and short, cool summers.

57. **Precipitation:** The country averages 257 cloudless days a year, and it is usually at the centre of a region of high atmospheric pressure. Precipitation is highest in the north, including Ulaanbaatar (average of 200 to 350 mm per year) and lowest in the south, which receives 100 to 200 mm annually. In Ulaanbaatar, 95-97 percent of precipitation falls during the warm season, including 75-80 percent in the summer. In winter, the precipitation ranges from 1 to 3 mm, whereas in July it ranges from 100 to 120 mm. At an average, it rains 40-70 days a year, snow falls on 25-30 days, and land is covered with snow for 140-170 days.

58. **Wind:** The dry environment exacerbates the frequent dust storms occurring in Mongolia each year. Wind erosion of soil is a dynamic process of soil degradation in which the share stress applied on the ground surface by wind exceeds the ability of the soil particles to resist separation and transportation. The wind erosion depends on the climatic factors, soil properties, landscape characteristics and availability of vegetation. In Ulaanbaatar, wind blows mostly from the north and northwest and average wind velocities are usually lower than in other parts of Mongolia. Monthly wind velocities average 1.6 – 4.4 m/s, with an average of 7 to 9 days per year where wind velocities exceed 10 m/s.

4.1.3 Ecosystems

59. Mongolia's position, size and topography have resulted in a unique assembly of ecosystems or natural zones. Studies of the flora and fauna of the country, together with climatic and geographic data, have resulted in the classification of Mongolia into six broad ecological regions, 16 *aimag*s and 47 bio-geographical zones. Mongolia also has been divided into six broad vegetation zones (Alpine, Taiga, Forest-Steppe, Steppe, Desert-Steppe and Desert). Ecosystems are fragile and extremely vulnerable to many forms of economic exploitation.

60. **Alpine**: High mountains rising above the tree line occur in the Altai, Khangai, Khentii and Khuvsgul ranges. The tops of these mountains are relatively flat, with few sharp peaks. Vegetation consists of low shrubs and herbs, sedges, mosses, algae and lichens, and there are few birds and mammals living at this altitude.

61. **Taiga**: Mountain taiga forest covers areas of the Khuvsgul and Khentii mountains, the area north of the Tarvagatai Mountains, the upper reaches of the Orkhon river, and the Khan Khokhii range. It is the southern edge of the Siberian taiga that has the largest continuous forest system in the world.

62. **Forest-Steppe**: This zone lies between the steppe and the taiga, in the Khangai and Altai Mountain chains, including parts of Orkhon and Selenge river basins and Khyangan Mountains of eastern Mongolia. Coniferous forests are found on the northern slopes, while the southern slopes are covered with open steppe vegetation.

63. **Steppe**: The steppe zone extends from the western Great Lakes depression past Khangai and the middle Khalkha highlands to the steppes of Khentii, Dornogovi and Dornod. It is characterized by flat plains and rolling hills covered in feather grass and shrubs.

64. **Desert-Steppe**: Mongolia's desert-steppe or semi-desert is characterized by a dry climate with mean annual precipitation of 100-125 mm and vegetation dominated by low grasses and shrubs. Many of Central Asia's endemic plants occur in this zone.

65. **Desert**: Desert occurs predominantly in the south. The Mongolian desert is extremely dry, with mean annual rainfall lower than 100 mm, and some areas remain without rain for several years at a time. High winds and dust storms are frequent in spring and summer. There are oases with poplar, but for the most part the desert consists of bare sandy plains and Rocky Mountains.

4.1.4. Water Resources

66. Mongolia straddles a major continental watershed aligned east-west across the country. North of the divide, drainage is to the Arctic Ocean via the Lena River and Lake Baikal, and to the Pacific Ocean via the Amur and Yenisei rivers. South of the divide drainage terminates in dry lakes and salt pans with no outlet to the sea.

67. There are more than 3,800 rivers and streams with regular run-off in Mongolia. The total length of the river network is about 6,500 km. There are 186 glaciers of a total volume of 62.5 km^3 and 3,500 lakes covering total surface area of 15,600 km^2 with a total volume of 500 km^3 and 8,000 river lets. There are three major drainage basins: rivers in the west drain to the enclosed Basin of Central Asia; rivers in the north drain to Arctic Ocean Basin; and rivers in the east drain to Pacific Ocean Basin.

68. The potential water resources of the country are estimated to be about 36.4 km^3. Of this, the surface water resources are 22.0 km^3 and the usable groundwater resources are 12.6 km^3. About 78% of the river run-off is formed on 36 % of the territory in northern, western, and north-eastern mountainous areas and 22 per cent is formed on 64 % of the territory in the south of the country. On an average, the annual amount of water resources per capita is 17,300 m^3. However, it ranges from 4,500 m^3 per capita in the Gobi area to 46,000 m^3 per capita in northern and central areas.

69. **Surface water:** Ulaanbaatar is located in the Tuul River basin. The Tuul River is 704 km long and drains an area 49,840 square km. Currently the Tuul River is suffering from pollution, some caused by Ulaanbaatar's central sewage treatment facility, as well as heavy mineral and sedimentation pollution caused by gold mining in the Zaamar area. The Selbe River, a tributary of the Tuul River with a catchment area of 303 square km, flows along the Eastern and Southern sides of Ulaanbaatar, eventually meeting the Tuul River approximately 20 km downstream of the city. The principal recharge mechanism for the Selbe River is the rainwater in summer and autumn therefore, water levels fluctuate considerably. The river is considered to be of low biological relevance and is not used as a drinking water source or for agriculture. **Table 4.1** provides average water quality in Tuul river of the Ulaanbaatar city.

Table 4.1: **Average Water Quality in the Tuul river in Ulaanbaatar city (1998-2008)**

Summary	DO [mg/l]	BOD_5 [mg/l]	COD [mg/l]	NH_4^+ [mg/l]	NO_2^- [mg/l]	NO_3^- [mg/l]	PO_4^{-3} [mg/l]
Mean	8.68	4.59	5.42	1.47	0.060	0.65	0.12
Min	6.87	1.79	2.96	0.11	0.003	0.15	0.01
Max	9.40	15.79	9.34	6.47	0.220	1.77	0.50
Standard	0.81	4.37	2.22	2.18	0.079	0.51	0.17

Source: Data from analysing by Environmental monitoring laboratory of MNET, in Ulaanbaatar city, 1998-2008.

70. The Delgermurun river in Khuvsgul *aimag* in northern Mongolia, together with the Ider river, it is one of the main sources of the Selenge river. It runs 1.5km west of the Murun city site. The upstream of Delgermurun river is in the Ulaan Taiga mountain range located near the Mongolian Russian border. The Delgermurun river is frozen 128–175 days per year. It is 445

km long and is the largest river in the Selenge river system. The Delgermurun river is 25-40 m wide in the upstream part, and 50-100 m wide in the lower reaches with an average 0.5-2.5 m depth and flow velocity is 0.2-2 m/s. The largest tributary rivers of the Delgermurun river are Taris River (75 km), Beltes river (92 km), and the Bugsei river (110 km). The total groundwater resource in basin of Delgermurun river (23,017 km2) is calculated as 435 million m3 and the resource available for extraction is 229 million m3 with the yield of 7.0-15.0 l/sec; the water level can drop 3.5 - 5.6 m in summer due to extraction.

71. **Groundwater:** Groundwater exists in unconfined aquifers (alluvial sediments of late quaternary to recent period) at depths between 4 - 30 m. The static water level in the Tuul River valley is from 2-6 m in winter and 0.5-5 m in summer, if there are no wells in operation. However, extraction of groundwater can cause the static water level to drop from 10 - 13 m in winter and from 15 - 19 m in summer.

72. **Permafrost:** Two thirds of the population of Mongolia lives in the region with permafrost distribution. With the increasing activity of infrastructure networks, knowledge about the distribution patterns of mountain permafrost helps reducing installation costs and improves life safety of people in such area.

73. A map of seasonally frozen ground and permafrost distribution of Mongolia at a scale of 1:1500000 is available. This map was compiled by the results of Russian – Mongolian geocryological expedition in 1967 – 1971.

74. On the territory of Ulaanbaatar, annual and seasonal permafrost soil is spread in relation to land surface formation and climate feature. The annual permafrost intermittently and patchily spread here (Tumurbaatar, 1995). The annual permafrost spreads on relatively small area in intermittently through average high mountains near Tolgoit, Selbe, Uliastai and Gachuurt river outfalls in north part of the Ulaanbaatar. But above-mentioned rivers valleys and outfalls of Baruun Salaa and Zuun Salaa rivers in Tolgoit, Belkh and Selkh rivers, Sharga Morit and Khandgait rivers in Selbe river, Zuun gol and Baruun gol, Urd Bayn gol rivers in Uliastain river, Shijir, Shavart and Bugat rivers in Gachuurt river valley, the long-term permafrost spreads patchily. In other parts along or in low parts of land surface, medium bare mountain slopes and low hills relic soil spreads in seasonal permafrost. The annual permafrost spreads mostly in valley bottom and back side of mountains, humid sandy and argillaceous debris. Here phenomenon of cold salient, seasonal and annual cold fraction and overflow is commonly occurred by impact of the permafrost process. Furthermore, various micro types from the permafrost are derived in hollows and convexes. The most occurred phenomenon of the permafrost is the overflow “toshin”. It is related to seasonal freezing and formed in river, stream and sprig beds, and sometimes it occupies even side areas. When it gets warm in spring its ice melts and breaks valley bottom in some extent.

75. Annual absolute thickness of the permafrost is 15-40 m in thick river beds, hollow and convex regions, 25-120 m on top of high mountains and their back slopes and average thickness is 30-100 m. Seasonal freezing of relic soil in natural normal condition of annual permafrost and its melting is 2.7- 3.4 m in alluvia gravel, gravelly sand and sandy soil or in river beds, 4.0- 5.6 m in sandy soil with broken rocks of mountain slopes, 2.8- 3.1 m in mountain back slope soil and 5.1- 5.4 m in mountain top soil and sediment (Sharkhuu S., 2002).

76. Annual mean temperature of the relic soil freezes from zero degrees and its seasonal freezing and melting depth size decreases, when its loamy, fatty and humid feature is increased. In coherent to it, the relic soil seasonal melting average depth does not exceed over 2 m in marsh area of riverbeds and mountain flat slope and reaches at 3-4 m on valley slope dry area. Dominant average freezing of the relic soil seasonally is 2.5-3.5 m deep in average, but it does not exceed over 1.5-2.0 m in argillaceous debris enriched by humidity and reaches at 4-5 m in broken sandy debris lack of humidity in annual and seasonal permafrost process and phenomenon spongy debris spread is the most common in bottom of valleys and hollows

regarding humidity and less distributed to mountain side slope, even in south slope.

77. For the last year's depth of permafrost relic soil is presumably to decline and annual permafrost to be changed in south line of the relic soil due to natural and human activities, which was mentioned by researchers of Institute of Geography. It is clearly observed in patchily spread areas, where the permafrost depth declined, marshes along rivers dried up and seasonal permafrost is decayed. Due to loss of the permafrost relic soil forestation and reproduction is stagnated and stretches from forest landscape to steppe landscape that affects loss of plant cover and chases wildlife away from its habitat. Therefore, the annual and seasonal permafrost relic soil and its process influence specifically on natural and socio-economic condition of this area. Currently there is no detailed research on permafrost of the Ulaanbaatar available and it is not possible to define changes made on its phenomenon, proves and relic soil freezing and melting in depth. **Figure 4.1** shows the regional distribution of permafrost near Ulaanbaatar.

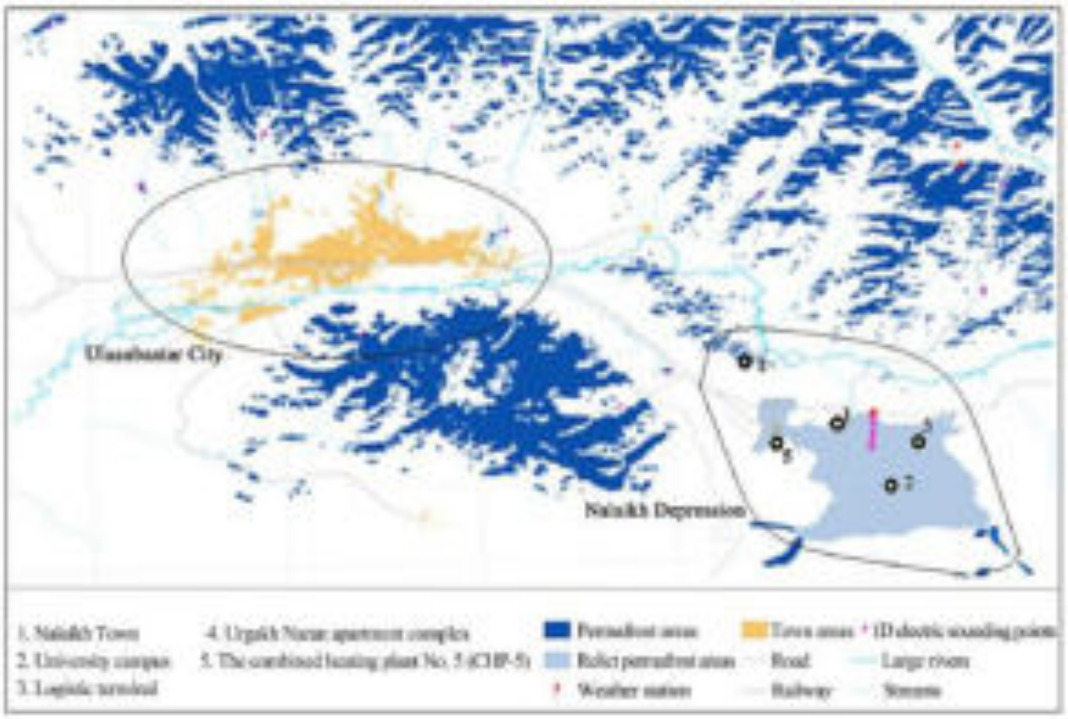


Figure 4.1: Distribution of Permafrost in the area of Ulaanbaatar

4.1.5. Biodiversity

78. **Animals:** Mongolian fauna is relatively rich in animal species which inhabit different habitats of the country's variable natural zones, such as forests, steppes, deserts, and high mountains. The Mongolian fauna includes many species which are common in Siberian Taiga, European forests, or West Asian and Triennia deserts. But there are also species which are endemic to the steppe and deserts of Central Asia and are common in Mongolia. In addition, Mongolia is one of the richest countries in the world by prehistoric remains of various animal species.

79. **Mammals:** Altogether 138 mammalian species belonging to 73 genera, 22 families, and 8 orders, out of which, 13 are insectivoruos, 12 chiropters, 6 lagomorphs, 69 rodents, 24 carnivores, 2 perissodectyls, 1 tylopods and 11 artiodactyls, exist in Mongolia.

80. **Birds:** 449 species belonging to 193 genera, 56 families and 17 orders have been recorded so far in Mongolia. More than 330 species from this total are migratory, and the remaining 119 species inhabit Mongolia year-round. 322 species nests in spring in Mongolia,

and more than 10 species, nesting in the Tundra and in Arctic Ocean coasts, stay over winter in Mongolia. Approximately, 50 species migrate through Mongolia and 20 species are observed occasionally.

81. **Plants:** Detailed plant collections have still not been made for some regions, so it is likely that there are over 3,000 species of flowering plants in Mongolia. There are 845 species of medicinal plants, 68 species of soil-binding plants, and 120 species of important food plants in Mongolia. The factors threatening the Mongolian biological diversity are climate change, desertification, forest insects and disease, pasture harmful insects and unsustainable human activities.

82. **Forest:** The recorded forest resources of Mongolia accounts for about 11.6% of its land area. Area actually under closed forest is only about 8.1% equal to about 12.9 million hectares which is a substantial resource compared to that in many countries.

83. The natural regeneration of Mongolian forests is slow, and fires and insects often damage the forests. Mongolia's forest resources consist of more than 140 species of trees and shrubs and bushes, and 81.2% of the forest area is covered by natural coniferous forest, 15.8 % by saxauls (*Haloxylon ammodendron*), and 3.0% by shrubs and bushes.

84. Of the total forest land of Mongolia, 91.2 % or 16.68 million hectares is forest area, and 8.8 % or 1.60 million hectares is non-forest area. Of the total forest resources of 1,379.2 million m^3 in Mongolia, 58.8 % is Siberian larch, 5.2 % is pine, 7.7% is cedar, 8.8 is Siberian spruce and fir, and 16.0% is saxaul. Other species like birch, poplar and willow and shrubs are spread in small quantities.

85. **Figure 4.2** gives the forest map of Mongolia and location of sub-projects.

Figure 4.2: Map of forest of Mongolia and location of project sites

4.1.6. Mineral Resources

86. Mongolia is rich in mineral resources: Eight thousand mineral deposits bearing over 600 mining sites have been discovered, including coal, iron, tin, copper, molybdenum, gold, silver, tungsten, zinc, tin, lead, phosphates, fluorspar, uranium and nickel. In addition, over 200 deposits of construction materials such as marble, granite, etc. have been discovered and these are currently in operation.

87. The Erdenet copper-molybdenum mine and ore-processing complex, which produces annually about 0.4 million tons of copper concentrate for export, dominates the mineral sector.

88. Other substances like oil shale, and semiprecious stones, such as agate, lapis, lazuli, garnet are also found in Mongolia. Of 200 known coal deposits, 32 have been exploited of which 13 sites are now closed. There are many large deposits of low-grade brown coal that cannot be used in some coal-fired installations as it has high sulfur content and air pollution potential. One uranium mine is under exploitation at present in Eastern *aimags*.

4.2 Sub-project locations

4.2.1 Ulaanbaatar city

89. Ulaanbaatar is the capital and political, business and cultural center of Mongolia. The city lies between north latitude and east longitude. It is bounded by Khentii *aimag* in the east, Tuv *aimag* in the West and in the South, and in the North. The total length of the Ulaanbaatar territory from north to south is about 30 Kms and from east to west it is about 140 kms and lies at a height of 1350 meters above sea level. Ulaanbaatar has a total land area of 4,704 sq. km (0.3% of the size of the country) and is divided into 9 districts, which are further subdivided into 152 sub-districts (*khoroo*s), comprising of micro-districts (*khesegs*).

90. The city has rapidly grown in size over the last decades as a result of rural to urban migration, attracting people seeking education, employment, services and business opportunities. Currently, the city is home to 1.3 million people, almost half of the nation's population of 3 million. The city has been an engine of innovation, job creation and economic development, being at the center of Mongolia's economic growth and responsible for over 60% of national Gross Domestic Product.

91. The city is proud to be a center of attraction and an engine of innovation, job creation and economic development. However, the rapid rate of urbanization also presents various challenges which negatively impact the environment and the livability of the city. Air pollution is severely affecting public health and constitutes one of the biggest challenges, especially in winter, covering the city in a thick layer of smog as a result of the burning of coal. Almost 60% of the population lives in low density peri-urban Ger areas, residents continue to lack access to basic urban services. Inadequate public transportation means that residents endure long and uncomfortable commutes to school, work or elsewhere in the city. Increasing numbers of vehicles on the road causing serious congestion and contributing to air pollution. The Tuul River, the main source of water supply for the city, is heavily polluted by under- and untreated sewage and sullage, damaging to the land and livestock it waters. Solid waste is mostly disposed of in three land fill sites, only one of which is sanitary.

92. Poor urban planning has meant many city development activities have been implemented near the Tuul River and in its watershed including the Selbe River. This has led to the degradation of water quality, exacerbated by pollution (sewage and garbage) from unplanned settlements, particularly in the *Ger* areas. While long term average water quality in the Tuul and the Selbe remain of satisfactory quality but rapidly deteriorates during low flow periods.

4.2.1.1 Projects in Ulaanbaatar city

93. **Table 4.2** provides list of sub-projects in Ulaanbaatar city.

Table 4.2 List of Subproject in Ulaanbaatar

No	Sub-Project components	Location	Infrastructure requirements (additional)
A	**Kindergartens**		
A 1	Kindergartens under expansion		
1	Kindergarten No.164	UB, Bayangol District, 4th *khoroo*	The expansion will be 2 floor, separate new building in the back yard.
2	Kindergarten No.88	UB, Bayangol District, 18th *khoroo*	The expansion will be 2 floor, separate new building in the back yard.
3	Kindergarten No.22	UB, Bayanzurkh District, 1st *khoroo*	A separate 2 floor new building in the back yard.
4	Kindergarten No.8	UB, Bayanzurkh District, (16th *khoroo*	The expansion will be separate new building in the back yard of kindergarten.
5	Kindergarten No.82	UB, Bayanzurkh District, 16th *khoroo*	The expansion will be separate 2 floor new building in the back yard.
6	Kindergarten No.65	UB, Khan-Uul District, 2nd *khoroo*	The expansion will be separate 2 floor new building in the back yard.
7	Kindergarten No.72	UB, Khan-Uul District, 2nd *khoroo*	The expansion will be 2 floor separate new building in the back yard.
8	Kindergarten No.84	UB, Songinokhairkhan District, 6th *khoroo*	The expansion will be separate building in its premises.
9	Kindergarten No.104	UB, Songinokhairkhan District, 12th *khoroo*	The expansion will be separate building in its premises.
10	Kindergarten No.107	UB, Songinokhairkhan District, 14th *khoroo*	The expansion will be separate building in its premises.
11	Kindergarten No.110	UB, Songinokhairkhan District, 15th *khoroo*	The expansion will be 2 floor separate new building in its premises.
12	Kindergarten No.176	UB, Songinokhairkhan District, 31st *khoroo*	Not connected to central heating, electricity, water and sewage system and has individual heat only boiler, holding tank and water well. The expansion will be an additional floor on the top of building.
13	Kindergarten No.68	UB, Sukhbaatar District, 3rd *khoroo*	The expansion will be 2 floor separate new building in the back yard.
14	Kindergarten No.160	UB, Sukhbaatar District, 3rd *khoroo*	The expansion will be separate new building in the back yard of kindergarten.
15	Kindergarten No.17	UB, Sukhbaatar District, 10th *khoroo*	The expansion will be 2 floor separate new building in the own premises in the left side of old building.
A 2	Kindergartens under new construction		
1	New kindergarten	UB Bayanzurkh District, 24th *khoroo*	The land allocated for this site currently used by branch of kindergarten # 168 using 4 Gers as classrooms.
2	New kindergarten	UB, Nalaikh District, 7th *khoroo*	District Government owned land with 6000m^2 area situated near the “Sport Comple”. Access road is available. The area is far away from District Heating Plant, water supply and sewage system.
3	New kindergarten	UB, Songinokhairkhan District, 25th *khoroo*	District Government owned 300m^2 land area is available. Blueprint is developed. Access road is available.

No	Sub-Project components	Location	Infrastructure requirements (additional)
B	**Schools:**		
B 1	Schools under expansion:		
1	School No.51	Bayangol District, UB	The expansion will be 3 floor separate building behind the existing school building.
2	School No.18	UB, Khan-Uul District	The expansion will be additional floor on the roof.
3	"Erdmiin Orgil" Complex	UB, Nalaikh District	The expansion will be 3 floor separate building with capacity of 640 students, in the school yard.
4	"Ireedui" Primary School	UB, Songinokhairkhan District	The expansion will be additional floor on the roof of building. Has permission of Specialized Inspection Agency to add one more floor on top.
5	"Ireedui" Secondary School	UB, Songinokhairkhan District	The expansion will be additional floor on the roof of building. Has permission of Specialized Inspection Agency to add one more floor on top. Has permission of Specialized Inspection Agency to add one more floor on top.
6	School No.122 **(Green school)**	UB, Songinokhairkhan District, 22nd *khoroo*	The school building has individual heat only boiler for heating, water reservoir for keeping transported water and individual holding tank for wastewater, connected to central electricity line. The expansion will be 3 floor building with capacity of 640 students and has new blueprint of Green school.
7	School No.6	UB, Sukhbaatar District	The expansion will be additional floor on the roof. Has permission of Specialized Inspection Agency to add one more floor on top.
B 2	Schools under new construction :		
1	New school	Songinokhairkhan District, 7th *khoroo*	The new construction site is situated in the edge of Ger Khashaa Plot area. The area is empty but included in town development plan, has no central heating, water supply and sewage system infrastructure.

4.2.1.2 Physical Environment in Ulaanbaatar city

94. **Geology.** Geologically the Ulaanbaatar region belongs to the Khentii geosyncline's depression. Ulaanbaatar City is mainly underlain by Cambrian, Devonian, and Carboniferous sandstone, and mudstone. Ulaanbaatar City is located on an alluvial plain. MNET confirmed that in the city, soil is low in permeability and gullying and erosion is visible on steep slopes in the *Ger* areas to the North of the City.

4.2.1.3 Environment in Ulaanbaatar city

95. **Air quality.** Air pollution in Mongolia is severe. Air pollution in the capital Ulaanbaatar surpasses standard levels with the adverse effect on the population's health and well-being as well as environmental balance. A World Bank study states that Particulate Matter (PM) is the largest and relatively most severe air pollution problem in the city. In terms of PM, Ulaanbaatar is ''among the most polluted cities in the world. The main sources of air pollution including

PM2.5 (fine particulates) are from heating and cooking, traffic and industrial sources such as coal fired power stations. Many of the diesel and petrol-run vehicles are outdated and do not meet environmental and safety standards.

96. **Noise.** WHO[20] states that guidelines on community noise (not industrial workplace noise, therefore including traffic) should be based on the following:

a. **Indoor sound levels**, thresholds for guidelines should be based on a combination of values of 30 dB (average equivalent over 8 hours LAeq) and 45 dB (maximum for an individual noise event).
b. **Outdoor sound levels** should not exceed 50 dB LAeq to protect the majority of people from being moderately annoyed during the daytime. Most countries in Europe have adopted 40 dB LAeq as the maximum allowable level for new developments.
c. **Hospital** patients have less ability to cope with stress, the equivalent noise level should not exceed 35 dB LAeq in most rooms in which patients are being treated or observed; and
d. **Schools** the background sound pressure level should not exceed 35 dB LAeq during teaching sessions.

97. It is clear from the noise measurements in Ulaanbaatar that in the majority of locations, ambient noise exceeds the WHO recommendations for community noise outside. However, with regards to the noise within sensitive receptors such as households, schools and hospitals, the data are of limited value as the distance from the source is not given and measurements are not taken within buildings.

4.2.2 Govi-Altai, Govisumber, Darkhan-Uul, Khuvsgul *aimag*s

98. **Table 4.3** provides list of sub-projects situated in the local *aimag*s.

Table 4.3 List of subprojects in local *aimag*s

No	Sub-Project components	Location	Infrastructure requirements (additional)
A	**Kindergartens**		
A 1	Kindergartens under expansion		
1	Kindergarten No.5	Govisumber, Sumber *soum*, 3rd bagh.	Blueprint is developed. The area is located nearby main road and surrounded by Ger khashaa plots and small services. Access road is available.
2	Kindergarten No.6	Khuvsgul, Murun *soum*, 8th *bagh*	The state inspector's conclusions were issued regarding the quality and condition of the building, and it was determined that it did not meet the requirements for use. Conclusion No. 23.07.028/115 dated September 24, 2021. The expansion will be a 2-floor building in behind of existing building.
B	**Schools**		
B 1	Schools under expansion:		
1	Khantaishir	Govi-Altai, Altai *soum*	The expansion will be a 3-floor building in front of old building.
B 2	Schools under new construction:		
1	New school	Darkhan, Mangirt, 15th *bagh*	The site is included in new development area and no other buildings besides the new kindergarten close to this site.

4.3 Human and Economic Development

[20] World Health Organisation (1999) Guidelines on Community Noise. Available at: http://www.who.int/docstore/peh/noise/guidelines2.html

99. Economic activity in Mongolia has traditionally been based on herding and agriculture. Mongolia has extensive mineral deposits. Copper, coal, molybdenum, tin, tungsten and gold account for a large part of industrial production. Soviet assistance at its height, one-third of GDP, disappeared almost overnight in 1990 and 1991 at the time of the dismantlement of the USSR. The following decade saw Mongolia endure both deep recession due to political inaction and natural disasters, as well as economic growth because of reform-embracing, free-market economics and extensive privatization of the formerly state-run economy. Severe winters and summer droughts in 2000-2002 resulted in massive livestock die-off and zero or negative GDP growth. This was compounded by falling prices for Mongolia's primary sector exports and widespread opposition to privatization. Growth was 10.6% in 2004 and 5.5% in 2005, largely because of high copper prices and new gold production. Mongolia's economy continues to be heavily influenced by its neighbours. For example, Mongolia purchases 80% of its petroleum products and a substantial amount of electric power from Russia, leaving it vulnerable to price increases. China is Mongolia's chief export partner. Mongolia settled its $11 billion debt with Russia at the end of 2003 on favourable terms. Mongolia, which joined the World Trade Organization in 1997, seeks to expand its participation and integration into Asian regional economic and trade regimes.

Agriculture and Crops

100. Agricultural sector in Mongolia has been and is still holding a weighty share in the country's economy. The agricultural sector produces over 25 per cent of GDP and 13 per cent of the national hard currency income is generated from exports of products of food and agricultural origin.

101. The agriculture sector therefore remains heavily focused on nomadic animal husbandry with 75% of the land allocated to pasture and cropping only employing 3% of the population. Crops produced in Mongolia include corn, wheat, barley, and potatoes. Animals raised commercially in Mongolia include sheep, goats, cattle, horses, camels, and pigs. They are raised primarily for their meat, although goats are valued for their hair which can be used to produce cashmere.

102. In 2009, 388,122 tonnes of wheat (area harvested: 248,908 ha), 1,844 tonnes of barley (area harvested: 1,460 ha) and 1,512 tonnes of oat (area harvested: 1,416 ha) were produced. Vegetables like tomatoes, carrots, peas, beans, onions and cucumbers are grown in several oases in the South of Mongolia.

103. **Existing Industrial Status.** Main industry in Mongolia constitutes of construction and construction materials; mining (coal, copper, molybdenum, fluorspar, tin, tungsten, gold); oil; food and beverages; processing of animal products, cashmere and natural fibre manufacturing.

4.4 Climate Change Risks in Mongolia

Climate change

104. In order to address the issue of global climate change and its effects on people and the economy, Mongolia affirmed the United Nations Framework Convention on Climate Change (UNFCCC) in 1993 and the Kyoto Protocol in 1999. The Government of Mongolia has taken considerable steps toward the implementation of the UNFCCC, by accomplishing the required commitments such as the Initial National Communication, Technology Needs Assessment and the National Action Plan on Climate Change to address climate change and other legal commitments.

105. In 2007, Mongolia was ranked 96th in the list of CO_{2s} emitting countries, contributing around 0.04% to the global emission[21]. UNEP[22] states that in Mongolia, the energy sector (including stationary energy, transportation and fugitive emissions) was the largest source of greenhouse gas (GHG) emissions comprising 65.4% of total emissions. The second largest source of GHG emissions was the agricultural sector (41.4%). The report also states that total CO_2 removal was more than total CO_2 emissions in 2006 due to an increase in the area of abandoned lands and a reduction in newly cultivated land. However, by 2020, it is predicted that Mongolia's GHG emissions will be more than 5 times that of 2006.

106. Climate modelling for Mongolia is projecting changes which include increased air temperatures, increased precipitation in some areas and a reduction of water resources in other areas23. Potential evapo-transpiration increase would be higher than precipitation amount increase. Future climate changes are expected to negatively impact Mongolia, mostly in the agricultural and livestock sectors. This in turn will affect the society and economy, meaning climate change adaptation is a significant issue for the country.

4.5 Seismology in Mongolia

107. **Natural disasters.** Natural disasters in Mongolia are mainly caused by forest fires, floods, extreme cold, snowstorms and disease outbreaks. Forest fires accounted for 49% of the disaster events during the period 1990-2000. During this period, floods, disease outbreaks and extreme cold and snowstorms accounted for 11%, 13% and 5%, respectively[24.] Floods and earthquakes are the natural disasters of potential relevance to the project and thus further discussed below.

108. **Earthquakes.** Mongolia has experienced four major earthquakes (Msk>8) and many more moderate earthquakes (Msk 5.3-7.5) in the last century. The seismic activity in Mongolia is related to its location between the compressive structures associated with the collision of the Indian-Australian plate with the Eurasian plate on the one hand and the extensional structure associated with the Baykal rift system on the other. The historical records (1903 onward) of the seismicity in Mongolia show a high concentration of seismic activity along the Mongolian-Altay and Gobi-Altay ranges and the north-western border with Russia and around Mogod east of Khangai mountain. The multi-organizational Global Seismic Hazard Assessment Program classifies Ulaanbaatar as "low" to "moderate" earthquake risk areas shown in **Figure 4.3.**

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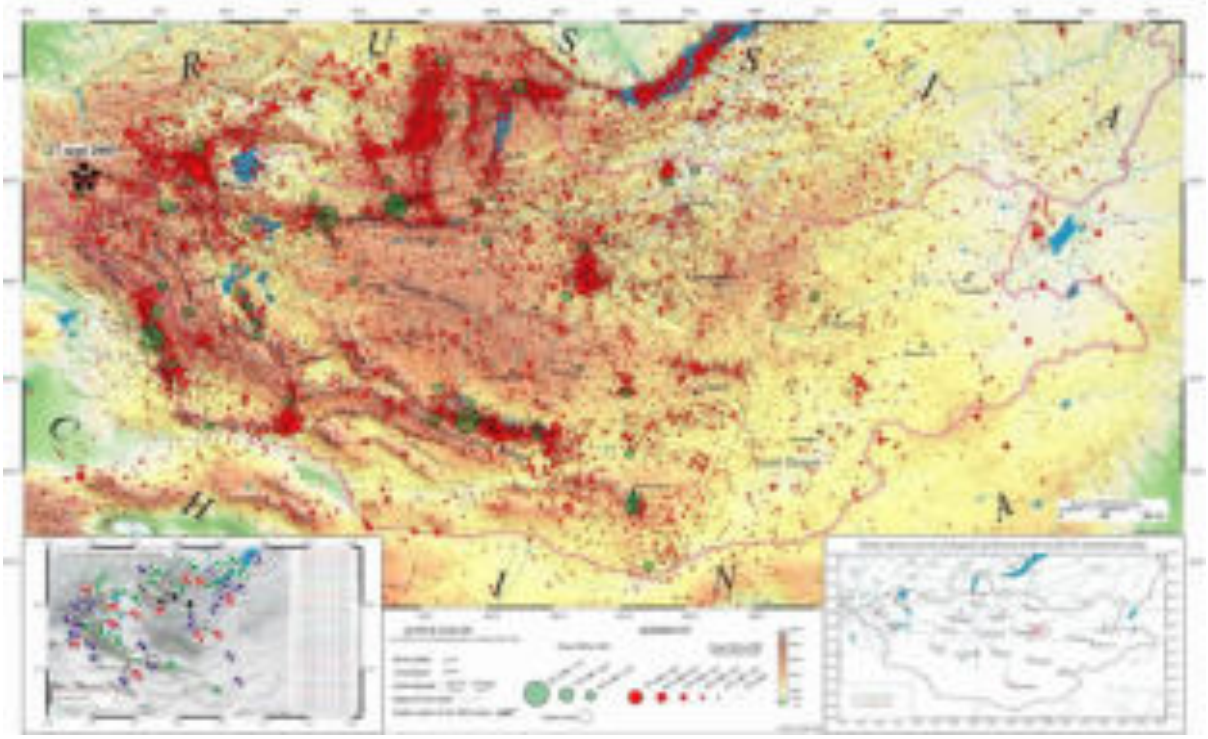
[21] United Nations Statistics Division, Millennium Development Goals Indicators. Available at http://mdgs.un.org/unsd/mdg/SeriesDetail.aspx?srid=749&crid=

[22] United Nations Environment Program (2009) Mongolia: Assessment Report on Climate Change 2009

[23] Ibid.

[24] Source: National Center for Emergency, 2002.



Source: Research Center for Astronomy and Geophysics of Mongolian Academy of Science.

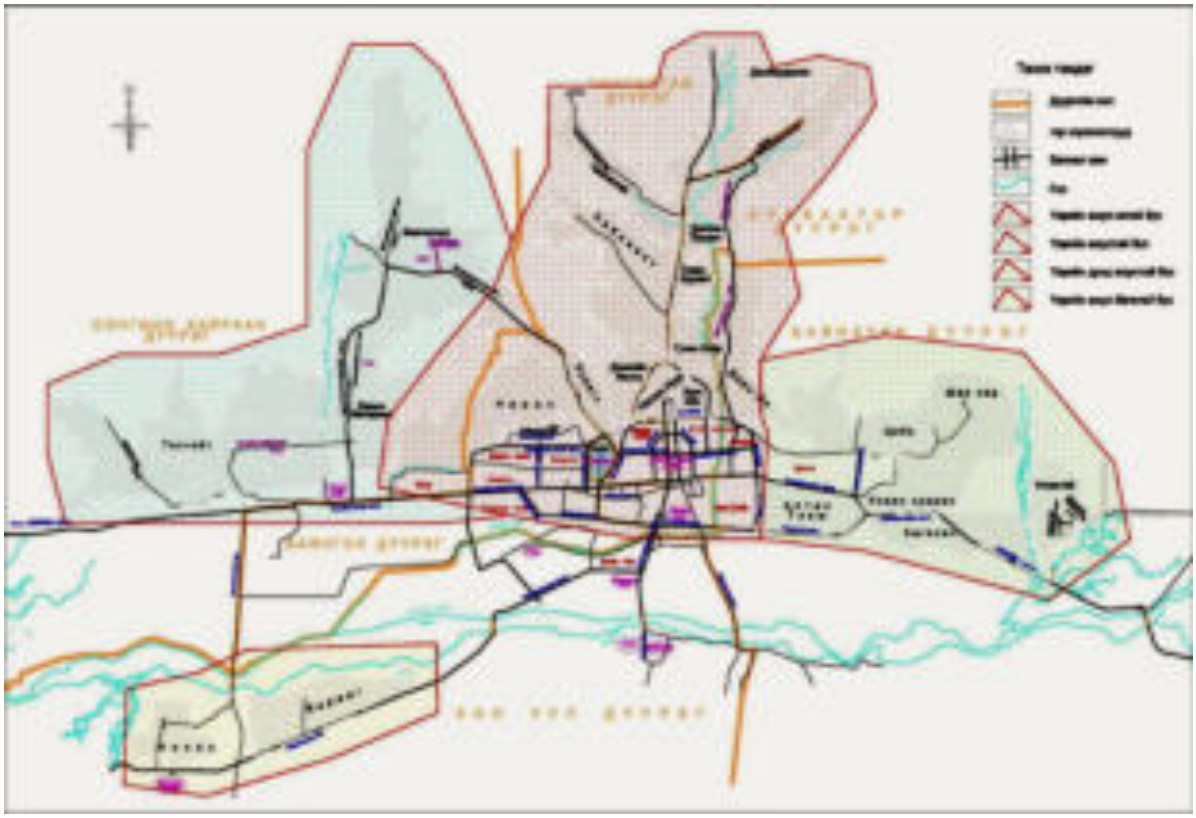
Figure 4.3: **Seismicity in Mongolia from 1900 to 2000**

109. **Flooding.** Localized flooding can be caused in most areas of the country, especially in built-up areas through heavy rain events because of poor surface water drainage. This flooding is ephemeral, and the water subsides rapidly. More than 75% of precipitation in Ulaanbaatar occurs in July and August. Serious floods, mainly caused by the Tuul River, occurred in 1915, 1939, 1959, 1966, 1967, 1971, 1973, 1982 and 2003. In 1966, the Tuul water level reached 3.2 meters with a flow of 1500-1800 cubic meters per second and the flood killed over 100 people.

Table 4.4: Major Flood and Drought Experiences in Tuul river basin (Catchment area 49,766 km^2)

Major Floods					
Date	**Peak discharge [m^3/s]**	**Rainfall [mm] Duration**	**Meteorological cause**	**Dead and missing**	**Major damages [Districts affected]**
1966.07.10-11	1700	103.5	Storm caused rainfall flood	13000 household	239617$
1982.08.15-16	-	44	Storm caused flash flood	87 people died 119 households	91447 $
Major Droughts					
Period	**Areas affected**		**Major damage and counteractions**		
1972	Whole catchment		Livestock loss and hay making		
1999-2002	Whole catchment		Livestock loss and hay making		

110. **Figure 4.4** shows flood prone areas of the city.



Source: Emergency Management Department of Ulaanbaatar Municipality

Figure 4.4: **Flood prone areas of Ulaanbaatar**

4.6 Ecological Resources

111. Ecological resources of the potentially impacted environment are defined to include the area's flora and fauna, and specially protected areas. The sub-project sites include areas which have very little vegetation or exposed ground which may form habitats for fauna. However, there are a limited number of bird species observable in the Ulaanbaatar city, such as crows and sparrows, common to many urban environments. The project will not encroach on legally protected sites; the closest protected site is the Gorkhi Terelj National Park. This park is outside the city and not within the project's area of influence. There are no rare, threatened, or endangered species within the construction boundaries of the sub-projects.

4.7 Protected areas in Mongolia

112. Mongolia was probably one of the first countries in the world to recognize the importance of conservation. In 1778, the Bogd Khan Mountain, which is located outside Mongolia's capital, was officially designated by the State. The values and the knowledge leading to the establishment of Protected Areas (PAs) have varied throughout the years with the on-going development of scientific knowledge and increasing involvement of stakeholders. To date, Mongolia's PA network consists of 89 Protected Areas covering 17.4% (27.2 million hectares) of the Mongolian territory. The number of PAs has increased drastically over the past two decades following the National Programme on Protected Areas adopted by the Mongolian Parliament (1998) that set the goal of establishing a system of PAs that would cover 30% of the territory before 2015. The number of PAs, for instance, has increased from 71 to 89, which constitutes an increase of 4.5 million hectares just within the last two years. Simultaneously, it is, however, critical to improve the representativeness of ecosystems within the national PA system.

113. The Protected Areas which were established in accordance with the Law on Protected Areas fall into five different categories, subject to their protection and management

arrangements.

114. 14 areas of altogether 12.4 million hectares were designated by the Parliament as Strictly Protected Areas (SPAs). These are areas "that represent unique features and characteristics of natural zones, have preserved their original conditions, and are of a special scientific and cultural significance."

115. The second category, National Parks (NPs), includes 30 areas of altogether 11.9 million hectares. These are areas "whose natural original condition is relatively preserved, and which have historical, cultural, scientific and ecological importance". Under the current legal framework both SPAs and NPs fall under the jurisdiction of the National government, i.e., MET, and are thus designated by the Central Parliament, financed through the State budget and managed through Protected Area Administrations (PAA).

116. The third category is Nature Reserves (NRs). To date 31 areas covering 2.8 million hectares of land are designated to "create conditions for protecting, preserving and restoring specific natural features as well as one of any natural resources and wealth".

117. The fourth category, Natural, Cultural and Historical Monuments (NCHMs), encompasses 14 areas covering 125,000 hectares. These are areas of unique natural formations and areas designated to protect historical and cultural monuments. Although designated by the National Parliament, Nature Reserves and Natural, Cultural and Historical Monuments are supposed to be managed and financed by the local governments (*Aimags*). In light of limited public finance for environmental conservation, especially at the local level, the management of these types of PAs tends to be kept at a bare minimum, unless the areas have attracted international projects and programmes.

118. The fifth category of protection includes Local Protected Areas (LPAs) which can be designated by the *Aimag* or *Soum* level Citizens Khural (local Parliament) for protection and conservation purposes independently from the Central Government's administrative body. To date *Soum* and *Aimag* Citizens' Khurals have designed some 937 Local Protected Areas in the last decade – covering nearly 17 million hectares – or over 10% of Mongolia's territory.

119. The first four categories are State PA, designated by the National Parliament, whereas category 5 is a Local PA, designated by *Aimag* or *Soum* Parliament. Management responsibility is with the 29 State Administrations for SPA (cat.1) and NP (cat.2) but given to *Aimag* and *Soum* not only for the Local PA (cat.5), but also for Nature Reserves (cat 3) and Monuments (cat.4). However, *Aimag* and *Soum* often lack capacities and resources for proper management of NRs and NCHMs. Therefore, their management is sometimes supported by international donors, NGOs or the State Administration (especially if they are in proximity to SPAs and NPs)

120. In accordance with the Law on Protected Areas, all Specially Protected Areas may have a Buffer Zone (BZ). The establishment and management of Buffer Zones are regulated by a separate Law on Buffer Zones. It aims to reduce, mitigate and prevent the actual and/or potential adverse impacts experienced in their respective PA by way of (i) increasing local communities' participation in the conservation of protected sites, by (ii) providing livelihood means to local communities and (iii) by ensuring the appropriate use of natural resources. Currently the Government actively advocates the establishment of Buffer Zones around SPAs and NPs. If properly managed the LPAs will in principle offer a good protection and they will also provide for an expansion zone of the Protected Areas. **Table 4.5** lists all protected areas in Mongolia.

Table 4.5: List of Protected Areas of Mongolia

№	Names of PA	*Aimag* name	Classification	Size	Total size (hectares)
1	Gobi Ikh/B/	Bayankhongor	SPA	927111.8222	963834.9905

№	Names of PA	*Aimag* name	Classification	Size	Total size (hectares)
2	Alag Khairkhan	Govi-Altai	NP	36723.16831	
3	Gobi Ikh /A/	Govi-Altai, Bayankhongor	SPA	4633299.775	4656395.739
4	Eej Khairkhan	Govi-Altai	NM	23095.9647	
5	Khukh Serkhi Nuruu	Bayan-Ulgii, Khovd	SPA	75749.75203	242940.3987
6	Chigertein river valley	Bayan-Ulgii	NP	167190.6466	
7	Bogdkhan mountain	Tuv	SPA	41322.27316	41322.27316
8	Khasagt Khairkhan	Govi-Altai	SPA	26760.57436	298073.9928
9	Mongol Els	Govi-Altai	NP	271313.4184	
10	Numrug	Dornod	SPA	320982.1815	320982.1815
11	Dornod Mongol	Dornod	SPA	589905.6506	1453809.886
12	Mongol Daguur /A/		SPA	92880.45414	
13	Mongol Daguur /B/		SPA	15273.1854	
14	Yahi Lake		NR	251217.9575	
15	Ugtam		NR	46022.85092	
16	Toson Khulstai	Dornod, Khentii	NR	458509.7875	
17	Uvs lake	Uvs	SPA	441223.2166	597234.8923
18	Tsagaan Shuwuut		SPA	25537.7004	
19	Turgen mountain		SPA	130473.9754	
20	Tes river		NR		
21	Khan Khukhii	Uvs	NP	221598.2789	713144.2672
22	Hyargas lake		NP	341301.7869	
23	Altan els		SPA	150244.2014	
24	Otgontenger mountain	Zavkhan	SPA	90498.66441	349902.0528
25	Ulaagchin Khar lake	Zavkhan	NP	259403.3884	
26	Tsambagarav	Bayan-Ulgii	NP	113749.2134	928352.2948
27	Altai Tavan Bogd		NP	656106.3865	
28	Siilhem Nuruu /A/		NP	69935.4433	
29	Siilhem Nuruu /B/		NP	77942.5287	
30	Devel aral		NR	10618.72285	
31	Khangain nuruu	Arkhangai, Bayankhongor	NP	906604.5447	1040155.534
32	Khorgo-Terkh Tsagaan lake	Arkhangai	NP	76893.00337	
33	Noyon Khangai		NP	56657.98638	
34	Onon-Balj /A/	Khentii	NP	294079.7835	400466.775
35	Onon-Balj /B/		NP	106386.9926	
36	Khugnu Tarna	Bulgan, Uvurkhangai	NP	84143.05686	84143.05686
37	Dariganga	Sukhbaatar	NP	64547.60536	88788.83834
38	Shiliin Bogd		NM	18136.91995	
39	Khorgiin khundii		NM	6104.313042	
40	Khustain nuruu	Tuv	NP	48400.56794	48400.56794
41	Gobi Gurvan Saikhan	Umnugovi	NP	2697170.845	2697170.845
42	Khan Khentii	Tuv , Selenge, Khentii	SPA	1748103.891	1762660.811
43	Undurkhaan uul	Khentii	NP	8820.0	
44	Binderya uul		NM	5736.92	
45	Khangal nuur		NM	3913.0	
46	Gorhi-Terelj	Tuv	NP	291838.556	
47	Nagalkhaan		NR	1860.721221	

№	Names of PA	*Aimag* name	Classification	Size	Total size (hectares)
	mountain				
48	Khar us lake	Khovd	NP	852997.2452	935804.6195
49	Mankhan		NR	82807.37429	
50	Tarvagatain nuruu	Zavkhan	NP	547629.8987	547629.8987
51	Little Gobi /A/	Umnugovi	SPA	1147812.066	1830429.418
52	Little Gobi /B/	Dornogovi, Umnugovi	SPA	682617.3514	
53	Ikh bogd mountain	Bayankhongor	NP	262855.8119	379164.3547
54	Zag Baidrag river		NP	116308.5428	
55	Tujiin nars	Selenge	NP	70804.71976	70804.71976
56	Orkhon river valley	Arkhangai, Uvurkhangai	NP	92717.98585	103867.05
57	Khuisiin naiman lake	Arkhangai	NM	11149.06413	
58	Ikh gazar chuluu	Dundgovi	NR	175906.1387	175906.1387
59	Khuvsgul	Khuvsgul	NP	1175602.174	1206879.379
60	Dayan deerkhiin cave		NM	31277.20524	
61	Ulaan taiga	Khuvsgul	SPA	431694.4634	1534077.778
62	Khoridol Saridag		SPA	226672.0417	
63	Tengis-Shishged		NP	875711.2729	
64	Zed-Khantai-Buteeliin-nuruu	Bulgan	SPA	604265.563	604265.563
65	Myangan Ugalzat	Khovd	NP	303775.0681	303775.0681
66	Bulgan river- Ikh Ongog	Khovd	NP	92743.66388	598840.3653
67	Munkhkhairkhan mountain Uyench		NP	506096.7014	
68	Ikh Nart	Dornogovi	NR	66752.0	66752.0
69	Khar Ymaat	Dornod	NR	50691.0	50691.0

121. **Figure 4.5** provides location of Protected Areas of Mongolia and sub-project sites.

Figure 4.5 Location of Protected Areas of Mongolia and sub-project sites.

122. None of the proposed sub-projects are located inside or near or passing through the designated core and/or buffer zones of national parks, sanctuaries, biosphere reserves, and reserved forests. The nearest Protected Area to the project site is the Bogd Khan Mountain SPA which is situated about at 5-18 km from the proposed UB Schools/Kindergartens site and about 10 km away from kindergartens in Teshig *soum* of Bulgan *aimag*.

123. Zed Khantain Nuruu SPA is situated 10 km away from the kindergartens in Teshig *Soum* of Bulgan *aimag* is one of the largest protected area; covering an area of 604,265.563 ha is an excellent example of ecosystem of the Khuvsgul lake basin and its diverse fauna.

4.8 Environmental Parameters: Air, Ground Water, Soil, Noise Quality

4.8.1 Current Conditions and Major Problems

124. **General Conditions.** The country's environment resources offer great potential for expanding economic opportunities in mining, forestry, animal husbandry and tourism. However, many areas of concern are emerging highlighting the need for integrating comprehensive policies of sustainable development into the national development strategy and most importantly, ensuring effective implementation considering both the economic development and environmental conservation. The priority issues recognized are as follows.

125. **Air Pollution.** Air quality is a significant environmental problem in urban areas of Mongolia, particularly in Ulaanbaatar. Primary sources of air pollution in Ulaanbaatar are three thermal power plants, about 200 small and medium sized heating boilers, about 60,000 traditional Gers and wooden houses, and over 40,000 automobiles. Topography and meteorology exacerbated ambient air quality conditions in the country, and particularly in Ulaanbaatar. Mountains surround Ulaanbaatar up to 2,250 meters in height inhibited dispersion of pollutants. To compound the situation, a stable atmospheric inversion forms during the winter

season. As a result, ambient pollutant concentrations often remained for days or weeks at a time to exceed Mongolian and other international ambient air quality standards. Burning of coal and woods in the households in urban cities has been identified as major sources of air pollution, which affects ambient air quality and human health.

126. **Energy.** During the winter season, three large diesel power plants in Ulaanbaatar release 4.5 million cubic meters of gaseous pollutants, 4.14 tonnes of particulate matter, and 6.76 kilograms of carbon monoxide into the air every hour. The energy sector accounts for around 64% of Mongolia's greenhouse gas emissions. More than 250 steam boilers burn over 400,000 tonnes of coal every year. Gers and wooden houses with manual heating (in which 48% of the city population lives), use over 200,000 tons of coal and more than 160,000 cubic meters of fuel wood each year. For the cold seasons, the atmospheric content of carbon monoxide exceeds the permissible norm by 2-4 times.

127. **Transportation.** Transportation is a major source of air pollution in urban cities. The number of motor vehicles has increased vary rapidly in big cities and settlements in a short period of time. In 1995, it was estimated that over 60% of the vehicles emitted pollutants exceeded the maximum allowable limits.

128. **Industry.** Industrial activities are also one of the major sources of air pollution in Mongolia. As estimated approximately one fourth of greenhouse gas emission is emitted from industrial activities.

129. **Water Pollution.** Water shortage is one of Mongolia’s major socio-economic and ecological problems. Though adequate in the north it is clearly a constraint on development in the south and particularly serious in urban areas including Ulaanbaatar, where water supplies are pumped from groundwater.

130. Little care has been taken over water supply and use. Water supply in pasture areas was improved over the period 1960/90 by construction of many wells to provide water to more than 60 percent of the rangeland, but only 40% of the existing 48,000 wells are currently functioning. Most wells drilled during the Soviet era are out of production.

131. Effluent from factories, tanneries, processing plants, households, waste disposal sites and road runoff has polluted the main rivers where people and industry are concentrated, particularly the Tuul, Yuro, Selenge and Orkhon Rivers. Of 102 centralized wastewater treatment plants built only 35 were in operation in 2002.

132. The pollution problem is due not just to domestic waste effluent, but also to the high levels of chromium used in the tannery process.

133. Even there are 5,500 rivers, 9,600 streams, 300 hot springs, 4,000 lakes and 30,000 wells registered in Mongolia, 3,000 rivers and streams had dried up by year 2000 and 1,200 wells are no longer in use because of depletion, deterioration of facilities or abandonment after the nomad’s migration to the city. Consequently, the use of water resources is limited, causing water shortage.

134. **Land Degradation.** Causes of land degradation in Mongolia can be divided into two categories: human- induced and natural causes.

135. Natural causes include droughts with frequency of 2-3 years, natural drying, deficit in soil moisture, very thin layer of fertile soil, specifics of mechanical composition of soils, and strong wind in spring and autumn and dust storms.

136. Human causes include effects raised from rapid development of farmland, mining industry, changes in traditional livestock husbandry, and overgrazing, especially around

settlement areas and water points.

137. Farmland degradation in Mongolia is one of the serious issues, which should be urgently tackled. A considerable amount of farmland has been degraded or abandoned because of slow action on transferring farmlands to individuals and economic entities for their long-term use or possession. As of today, most of the farmland is out of use and abandoned.

138. Producing over 50% of the country's total exports, mining is one of the rapidly growing and leading industrial activity in Mongolia. Mining is causing substantial soil destruction. No proper rehabilitation measures are being taken by enterprises during or after mining.

139. **Solid Waste Nuisance.** In Mongolia, solid wastes are disposed in the open air near the city. These wastes are scattered about and the disposition for soil to be polluted is becoming remarkable. Particularly, there is a big gap between city enlargement and city planning projects in Ulaanbaatar. Moreover, it doesn't have the good city planning project. There is much household garbage (33.8%), paper (18.9%), and plastics (15.2%) in summer. Ashes occupy no less than 60.2% in winter.

140. In Mongolia, there are no proper wastes treatment facilities. Therefore, the wastes are thrown away across the township. Particularly, Ulaanbaatar city has the serious wastes problem. Now, the proprietary company of public establishment private management and civilian enterprises which were entrusted from the municipal government prefecture are carrying out drawing in and disposal of the wastes of Ulaanbaatar city.

141. Solid wastes generated from factories, commercial establishment, and construction sites are collected by third party agencies. However, the solid wastes generated so much is over a wastes collection trader's interested collection capacity.

142. **Soil Contamination.** Mongolia's tanning industry generates soil pollution due to widespread drainage of chemicals from the leather tanning process, the waste oil from cars and mining process, employment of agricultural chemicals, etc. Utilization of coal is the biggest causality of air pollution. Soil is polluted due to coal handling as well as scattering of ashes on the ground.

143. The number of cars has increased dramatically in recent years in Ulaanbaatar. Petrol stations within the city have risen to about 100 in numbers. Furthermore, there are 10 backlog appliances of coal oil and small car garages numbering hundreds. Many of them are located in the place where drainage arrangements are not fixed. They throw away used oil in the drains leading to oil contaminating the soil. In addition, various medicines, such as disinfectant, insecticide, and agricultural chemicals, medical wastes, architecture scrap woods, etc. are increasing being used to spur productivity and economic growth.

144. In Mongolia, gold mines are being exploited in the northern Orkhon river and the Selenge river by 120 business corporations. These gold ores have high level of Mercury contamination which contributes as a material factor to widespread soil pollution. Moreover, leaching of chemicals happen during heavy rains from various unscientifically designed waste disposal sites and sewage disposal plants.

145. **Deforestation.** The total remaining forest covers 10.4 million hectares in the north, 2.0 million hectares saxaul forest and 3.6 million hectares of depleted forest, mainly near transport corridors. Statistics on deforestation are confusing but the causes are known to include legal and illegal unsustainable logging, wildfire, insect and disease infestation, animal grazing, and climate change.

146. Through the 1960s to 1990 average official harvest figures were approximately 1,500-2,000 million m^3 per annum, very roughly 50% roundwood and 50% fuelwood. In 2002, official

figures recorded a harvest of 620 million m^3, almost all fuelwoods. Other issues in forest management are the many forest fires and problems of disease control. The periodic infestations in the coniferous forests are natural disasters with serious local impacts.

147. **Desertification.** Mongolia is a country, which experiences serious drought and desertification. More than 40% of the territory is composed of arid and desert areas. There are estimates that 90% of Mongolia's territory is vulnerable to desertification and about 70% is already degraded to varying extents.

148. Desertification is characterized by (i) desertification of vegetation cover, (ii) desiccation of wetland ecosystems and (iii) increase of sand area. Causes of desertification can be divided into natural causes and anthropogenic causes.

149. Among the major cases are mentioned climatic variations which may lead to natural disasters that, through interaction with human factors, will lead to accelerated degradation at local level. For instance, desertification in the Gobi ecological zone is reported as being caused primarily by increasing aridity of climate and grazing impacts associated with livestock. The anthropogenic causes are overgrazing, wind and water erosion of cultivated soils and abandoned farmlands, intentional burning, and vehicle tracks.

150. **Loss of Biodiversity.** Growing population coupled with urbanization, economic development, and an increasing per capita demand for natural resources, have put enormous pressure on land and natural resources. At the same time, the recent transition from a centrally controlled economy to a free-market economy has opened the country's natural resources to free enterprise and market forces. Increasing economic activity such as mining, land cultivation and crop farming, and the production of wild and domestic animal products for internal consumption and export, have resulted in the disturbance hitherto undisturbed natural areas and the loss of wildlife habitat. Inadequately controlled or illegal hunting, and predator eradication programs also contribute to pressures on wildlife and on the natural balance in many areas.

151. **Climate Change.** During the last 50 years or so, the average annual temperature in Mongolia has increased by 0.7°C. This drop in the average temperature has resulted in a variety of changes including serious impacts on the growth of natural and cultivated plants. The annual growing season in Mongolia lasts for only about 120 days which is not sufficient for the stable growth of plants, and if the growing season becomes shorter, many plant species will be threatened with extinction and this condition will pose a threat to the survival of many herbivores.

152. **Desertification.** Desertification deteriorates the environment and reduces its biological resources. It worsens the environment and conditions for the normal propagation of plants, hence reducing resources for rare animals and plants in the desert and desert-steppe zones.

153. **Harvesting.** Nomadic herdsmen and urban Mongolians utilize wildlife in a variety of ways, including direct use of meat, skins, and other animal products. Other activities include commercial marketing of skins, commercial marketing of fish and fish meat, large-scale harvest of gazelles for the commercial market (till mid-1990s), and sport hunting of game and trophy species by Mongolian and foreign sportsmen.

154. **Industrialization.** Since the 1960s, the increasing use of energy, construction of new power stations, and the intensive use of strip-mining methods have seriously been contributing to the deterioration of the habitats of various species.

4.8.2 Monitoring of Air, Noise, Soil and Water along the project location

155. The establishment of a baseline for environmental monitoring is to determine trends in

the quality of ambient air, water, ambient noise, and soil and how that quality is affected by the release of contaminants, other anthropogenic activities, and/or by waste treatment operations (impact monitoring). Environment monitoring needs to be carried out to estimate nutrient or pollutant fluxes discharged in atmosphere or ground waters or lakes or to the land across project and nearby areas. Monitoring is done to determine the quality of the ambient Environment before start of any kind of project related activities, as it provides a means of comparison with impact monitoring. It will be also used simply to check whether any unexpected change is occurring in otherwise pristine conditions. The National Agency for Meteorology, Hydrology and Environmental Monitoring (NAMEM) is responsible for environmental monitoring of water, air, acid deposition, soil, environmental radiation, dust-deposition and Sulphur gases to control the environmental quality. The laboratories in main cities make permanent measurements on air, water, soil quality and radiation level, meanwhile, control waste sources of pollution from such power plants and vehicles; carries necessary monitoring activities on environmental assessment; control industry wastes in cooperation with other environmental controlling organizations.

156. **Table 4.6** shows the types and responsibility of NAMEM and its *Aimag* level Departments of Hydrology, Meteorology and Environmental Monitoring for environmental monitoring.

Table 4.6: NANEM's main monitoring responsibilities for Mongolia

Monitoring types	Site
Air quality in urban area /SO2, NOx, CO, O3, HC, PM10, PM2.5/	35 points
Acid rain /NH4, SO2, HCI, HNO3, NH3/	2 points
Greenhouse gas monitoring	1 laboratory
Sand /yellow/ dust storm observation /To define dust PM10, PM 2.5 dispersion in horizontal and vertical direction/	9 stations
Water quality	
Water quality /91 rivers, 16 lakes pH, EC, O2, etc./	188 points
Gray water monitoring /5 in Ulaanbaatar city and 28 in the countryside/	33 water cleaning facility
Soil quality in urban areas	340 points
Environmental radiation monitoring	35 points

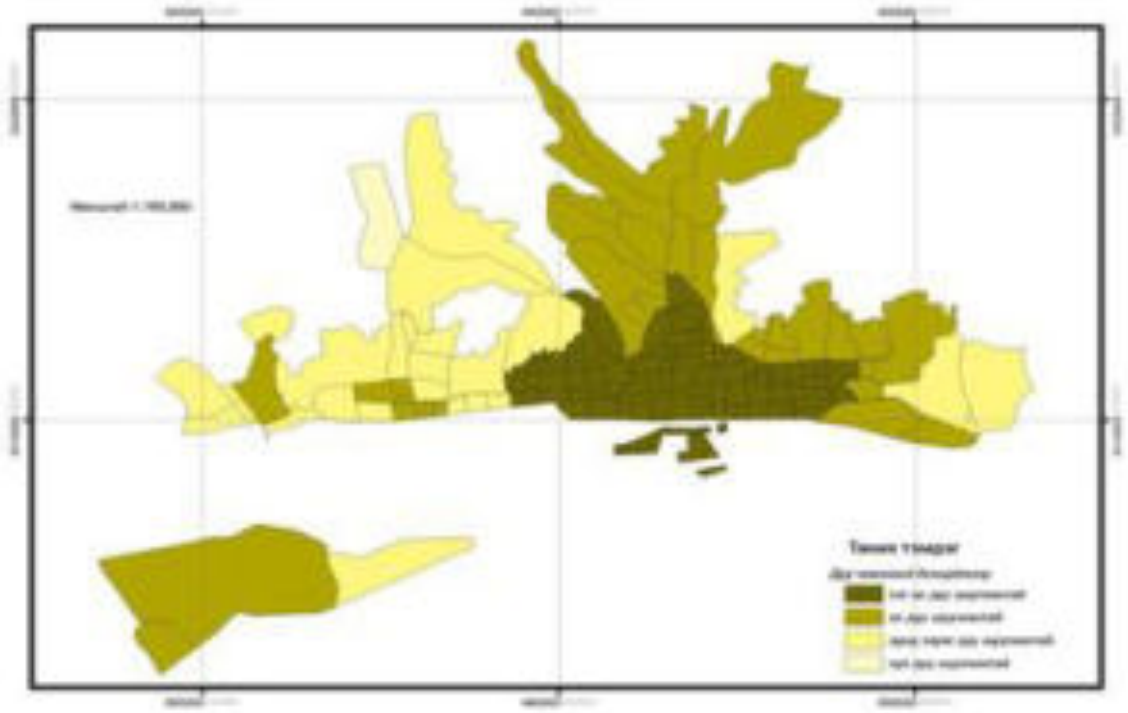
Source: Introduction on National Agency for Meteorology and Environmental Monitoring, MET, 2016

157. **Ambient Noise.** Ambient noise can seriously harm human health and interfere with people's daily activities at school, at work, at home and during leisure time. The main health risks of noise identified by the World Health Organisation (WHO) are - pain and hearing fatigue, hearing impairment including tinnitus, annoyance, interference with social behaviour (aggressiveness, protest and helplessness) and speech communication, sleep disturbance and all its consequences on a long and short term basis, cardiovascular effects, hormonal responses (stress hormones) and their possible consequences on human metabolism (nutrition) and immune system, and poor performance at work and school.

158. In project sites out of Ulaanbaatar city, in *aimag*s there is no estimation about noise measurement. Allowable level of vibration caused by noise according to the "Standard of Mongolia MNS5002-2000" which was renewed in 2000 was normalized and set at the factory levels. At all other sectors, the standard is set as being in compliance with the standard of its technological safety procedure.

159. Noise pollution estimation of Ulaanbaatar city has been done according to the complex assessment of urban development in 2000 (**Figure 4.6**).

Figure 4.6. Noise pollution estimation of Ulaanbaatar city



Source: Journal published by Eurasian Union of Scientists, "International Conference on Science and Practice" March 2016.

160. To identify influence of noise pollution for the ecological assessment of the urban territory, the research work has dominantly used the comparison method and noise has been measured at the 2 objects of Ulaanbaatar city at the railway until the train passed and for 30 minutes on the highway according to the Standard of Mongolia MNS 5003-2000 using SLM 8925 tool at 12 points with 100 m intervals. Noise estimation (shown in **Table 4.7** below) has been set pursuant to the complex assessment of urban development and the Standard of Mongolia MNS 5002-2000.

Table 4.7: Noise estimation

#	Estimation	Indicators		
		Noise level guideline of World Bank EHS Guideline*		Complex estimation of Urban development of Mongolia**
		Equivalent value	Maximum value	
1	Residential; Institutional; educational	55 db	45 db	<60 db
2	Industrial; commercial	70 db	70 db	60-80 db

*Source: General EHS Guideline of WB and Noise volume has been measured by Eurasian Union of Scientists, 2016

**Source: Journal published by Eurasian Union of Scientists, "International Conference on Science and Practice" March 2016.

161. Noise volume has been identified by Eurasian Union of Scientists at 12 points near to railway and highway where loudest noise is caused in Ulaanbaatar city using above estimation. The result of that estimation explained in following **Table 4.8.**

Table 4.8: Result of noise estimation

No	Places measured	Noise value (in db(A))			Evaluation
		Minimum	Maximum	Average	
Length which became distant from the railway					
1	At the railway	70.8	101	85.9	Unsuitable
2	100 m from the railway	68.4	98.3	83.35	Unsuitable
3	300 m from the railway	66.8	96.2	81.5	Unsuitable

4	400 m from the railway	60	85.2	72.6	Limited suitable
5	500 m from the railway	58	79.1	68.55	Limited suitable
6	600 m from the railway	50.4	62.2	56.3	Suitable
Highway					
7	On the highway	74	96.7	85.4	Unsuitable
8	100 m	46.5	81.5	64	Limited suitable
9	200 m	40	76.6	58.3	Suitable
10	300 m	40	59.9	49.95	Suitable
11	400m	40	55.3	47.65	Suitable
12	500m	40	51.4	45.7	Suitable

Source: Data of noise volume measured by Eurasian Union of Scientists, 2016

162. In 2000, 4 estimation zones of noise have been categorized for the urban planning of the urban territory according to the “Complex assessment or urban development” and noise estimation research has been conducted rarely since this research.

163. According to the research work done by Eurasian Union of Scientists, construction area of the centre of Ulaanbaatar city has extreme noise, 41.8 percent of all settled area has too much or great noise, 36.9 percent has an average noise and 21.3 percent has low estimation. Moreover, there is an estimation that it was 81.5-85.9 db(A) or unsuitable in the distance up to 300 m from the railway, 68.55-72.6 db(A) or limited suitable in the distance of 300-500 m, 56.3 db(A) or suitable in 500-600 m distance.

164. But it has been estimated that 64 db(A) or limited suitable was in the distance up to 100 m from the central highway of the city and 45.7-58.3 db(A) or suitable was in 100-500 m distance.

165. As described in the urban planning and construction norm, it has been determined that settled zone will be planned in the distance not less than 100 m from railway and further, it is required to plan to be in distance not less than 300 m from railway and 100 m from highway.

166. Noise measurements were made by the Central Laboratory of MNET at 14 locations using mobile equipment. Ambient noise levels throughout the city centre are consistent with little fluctuations (**Table 4.9)**. Average noise levels comply with Mongolian standards (the Standard of Mongolia. Sorting code 13.100. Occupational safety and hygiene. General requirement for the measurement of noise. MNS 5003-2000), but periodically exceed the standards especially along transport corridors, as traffic is a major source of noise in the urban area along with construction noise. These data are further supported by monitoring for a domestic EIA report which observed noise levels in the city at 62 dB at the curbside in peak hour traffic, dropping slightly to 61 dBA at the wall of the closest building at ground level. This figure reduces to 59 dB at 4 meters above ground.

Table 4.9: Noise Measurements in Ulaanbaatar

No.	Monitoring point	2009 average (db(A))	2010 average (db(A))
1	Tolgoit	53.7	49
2	Devshil	56.7	No Data
3	Yarmag	56.5	49.25
4	Bayankhoshuu	54.5	50.25
5	Zuragt	57	No data
6	3rd Hospital	56.4	No data
7	Tsengeldeh	55.8	No data
8	Duuri	59	No data
9	4th school	61.3	No data
10	17th school	57.2	No data
11	Ulaankhuaran	53.2	59
12	Amgalan	52.5	51.75
13	Sansar	55.6	57.5

14	5 buudal	No Data	55.75
Mongolian National Noise Standards: MNS 2007-4585 allowable limits: daytime is 60 dBA, night is 45 dBA. Night is 10pm-6am according to the Act on Labor.			

Remark: 1. 2009 based on 5 months (morning and evening) data
2. 2010 based on 2 months morning and evening data

Source: Central Laboratory of MET, 2010.

167. **Air Quality.** Air quality is a significant environmental problem in urban areas of Mongolia, particularly in Ulaanbaatar. Primary sources of air pollution in Ulaanbaatar are three thermal power plants, more than 1,000 small and medium sized heating boilers, about 130,000 traditional Gers and wooden houses, and over 190,000 four-wheel combustible driven vehicles. Topography and meteorology exacerbated ambient air quality conditions in the country, and particularly in Ulaanbaatar. Mountains surround Ulaanbaatar up to 2,250 meters in height inhibited dispersion of pollutants. To compound the situation, a stable atmospheric inversion forms during the winter season. As a result, ambient pollutant concentrations often remained for days or weeks at a time to exceed Mongolian and other international ambient air quality standards. Burning of coal and woods in the households in urban cities has been identified as major sources of air pollution, which affects ambient air quality and human health.

168. **Energy.** During the winter season, three large diesel power plants in Ulaanbaatar release 4.5 million cubic meters of gaseous pollutants, 4.14 tons of particulate matter, and 6.76 kilograms of carbon monoxide into the air every hour. The energy sector accounts for around 64% of Mongolia's greenhouse gas emissions. More than 250 steam boilers burn over 400,000 tons of coal every year. Gers and wooden houses with manual heating (in which 48% of the city population lives), use over 600,000 tons of coal and more than 160,000 cubic meters of fuel wood each year. For the cold seasons, the atmospheric content of carbon monoxide exceeds the permissible norm by 2-4 times.

169. **Transportation.** Transportation is a major source of air pollution in urban cities. The number of motor vehicles has increased vary rapidly in big cities and settlements in a short period of time. In 1995, it was estimated that over 60% of the vehicles emitted pollutants exceeded the maximum allowable limits.

170. **Industry.** Industrial activities are also one of the major sources of air pollution in Mongolia. As estimated approximately one fourth of greenhouse gas emission is emitted from industrial activities.

171. The following **Table 4.10** shows the results for Air Quality monitoring or spot sampling measurement of sulfur dioxide and nitrogen dioxide at various points along the proposed Schools/Kindergarten are within the permissible limits prescribed by the Department for Hydro Meteorology and Environmental Monitoring of MET for project involved *aimag*s and cities.

172. Because of lack of unified data, it was used several references as cited in the source reference. It can be shown that no parameters surpassed the maximum value established, but for the daily mean indexes; specially, in the household areas is higher with maximum values in 2014-2016 December measurement.

Table 4.10: Spot sampling measurement of sulphur dioxide and nitrogen dioxide in project involving *aimag*s in 2014-2017

Name of monitoring point	Date of sampling	Time of sampling	SO_2 mg/m^3	NO_2mg/m^3
Murun *Soum* of Khuvsgul *aimag*	2016.12.26	21:44-22:04	24	64
	2017.01.27	20:20-20:40	27	71
Sumber *Soum* of Govisumber	2014	average	1	18

Aimag	2015	average	7	14
	2016	average	9	26
Ulaanbaatar city	2015	January	118	62
	2016	January	124	75
	2017	January	98	78
Standard MNS4585:2016			**50**	**50**
WHO Ambient Air Quality Guidelines reflected in World Bank guideline of EHS			**50**	**40**

Source: Monitoring result of Environmental Monitoring Laboratories of department of Hydrology, Meteorology and Environmental Monitoring in Bayankhongor, Bulgan, Dornod, Govisumber, Orkhon *aimags*, 2016.

173. Concentrated road traffic or presence of air polluting industries in the area can result in a significant decline in air quality. Since most of the schools and kindergartens located in several *khoroo*s, the Ambient Air Quality measurements along the project locations are within the limits of National Ambient Air Quality Standards. Particulate Matter (PM2.5)[25] is produced by combustion, including vehicle exhaust, and by chemical reactions between gases such as Sulphur dioxide, nitrogen oxides, and volatile organic compounds. Adverse health effects from breathing air with a high PM2.5 concentration include premature death, increased respiratory symptoms and disease, chronic bronchitis, and decreased lung function particularly for individuals with asthma.

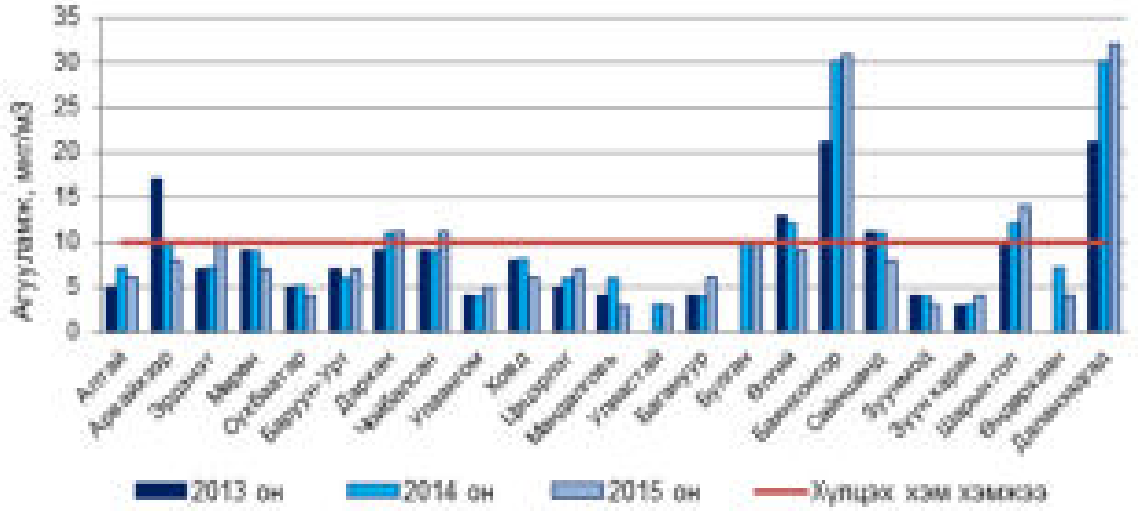
174. The National Air Quality Office operates a network of 11 air quality monitoring stations situated in Ulaanbaatar. Data are collected and coordinated by the National Air Quality Office.

175. Further measurements at monitoring stations conducted in June 2008 (under World Bank's Air Monitoring and Health Impact Baseline Study) give even higher PM10 concentration levels. Recorded levels exceeded the Mongolian air quality standard (100 μg/m^3), World Health Organization (WHO) guideline value10 (50 μg/m^3 24 hour mean PM10) and the European limit value (40 μg/m^3). In addition, extremely high concentrations of PM were found at the mobile PM stations under World Bank's Air Monitoring and Health Impact Baseline Study in the Ger areas. Mostly during winter months, some days recorded levels of up to 4000 μg/m^3, although the report states that this value should be revised down by 40%[11] due to interference in the results by the relative humidity at the time of sampling.

176. More recent data of annual average air quality of a*imags* for 2013-2015 given in Figure **4.9**. The data show the annual average estimation of sulfur dioxide comparing with Mongolian standard, that presented to Parliament Standing Committee by the Central Laboratory of MET.

Figure 4.9: Air Quality Measurements in 2013-2015 and Mongolian Standards
(Estimation of sulfur dioxide)

[25] Fine Particulate Matter with a diameter smaller than 2.5 microns. (Human hair diameters range from 40 to 120 microns.)



Source: Air Quality Authority of Mongolia, 2015.

4.8.2.3 Surface and Ground Water

177. The results of water analysis (**Table 4.11**) shows level of indicators of water quality in rivers passing nearby project areas.

Table 4.11: **Average Water Quality in the rivers in project city and towns (1998-2008)**

River Location	pH [-]	SS [mg/l]	DO [mg/l]	BOD_5 [mg/l]	NH_4^+ [mg/l]	PO_4^{-3} [mg/l]	SO_4^{-2} [mg/l]
Selbe River in Ulaanbaatar city	8.1	30.9	9.4	2.9	0.3	0.02	24.6
Tuul river in Ulaanbaatar city	7.63	18.7	1.6	3.6	0.4	0.1	7.8
MON standard for ambient water quality (MNS 4586-1998)	6.5-8.5	-	6.4	3.0	0.5	0.1	100
Indicative Values for Treated Sanitary Sewage Discharges in the WB EHS guideline.	6.0-9.0	50	125	30	10	2	-

Source: Data from analysing by Environmental monitoring laboratory of Ulaanbaatar city, 2012-2016.
Remark: The EHS guideline of WB explains that discharges of process wastewater, sanitary wastewater, wastewater from utility operations or stormwater to surface water should not result in contaminant concentrations in excess of local ambient water quality criteria or, in the absence of local criteria, other sources of ambient water quality.

178. Water quality results by *Aimags*' Departments for Meteorology and Environmental Monitoring show the ground water has high amount of hardness. However, all other parameters such as copper, manganese, sulphate, nitrate, fluoride, phenolic compounds as C6H5OH, mercury, cadmium, selenium, arsenic, cyanide, lead, zinc, anionic detergents, chromium, mineral oil, alkalinity, aluminium and boron are found within permissible limits. Both sources of water - ground water through borewells and/or surface water supplied through city water supply are safe for consumption.

179. **Soil Analysis.** A soil test chemically extracts and measures the elements essential to plant nutrition. It also measures soil acidity and pH. These factors are indicators of nutrient availability, and the potential of the soil to produce crops and presence of metals like chromium, cadmium, copper etc. before beginning of any project related activities. **Table 4.12** gives the site test results for soil analysis.

Table 4.12: Results of Soil Analysis Monitoring

Parameters	WB EHS guidelines	MNS-Detectable limits	Altai	Govisumber
PH	-	-	-	8.24
Moisture (%)	-	-	-	1.01

Parameters	WB EHS guidelines	MNS-Detectable limits	Altai	Govisumber
Sulphates (SO_4) (mg/kg)	-	-	-	169.9
Ammonium nitrate (NH_4)	-	-	-	18.8
Total Organic Matter (%)	-	-	-	1.51
Nitrogen (NO_3) mg/kg	-	-	-	22.5
Phosphorus (P_20_5) (mg/kg)	-	-	-	21.3
Chlorides (%)	-	-	0.0	0.0
Lead (Pb) (mg/kg)	-	100	14.3	9.9
Zink (Zn) (mg/kg)	-	300	126.0	117.8
Cuprum (Cu) (mg/kg)	-	100	29.1	27.98
Cobalt (Co) (mg/kg)	-	800	36.2	12.0
Mercury(Hg) (mg/kg)	-	2.0	0.0	0.0
Chromium (Cr) (mg/kg)	-	150	134.3	0.0

Source: Data of measurement by Laboratories of Departments for Meteorology and Environmental Monitoring of Govi-Altai, Govisumber *aimags*. 2016.
Note: No estimation in the EHS guideline, it concerns contaminated land.

180. Other metals like zinc, copper, chromium, cadmium, nickel, lead are found below detectable limits signifies the low productivity of soil with no traces of any pollutants before start of project activities. **Table 4.13** gives locations for soil monitoring points that were studied by Institute of Geography, while preparing Report of Ulaanbaatar soil pollution study, 2014. **Figure 4.10** depicts the following locations on a geographical map of Ulaanbaatar city.

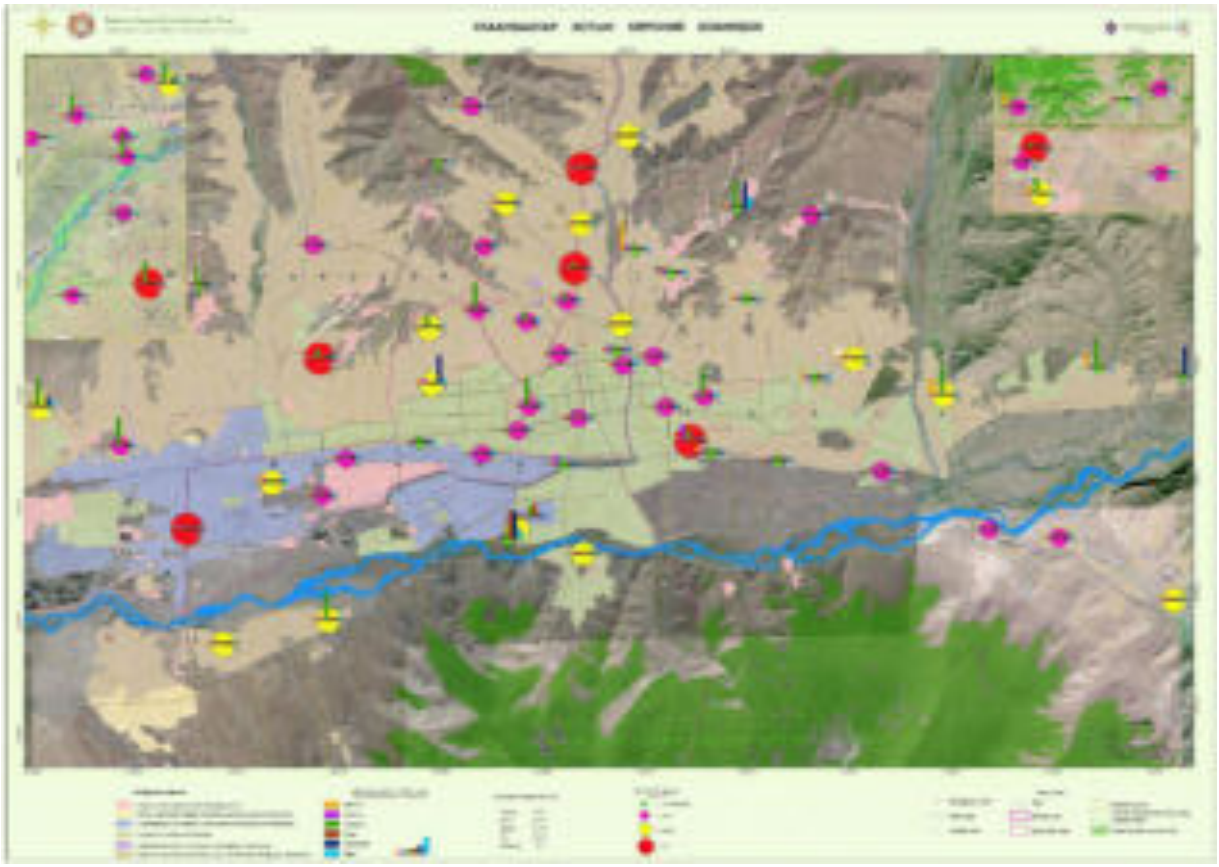
Table 4.13. Locations of Soil Monitoring Points in Ulaanbaatar city

No.	Name of Places	Longitude (ddd.ddddd)	Altitude N(dd.ddddd)
1	Sonsgolon road	106.78545	47.89442
2	Termo Power Plant-4	106.81353	47.90423
3	Railway Station	106.88237	47.90941
4	10th microdistrict, Tsetsuukh market	106.86243	47.91202
5	Termo Power Plant-2	106.83003	47.90110
6	Khar Khorin Market	106.83812	47.90908
7	School #113	106.86662	47.92515
8	Sambalkhundev Market in 3&4th microdistrict	106.86639	47.93749
9	Bulag valley in Gachuurt	107.11208	47.92276
10	Back side entrance of Naran Tuul market	106.95076	47.91119
11	Sky resort village	107.04767	47.88998
12	Chuluun ovoo	106.97914	47.90636
13	Amgalan Railway station	107.01292	47.90342
14	Bayanzurkh traffic checking point	107.07044	47.88778
15	Landfill of Khonkhor village	107.15969	47.80360
16	Dari Ekh landfill	106.94604	47.94811
17	Front side of Da Khuree market	107.00502	47.92830
18	Front side of Tsaiz market	106.95571	47.92077
19	Landfill in Tsagaan davaa	106.99215	47.96012
20	Baast river in Nalaikh	107.26919	47.78727
21	Waste collecting point near Gorodok village	107.40025	47.76633
22	Landfill of Nalaikh district	107.27438	47.75422
23	Urgakh Naran microdistrict	107.10736	47.87333
24	Glass factory of Nalaikh	107.25539	47.77715

No.	Name of Places	Longitude (ddd.ddddd)	Altitude N(dd.ddddd)
25	South side of Emeelt	106.59183	47.88569
26	Songino resort center	106.69173	47.87111
27	Village in the north side of Songino resort	106.68717	47.88612
28	Near the office of 32nd *Khoroo* of Songinokhairkhan district	106.63995	47.90090
29	Eastern valley of Takhilt	106.71414	47.92900
30	Bayankhoshuu east valley	106.81660	48.01138
31	Orbit microdistrict in Bayangol	106.73847	47.92199
32	End of Undur Denj	106.83030	47.93130
33	End stop of buses in Orbit	106.76452	47.91306
34	Waste collecting point in Selkh	106.96524	48.02210
35	Selbe resort	106.92810	48.01472
36	Western cross road	106.89436	47.91440
37	Green lake	106.90868	47.93107
38	Dambadarjaa	106.93302	47.97853
39	Institute of Geography	106.92935	47.92811
40	Morin davaa	106.68692	47.83161
41	Bukhug river	106.56861	47.74761
42	8th *khoroo* of Khan Uul District, Yarmag	106.79658	47.86892
43	Leader Factory	106.89352	47.89256
44	Sens hill	106.63200	47.77431
45	Ulziit village	106.71208	47.78158
46	Dalan Davkhar	106.88211	47.94104
47	Flood protection channel near Bumbugur market	106.89843	47.91958
48	Central post	106.91433	47.91685
49	TV Broadcasting Centre	106.89823	47.93835
50	Denjiin Myanga	106.91151	47.94256
51	Khailaast	106.91439	47.94975
52	6 Buudal	106.91670	47.95944
53	7 Buudal	106.91758	47.97172
54	Thermal Plant in Uliastai	107.03403	47.91979
55	School number 34 in Yarmag	106.83103	47.87367
56	Khonkhor	107.18623	47.81302
57	Chingeltei bulag, Nargui well	106.88196	47.98588
58	Sogoot 57th street in Khailaast	106.89224	47.96446
59	Zaisan	106.91494	47.88690
60	East cross road	106.94289	47.91878
61	Selbe river near State Registration Center	106.92936	47.93713
62	Tsagaan Davaa	106.97039	47.94201
63	Mamba Datsan, FM-104.5	106.93961	47.93000
64	Khailaast	106.87022	47.97377
65	Denj 1000	106.88480	47.95497
66	Cross road in Bayankhoshuu	106.82913	47.95630
67	Ulaanchuluut landfill	106.79127	47.94794
68	Train repair center	106.90896	47.90668
69	Khargia WWTP	106.89016	47.89048
70	Dari-Ekh, Selbe auto repair centre	106.93406	47.95339
71	Gants Khudag	106.96797	47.96194
72	Shar Khad auto repair centre	106.99222	47.92419
73	Khujir Bulan	107.08489	47.92486
74	Gachuurt drinking water supply centre	107.19328	47.89939
75	Uguumur auto market	106.95728	47.90844
76	100 ail road	106.92737	47.93139

Source: Institute of Geography, Report of Ulaanbaatar soil pollution study, 2014

Figure 4.10: Map of soil pollution in Ulaanbaatar city



Source: Institute of Geography, Report of Ulaanbaatar soil pollution study, 2014

181. Environmental baseline standards for air, water, soil and noise are attached as **Annexure 4.** A regular monitoring of all above parameters during construction, operation, and maintenance phase will further describe the pollutants loads in the ambient environmental conditions. This tracking will lead to an effective use of Environment Management and Monitoring Plan in ensuring compliance with design parameters.

4.9 Existing and associated facilities

182. The planned schools and kindergartens by the project are all located in the state-owned lands registered under each school and kindergarten, and they will be connected to the existing infrastructures of the municipal distribution network of Ulaanbaatar city and Murun city. The legal due diligence status of each of project sites (additional financing) to the existing and associated facilities is described in **table 4.14.**

Table 4.14. Legal due diligence status of associated facilities for the project proposed (additional financing) kindergarten and school buildings

Permission status by authorized service providers of existing facilities*						**Remarks**
Names of Project sites	Communication/ Information & Communication National Network	Electricity supply/UB Electricity Distribution Network	Heating supply /UB Heating Network	Water supply/water supply and wastewater service (USUG)	Wastewater collection/ (USUG)	
“Ireedui” Secondary school. SHD, UB.	Permission No. THB665/2020	Permission No. 15/03715/20	Permission No.291/2020	Permission No. 729/20	Permission No. 729/20	Proposal reviewed and approved. No negative impact to associated facilities
“Ireedui”	Permission No.	Permission	Permission	Permission	Permission	Proposal reviewed

Primary school. SHD, UB.	THB664/2020	No. 15/03714/20	No.291/2020	No. 728/20	No. 728/20	and approved. No negative impact to associated facilities
School No. 6. SBD, UB.	Permission No. THB666/2020	Permission No. 15/03730/20	Permission No.285/2020	Permission No. 587/20	Permission No. 587/20	Proposal reviewed and approved. No negative impact to associated facilities
Kindergarten No.82. BZD, UB.	Permission No. THB614/2020	Permission No. 15/05066/20	Permission No.402/2020	Permission No. 859/20	Permission No. 859/20	Proposal reviewed and approved. No negative impact to associated facilities
Kindergarten No.88. BGD, UB.	Permission No. THB613/2020	Permission No. 15/04331/20	Permission No.0032/2020	Permission No. 842/20	Permission No. 842/20	Proposal reviewed and approved. No negative impact to associated facilities
Kindergarten No.104. SHD, UB.	Permission No. THB502/2020	Permission No. 15/04462/20	Permission No.356/2020	Permission No. 650/20	Permission No. 650/20	Proposal reviewed and approved. No negative impact to associated facilities
Kindergarten No.160. SBD, UB.	Permission No. THB508/2020	Permission No. 15/03207/20	Permission No.219/2020	Permission No. 608/20	Permission No. 608/20	Proposal reviewed and approved. No negative impact to associated facilities
A new kindergarten No.168. BZD, UB.	Permission No. THB726/2020	Permission No. 15/05361/20	Advised other source due to remote location	Advised autonomous source of water supply or delivery of water due to remote location	Advised small scale wastewater treatment plant due to remote location	Permitted to connect to communication and electricity services. No impact to these facilities. For heating/water supply/wastewater-autonomous system will be installed.
Kindergarten No. 6. Murun, Khuvsgul Province	Permission No. 2022/08/15 by Khuvsgul Branch of CICNN	Permission No. 215/2022 by Khuvsgul Erchim khuch LLC	Permission No. 2022/11 by “Khuvsgul Heating Station” Shareholding	Permission No. 11 by “Khuvsgul water service” company	Permission No. 11 by “Khuvsgul water service” company	Proposal reviewed and approved for connection. No negative impact to associated facilities

Remarks:*- copies of permissions issued by authorized associated facilities (in Mongolian) for project sites are in the annexure-7.

During the construction period, a construction contractor will be responsible for waste management, and it needs to establish a contract with local authority for collection and transportation of household and construction and demolition waste to the government designated dump sites according to the Law of Mongolia on Waste Management (2017). During the operation period, kindergarten/school management is responsible for contracting with local authorities for waste management services to dispose of the waste in the designated dump sites. As there is not expected any toxic and hazardous waste during the construction period, no harm will be foreseen to the operation of existing waste management facilities in project sites.

Infrastructure facilities that are integral parts of the city-wide centralized networks and designed to provide the whole Ulaanbaatar city and Murun city with utility services. These include the main ground water wells and central pumping stations for the Ulaanbaatar city and Murun city, central wastewater treatment plant of Ulaanbaatar city and Murun city, Power Plants No.3 and No.4 and central landfill sites of the Ulaanbaatar city and Murun city. District and aimag USUGs

(Water supply and distribution authority of Mongolia), Heating Distribution Network SOE, and Heating Distribution are in charge of maintenance and connection of these networks. Infrastructure connection of each school and kindergarten building is summarized in the current chapter and suggested infrastructure for subprojects and the tables 6.2 – 6.4, table A1.3 Physical features, table A1.4 other physical distances and table A1.5 School receptors. During implementation, the project will be monitoring whether the project works trigger any unanticipated impacts on existing and associated facilities through the Environmental Monitoring Reports.

4.10 Socio-Economic Development

183. **Population.** The population of Ulaanbaatar, the capital city of Mongolia, has been increasing rapidly from 0.78 million (Mongolia: 2.40 million) in 2000 to 1.08 million (Mongolia: 2.67 million) in 2008 with an average annual growth rate of 2.8%. This rapid increase of population is chiefly due to a rapid migration from rural area to urban area. The average number of populations migrated in the past 10 years is estimated at around 20,000 per year which cause the expansion of Ger area surrounding the apartment area of Ulaanbaatar. At present Ulaanbaatar accounts for 40% of the total population of Mongolia. The projected urban population of 2030 is 1.87 million or 1.7 times larger than the population in 2008.

184. **Economy.** The economy of Mongolia has grown rapidly at average annual growth of around 5.6% and transition to market economy has proceeded at remarkable speed as well. The economic growth has been pushed by increased international commodity price as well as expansion of copper output until the global financial crisis occurred in 2008. Meanwhile, the regional domestic production of Ulaanbaatar City accounts for around 56% of the National gross domestic production (GDP), as the city has historically been the centre of the economy as well as of the administration.

185. In Mongolia, mining and quarrying are the biggest financial contributors to industrial output (58%) with manufacturing second (32%). The Tavan Tolgoi area is the world's largest untapped coking coal deposit. Manufacturing includes metals (such as copper and steel foundries) as well as woollen products such as cashmere and carpets. Ulaanbaatar has some manufacturing plants but is also the base for offices of international and national companies; because of the current infrastructure constraints, it is considered difficult to operate a significant and effective business outside Ulaanbaatar.

186. **Unemployment.** According to the Mongolian Statistical Yearbook 2009, the 'Registered Unemployment Rate' for Ulaanbaatar is 1.6%. However, this is the rate of people that are officially registered unemployed. The book also provides an 'unemployment rate' which is 14% for the city, derived from a new methodology of calculation based on the results of a Labor Force Survey.

187. **Poverty.** The Mongolian Statistical Yearbook 2009 provides background data on poverty levels within the city. The Poverty Headcount Index is a widely used poverty measure, giving the percentage of the population whose consumption is below the poverty line. For Ulaanbaatar, this rate is 36.7% in 2009, which compares to 38.7% nationally. This increases to over 49% in rural areas, showing that relatively speaking, Ulaanbaatar is wealthier than the rural areas. This translates to an average household income of nearly 455,000 MNT in urban areas, and 332,000 MNT in rural areas.

188. The following **Table 4.15** gives overview of selected key development indicators gives a first indication of the poverty situation in Mongolia:

Table 4.15: Key Development Indicators in Mongolia

Key Development Indicators	Measure	Year
Total population	2.7 million	2010

Key Development Indicators	Measure	Year
% under 15	27.3	2010
Population Distribution (% Rural)	36.7	2010
Human Development Index (HDI)	0.653	2011
HDI Rank. out of 187 countries	110	2011
Gini Coefficient	36.5	2000-2011
Total Health Expenditure (% of GDP) (USA 15.4%. Germany 9.1%. Russia 5.4%)	3.0	2010
Government spending on health as % of total Government expenditure	8.7	2010
Gross National Income (GNI) per Capita USD	2,247	2010
GDP per Capita. USD	3,522	2009
Literacy rate (15+)	97.8%	2010
Multi-dimensional poverty index	0.065	2005
% population with improved drinking water access	51	2011
Life Expectancy at Birth	68.5	2011
Infant Mortality Rate (<5)	19.4 per 1.000 live births	2010
Maternal Mortality Rate	45.5 per 10.000 live births	2010

Sources: UNDP 2011. WHO CHIPS 2011. Health indicators. 2010. Human Development report. 2011. WHO / UNICEF (2012)

189. The analysis of the first Living Standard Measurement Survey (LSMS) in 1996 provided a profile of the poor and identified the most vulnerable groups in the country. More than 800,000 people or 36 % of the population were reported as poor. The assessment showed that female-headed households had a higher incidence of poverty as do unemployed and rural households owning less than 15 animals. Urban poverty is marginally higher than rural poverty particularly in provincial capitals that have been hard hit by the closing of state enterprises. These observations are most probably still valid, although no new data exist.

190. Income comes from different sources and varies according to location as shown in **Table 4.16.**

Table 4.16: Monthly Average Income per Household

(By sources of income and by location)

Types of income	National average (%)	Ulaanbaatar (%)	*Aimag* centers (%)	*Soum* centers (%)	Rural areas (%)
Income Total	100.0	100.0	100.0	100.0	100.0
Monetary Income Total	91.5	97.0	94.6	89.4	70.9
Wages and salaries	48.5	57.0	52.5	49.3	13.8
Pensions. allowances and compensation*	20.0	18.3	22.2	20.5	22.1
Income from livestock products	5.3	0.2	1.9	5.7	26.6
Income from crop products	0.5	0.0	0.3	2.4	0.8
Income from non-agricultural production and services	10.7	14.0	11.2	5.9	3.4
Other income	6.5	7.5	6.5	5.6	4.2
Food and non-food products received from others free of charge	3.1	2.8	2.9	1.4	5.7
Food consumption from own business	5.4	0.2	2.5	9.2	23.4

(Source: NSO 2012)

191. Private transfers by family members living in the capital or abroad provide a significant source of income in poor households accounting for nearly 20 % of total income. Without these private transfers the poverty rate would increase to 46 % of the population.

192. The survey found that there was a strong correlation between unemployment and

poverty with 58 % of the unemployed being poor. Unemployment was a particularly difficult problem in both the urban and rural areas. In addition to the 100,000 already unemployed the civil service reform will create another 30,000-unemployed former public service employees. In addition, over 25,000 people enter the labour market annually finishing their education. Among the rural poor 35 % of the very poor and 14 % of the poor were unemployed. Among the urban poor, the situation was even worse with 55 % of the very poor and 34 % of the poor being unemployed.

193. Mongolia is experiencing a growing difference between the living conditions of rich and poor herders, about 37 % of livestock-owning households struggle to subsist.

194. **Ethnic minorities.** Ethnic Mongols account for about 85% of the population and consist of Khalkha and other groups, all distinguished primarily by dialects of the Mongol language. The Khalkha make up 90% of the ethnic Mongol population. The remaining 10% include Buryats, Durved Mongols and others in the north and Dariganga Mongols in the east. Turkic peoples (Kazakhs, Tuvans, and Chantuu (Uzbek) constitute 7% of Mongolia's population, and the rest are Tungusic peoples, Chinese, and Russians. Most but not all Russians left the country following the withdrawal of economic aid and dissolution of the Soviet Union in 1991.

195. **Education.** The educational system of Mongolia is composed of nursery, kindergarten, primary school, secondary school, and university facilities. Every s*oum* has at least one nursery school and kindergarten. There are often also privately run nursery schools and kindergartens (for children over the age of 3). Each *Soum* centre has schools with boarding facilities, where children from the more remote herder families are accommodated. Primary and secondary schooling used to be for 10 years but was extended to 11 years. The school year of 2008-2009 marked the beginning of the 12-year system. In Mongolia, the school year begins in September. Pupils who want to complete secondary school often need to attend schools in the *Aimag* centres. Generally, men and women in rural areas have attended school up to year 8 and can read and write. 84%of the 35,228 pupils, who went to school in rural areas and stayed in dormitories, come from herder families (2009). Girls and boys have equal access to schools, vocational training, and other state services.

196. With the advent of the free-market economy and increasing urbanization primary education has experienced some ups and downs. As more families move to the cities with their children, urban schools are suffering from overcrowding while rural schools suffer from low attendance. After the communist regime stepped down and free markets were introduced, the Mongolian education system was reformed through decentralization by handing over management to the local provincial governments. Prior to this, the government heavily subsidized education in Mongolia. Education consumed 27% of the national budget in 1985, but by 1999 this had dropped to below 15% of the total budget. Every child, no matter how remote their location, was able to attend well-equipped schools that had some of the lowest student to teacher ratios in the world.

197. The situation changed when the economic downturn of the 1990s put pressure on the financial stability of families and strained the school budgets. This led to an increasing number of children being taken out of school and put to work helping their families. The introduction of capitalism put more than 36% of the Mongolian population below the poverty line by 1995. At one point, more than 15% of rural children were being put to work, mostly with herding. Furthermore, over 8% of urban children were working instead of attending school.

198. In addition, herders may question the need for education, as the aging parents had to herd the flocks themselves if their children were going to school. The dropout rate was exacerbated by the fact that many children needed to attend boarding school a long way from home. At one point the schools implemented a ‘Meat Requirement’ to help cover the cost of feeding students. This meant that a family had to provide 70 kg of meat per child per year. The ‘Meat Requirement’ was in essence a school fee that some families could not afford. Boys had

the highest dropout rates because they were more likely to be needed for tending herds and were often seen as problem students. Fortunately, primary education in Mongolia has largely rebounded and school dropout rates are decreasing. However, the quick growth of the dropout rate during the economically turbulent 1990s does illustrate how fragile access to education can be in Mongolia.

199. In contrast, the reform of higher education has always had high priority. As part of the educational reform of 1995 courses and degrees were transformed to a Bachelor/master's system based on the system used in the USA. The development of competitive private education providers was encouraged by the introduction of university fees with such success that Mongolia was considered a worldwide model. The new opportunities were taken up on a large scale, not only by Mongolian institutions, but also by foreign universities with bases in Russia, Kazakhstan, and the USA, among other countries. More than 100 private universities have been established up to date. The most important funding source for the universities is university fees, which reach astronomical proportions particularly for prospective students at the lower end of the income scale. On the other hand, there are scholarship opportunities for poorer students. In the 2001/2002 academic year, the State paid the study fees for about 5% of the circa 90,000 students and over one-third of students received State loans. However, the internationalization of tertiary education has largely remained a one-way road. Preferred target countries of Mongolian students are the USA and Germany. In Mongolia itself, foreign students and visiting scientists come mostly from East Asia.

200. A total of approximately 210,000 students were registered in 2010 with the country's universities, higher educational institutions, colleges, technical and vocational schools. One peculiarity of Mongolian education is the disproportionate involvement of women. This inequality starts with the first day of school and widens with the increasing length of education such that the proportion of women university graduates reaches 63% (2009).

201. Among the population aged 10 and above the percentage of people with at least primary education is 92.5% (2010), with an increase of 4.6% compared to 2000. The percentage of males with higher education has increased twice between the two censuses, whereas the same figure has increased 2.8 times among females. Literacy level among population aged 15 and above is 98.3%, which has increased by 0.5% since 2000.

202. **Health Care.** During the Socialist Period health services were publicly funded, but despite achievements in facilities and improved health status, the system was inefficient. In the mid-1990s, the health sector reform focused on improving primary health care and disease prevention. This, along with economic development, contributed to improvements in health status over the last 15 years.

203. The leading causes of mortality are non-communicable diseases (cardiovascular diseases and neoplasms) and external causes (injuries and poisonings). Respiratory and digestive system diseases are the main causes of morbidity, along with external causes (injuries and poisonings) in urban areas and urinary tract diseases in rural settings.

204. The health system is decentralized to the level of the *Aimag*. The majority of health services are delivered by the public sector.

205. Mongolia has more than twice the average number of hospitals of EU countries and other transition countries, although the numbers have been declining since 1998. At the same time there has been a decline in the number of in-patient beds, though Mongolia still has a high number of beds at 68.1 per 10,000 inhabitants in 2011.

206. However, there are more and more reports that the quality of health services is deteriorating. Thousands of people who urgently require medical care are at risk not to get adequate care. According to doctor's reports there is a general lack of functioning anaesthesia

devices and medication. There is also a lack of medical information, e.g., in 2008, in average only 12% of women were aware and had a correct understanding about transmission modes of HIV/AIDS and only 22% had at least a basic understanding transmission mode of HIV/AIDS.

207. The deteriorating state of the national health care system has clear negative impacts on the health situation of the population. Infant mortality, for example, has not only increased in several regions (Western, Khangai and Eastern) but also in the national average.

208. Also, infectious diseases are spreading/increasing: In the first 11 months of 2012 the total number of cases reached 39,301, an increase by 873 cases or 2.3% compared to same period of the previous year. The increase in the number of infectious disease cases was mainly due to increases of 7,408 (9.3 times the previous figure) in mumps and 466 (11.8%) in syphilis - although there were decreases of 6,228 (49.4%) in viral hepatitis.

209. To improve the situation, the government has established a National Quality Programme and a National Programme on Improving Hospital Quality Management (2008-2013), but yet there are no reports about the extent to which these plans have been implemented and no actual evidence whether they have actually enhanced quality.

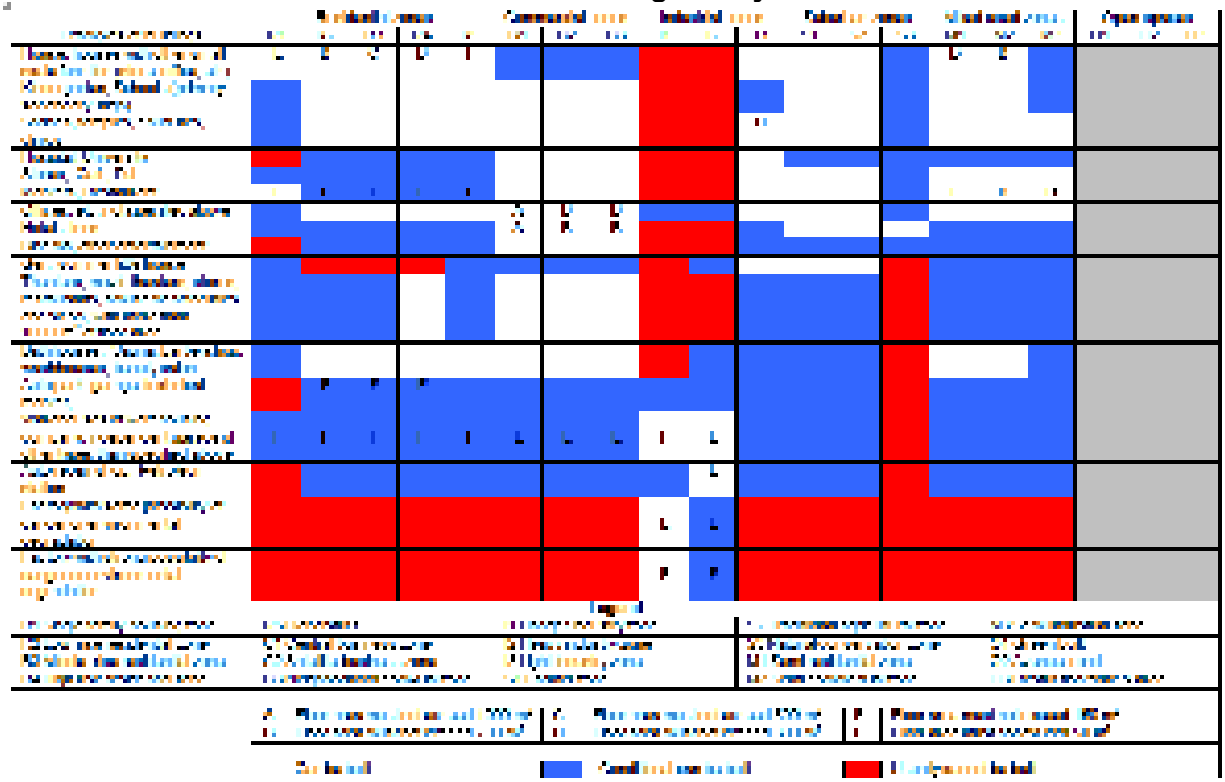
210. The State funding of primary health care aims to provide access for everyone. Vulnerable groups are exempt from co-payments (mothers, children under 5 years, the elderly and youth). However, there is still an urban-rural disparity in access. Provision of services favours urban and non-poor areas. Rural areas suffer from a shortage of health workers. These days, when someone has a medical emergency, they are more likely to seek contact to the next urban centre.

211. The Government of Mongolia has placed a high priority on achieving the Millennium Development Goal 5. Some of the major achievements in moving towards this goal are the high coverage of antenatal care (87.7%) and delivery by skilled birth attendants (99.8%). However, providing maternal services to a mobile and migrant population is a challenge and the infant mortality rate stays high, especially in remote areas – where the herders live.

212. There are international NGOs like “Nomadicare” which recognize that the nomadic lifestyle is at risk due to its extreme remoteness, compounded by the lack of infrastructure like roads, electricity, and water. If nomads get sick and need to go to a provincial hospital with adequate diagnostic and treatment capacity, it can be many hours away. To support their cultural survival, nomads need effective health care close to their homes. Nomadicare works on this problem.

213. **Land use pattern.** The land use pattern map of Ulaanbaatar is shown below in **Figure 4.7** which shows the new land use classification and zoning scheme of Ulaanbaatar and **Table 4.17** gives the details of Control of building use by Land Use Zones. With its territory of 156.412 million ha, Mongolia occupies 17th place by the size of territory and first place by per capita land resources (65 ha) in the world. Per capita agricultural land in Mongolia (53.8 ha) accounts for 20 times over the world's average.

Table 4.17. Control of building use by Land Use Zones



Source: Gantulga Gombodorj and Chinbat Badamdorj. Urban land use classification and functional zoning of Ulaanbaatar city, Mongolia, 2010.

214. The land, except that given to the citizens of Mongolia for private ownership, as well as the subsoil with its mineral resources, forests, water resources and wildfowl shall be the property of the State. The State may give for private ownership plots of land, except pasturage and land under public utilization and special use, only to the citizens of Mongolia. This provision shall not apply to the ownership of the subsoil thereof. Citizens shall be prohibited to transfer the land in their ownership to foreign citizens and stateless persons by way of selling, bartering, donating, or pledging as well as from transferring it to others for their possession and use without permission from competent State authorities. The State shall have the right to hold landowners responsible for the land, to exchange or take it over with compensation on the grounds of special public need or confiscate the land if it is used in a manner adverse to the health of the population, the interests of environmental protection or national security. The State may allow foreign citizens, legal persons, and stateless persons to lease land for a specified period of time under conditions and procedures as provided for by law. Also, in provision 16.2 of the Constitution was indicated that the citizens of Mongolia are guaranteed to enjoy the following rights and freedoms: the right to a healthy and safe environment, and to be protected against environmental pollution and ecological imbalance.

215. In the provision 17.2 it was indicated that “1. Citizens of Mongolia, while upholding justice and humanity, shall fulfil in good faith the following basic duties: 2) to respect dignity, reputation, rights, and legitimate interests of others;” and in the provision 19.1 “The State shall be responsible to the citizens for the creation of economic, social, legal and other guarantees ensuring human rights and freedoms, to fight against violations of human rights and freedoms and to restore infringed rights.”

216. As per the Provision 10 of Law on Land of Mongolia, land is classified in six categories as stated below in **Table 4.18**:

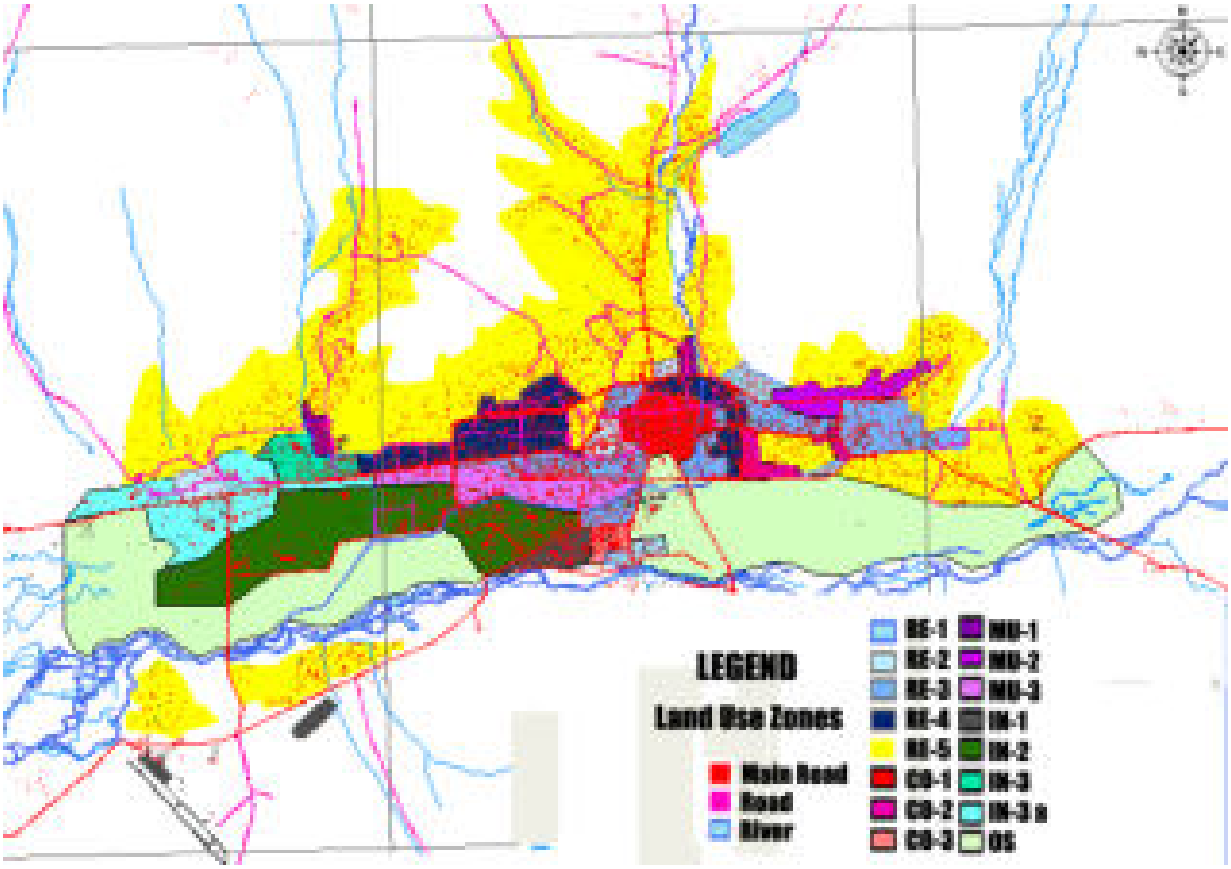
Table 4.18: Classification of Land Use of Mongolia

No	Classification of Land Use	2013	2014	Changes
I	Agricultural land	115361.4	115008.6	-352.8
1	Pastureland	111026.1	110646.7	-379.4
2	Hay making area	1712.3	1717.6	5.3
3	Crop land	986.8	1012.8	26.0
4	Abandoned land	304.9	304.9	0.0
5	Land under Agricultural building and facilities	71.4	76.8	5.4
6	Land unsuitable for agricultural use	1259.7	1259.7	0.0
II	Urban Land	699.6	712.1	12.5
7	Land for Construction and facilities	73.1	75.3	2.2
8	Public land/area	330.1	330.3	0.2
9	Industrial area	40.4	41.1	0.7
10	Mining land	200.9	206.2	5.3
11	Ger area	54.5	59.3	4.8
III	Roads and Communication Land	437.3	454.8	17.5
12	Road	319.7	329.7	10.0
13	Railway	27.8	29.9	2.1
14	Land for air transport	8.8	8.9	0.1
15	Communication land	80.8	86.2	5.4
16	Land for port of water transport	0.0	0.0	0.0
IV	Forest Land	14295.4	14320.5	25.1
17	Forest covered area	12138.6	12181.3	42.7
18	Logged area	142.4	142.0	-0.4
19	Land for forest nursery	46.5	50.9	4.4
20	Forest restoration area	744.0	743.6	-0.4
21	Other land area of forest	1223.7	1202.7	-21.0
V	Water Land	686.8	686.7	-0.1
22	Rivers	228.5	228.5	0.0
23	Lakes and founds	444.7	444.3	-0.4
24	Creek and springs	12.4	12.4	0.0
25	Glaciers and	1.1	1.6	0.5
VI	Land for State Special Needs	24931.1	25228.9	297.8
26	Protected Areas	20948.3	21140.9	192.6
27	Border zone area	3111.9	3111.9	0.0
28	Land for National Defence	124.1	124.1	0.0
29	Land for International Diplomatic Consulates	0.0	0.0	0.0
30	Land for Scientific experiment and meteorological observation and monitoring	22.9	22.9	0.0
31	Inter-*Aimags* reserve pastureland	586.2	691.4	105.2
32	Hay making area of State Forage Foundation	110.9	110.9	0.0
33	Oil and petroleum contracted land	24.4	24.4	0.0
34	Land for economic free zone	2.1	2.1	0.0
	GRAND TOTAL	**56411.5**	**56411.5**	**0.0**

Source: Report on Mongolian Environmental status in 2013-2014.

217. **Figure 4.7** depicts the map of land use pattern or Land use classification and zoning scheme of the Ulaanbaatar.

Figure 4.7: Land use pattern in Ulaanbaatar



Source: Gantulga Gombodorj and Chinbat Badamdorj. Urban land use classification and functional zoning of Ulaanbaatar city, Mongolia, 2010.

4.11 Historical, Cultural and Archaeology Sites/Places

218. Ulaanbaatar is rich in physical cultural resources. The list of important heritage, cultural and religious sites of Mongolia and its *aimag*s revised in 1994, 1998 and 2008. In this list, total of 460 objects were registered and out of them 175 have to be under the state protection and 285 have to be under provincial protection. There are not any heritages, cultural and religious sites in or close to the project involved sites in Ulaanbaatar city and aforementioned *aimag*s.

Table 4.19. Number of heritage, cultural and religious sites in Mongolia

#	Name of *Aimag*s	Number of heritage, cultural and religious sites		Number of heritages, cultural and religious sites in/nearby project sites	
		Under State protection	Under Provincial protection	Under State protection	Under provincial protection
1	Arkhangai	14	24	-	-
2	Bayn-Ulgii	16	13	-	-
3	Bayankhongor	10	10	None	None
4	Bulgan	10	25	None	None
5	Govi-Altai	8	29	None	None
6	Govisumber	0	2	None	None
7	Darkhan Uul	3	2	None	None
8	Dornogovi	5	8	None	None
9	Dornod	3	8	None	None
10	Dundgovi	7	16	-	-
11	Zavkhan	6	5	-	-
12	Orkhon	0	1	None	None
13	Uvurkhangai	9	26	None	None

#	Name of *Aimag*s	Number of heritage, cultural and religious sites		Number of heritages, cultural and religious sites in/nearby project sites	
		Under State protection	Under Provincial protection	Under State protection	Under provincial protection
14	Umnugovi	8	15	-	-
15	Sukhbaatar	8	4	-	-
16	Selenge	2	5	None	None
17	Tuv	15	6	-	-
18	Uvs	5	8	-	-
19	Khovd	9	8	-	-
20	Khuvsgul	9	26	-	-
21	Khentii	13	23	-	-
22	Ulaanbaatar	15	11	None	None
	TOTAL	**175**	**285**		

Source: “Guideline for registration of cultural heritages” by MES and Centre for Cultural Heritages of Mongolia, 2014.

5.0 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

5.1 Environment Impacts and Mitigation Measures

219. During site visits, the officials and consultants made numerous observations and held discussions with school managements concerned which would be helpful for project design (summarized below):

(i) noted location of proper access roads, laydown area for materials to be used by the construction companies to use without disturbing the school working and minimizing utilization of playground areas,
(ii) proper discussion on avoidance of underground existing pipes for water, heating, sewage etc. at these proposed work sites,
(iii) discussions on ensuring right of way for construction vehicles and provide traffic safety during construction to residents living adjoining these schools,
(iv) traffic caused by construction of new buildings/expansion projects by use of concrete, dump trucks etc. transporting materials inside school premises,
(v) discussed traffic safety for children and their parents during operations of school in normal work hours (September 2017 onwards),
(vi) lack of safety equipment such as smoke alarms in most old buildings and the need for adequate firefighting extinguishers and imparting evacuation drills and emergency response procedures training,
(vii) review the distances of these schools from non-sensitive biodiversity areas and cultural heritage sites to ensure no impact,
(viii) dust and noise emissions from the construction subprojects and their impacts on school children and apartment dwellers adjoining the school area,
(ix) noises from any surroundings areas during construction and operations,
(x) review if any shadow is produced onto adjoining buildings due to new structures to be constructed as part of this project,
(xi) use of any banned substances generated as part of any expansion project such as asbestos etc.,
(xii) managing emissions from coal-based heating and water boilers (some cases), review if insulation works are required in schools to ensure energy efficiency, i.e., loss of heat due to old walls,
(xiii) if any associated facilities are present, and
(xiv) review locations for climate change vulnerability.

220. The team along with district officials and schools shall also conduct group discussions with the public residing in these subproject areas to sensitize them about project activities, their impacts and get their suggestions.

5.2 Environment Problems due to Project Location and Design

221. All buildings shall be designed in compliance with relevant the Government of Mongolia's design standards and codes for energy-efficient, safe buildings, including but not limited to: Mongolian national standards (MNS) 3838: 2008 and Construction standard package # 91.040. World Bank's EHS guidelines 2007 standards will apply in-case where the Mongolian standards are less stringent.

222. Potential adverse environment impacts associated with schools/kindergarten has been avoided or minimized through careful location selection. Subproject location sites have avoided geologically unstable areas, which can also pose foundation related problems. No land acquisition is required for schools as the government public or existing school land is available. Shrubs and trees may be uprooted and transported to locations inside the school premises.

223. **Green Building and Energy Efficiency**: The building design must include green

building and energy efficiency features as listed in Section 4. Use of more energy efficient smokeless heat only boilers (HOBs) may have to be mandated in bidding documents. Alternatively, the design must include alternatives to HOBs such as electric floor heating that can be controlled using heating control regulators.

224. Type and scale of insulation to be installed in the building will be designed by the Construction Company as per norms followed in Mongolia. The design must lead to introduction of other energy efficiency elements (heat meters; heat insulation that meets the requirements on Mongolian Energy Efficiency Regulations; LED lighting; triple glazed windows) etc.

225. **Linked facilities**: The PIU must confirm from concerned authorities of various linked facilities such as landfills to accept solid waste, and power, heating, water, wastewater facilities to each of the school/kindergartens on their ability to deliver required services and without interruptions. Any underground utilities such as heating pipes, sewage drainage, water pipeline etc. if disconnected to the premises will be restored before school reopens after vacation.

226. **Rehabilitation of Old Buildings**: **Annexure 1** lays out details of infrastructure that requires rehabilitation such as installation/provision of modern fire control systems/firewalls, smoke alarms, building insulation, possible plumbing and/or heating systems upgrades. The PIU and the construction company must ensure proper design be implemented in the expansion schools/kindergarten so that the infrastructure become coherent and complies to national and international health and safety norms.

227. **Ambient Air Quality**: Given the low ambient air quality (noticeable in Section 4), it is proposed to introduce Air conditioners, air purifiers inside the kindergartens and schools to provide safe ambient air quality inside the buildings. High Efficiency Particulate Air (HEPA) purifier, Anion Air Purifier etc. can be used. HEPA filters, as defined by the USA Department of Energy (DOE) standard adopted by most American industries, remove at least 99.97% of airborne particles 0.3 micrometres (μm) in diameter. The operation and maintenance costs of HEPA purifier which includes replace of filters periodically which would need to be borne by school/kindergartens from their own funds.

228. **Sanitation Systems**: The design improvements in the project require upgrade of sanitation facilities where access to the municipal sanitation system is not possible, septic systems are to be installed to reduce the requirement for vacuum truck clearance to a minimum. A “septic tank system” is a small-scale sewage treatment system common in areas that lack connection to main sewage pipes provided by local governments or private corporations. The term "septic" refers to the anaerobic bacterial environment that develops in the tank which decomposes or mineralizes the waste discharged into the tank. Septic tanks can be coupled with other onsite wastewater treatment units such as bio filters or aerobic systems involving artificially forced aeration. Since septic systems require large drain fields, they are not suitable for densely built cities. Periodic preventive maintenance is required to remove solids that remain and gradually fill the tank, reducing its efficiency.

229. Several kindergartens are using holding tanks due to physical limitations. “Holding tanks” are used exclusively for those areas where shallow ground water and saturated soil represent a real threaten and vehicle for pollutants migration from pits. In fact, the Ger Districts of Ulaanbaatar are characterized by areas environmentally not suitable for human settlements but due to lack of protection zones or law enforcement many of these areas are densely populated resulting in an environmental and public health threat due to migration of pollutants from pit latrines directly into water sources or via saturated soil. The low-cost facility does not allow the use of holding tanks installed for grey water disposal.

230. **Restoration**: Associated impacts on any play area outside each school building inside its premises used for storage and workmen office will be restricted to the construction phase

and will be temporary in nature. After construction is complete, the playground or any other play areas within the premises will be repaired and can be used again.

231. **Climate Change**: All facilities shall be properly sited to minimize the risk of scouring that may result from increase intensity of precipitation because of climate change.

5.3 Environmental Impacts Associated with Pre-Construction Stage

232. **Land Acquisition.** The proposed project site in the school premises doesn't require any relocation of homestead since the project would be implemented at the school's own vacant land. No precious ecological issue is involved with this project since the project site is barren land, has no natural habitat and is not immediately adjacent to watercourses. However, following measures will have to be taken prior to the project activities:

- Ensure existing drainage facilities are maintained in working condition,
- Protect /preserve topsoil and reinstate after construction is completed, and
- Repair /reinstate damaged play areas etc. after construction is completed.

233. **Impacts on Temporary Use of Land.** The mobilization of construction equipment and construction materials will require space for storage and parking of construction vehicles and equipment, construction material storage yards, disposal sites, and labour camps for human resource to avoid environmental impact and public inconvenience. These locations must comply with the local laws and regulations and need approval from authorities to utilize these facilities (access roads, telecommunication, and pipe borne water supply). It is important that selection of temporary lands does not infringe upon adjoining residential areas, water bodies, natural flow paths, access roads to garages, schools and other amenities in the area. Removal of trees should be minimized during preparation of construction area, access road and other facilities.

234. **Banned substances – Asbestos generated in Expansion projects.** Mongolia recently banned the use of asbestos building products, but the management of asbestos containing materials (ACM) remains fairly poor.

235. **Volatile Organic Compounds.** Only low or no volatile organic compound (VOC) emitting materials shall be used (including paints, coatings, adhesives, carpet and furniture's) to ensure high indoor air quality. Water-based nontoxic, no allergenic paint for drywall or plaster surfaces shall be preferred to latex or oil-based paints.

236. **Environmental problems associated with construction and operation stage.** The project activities during construction phase will involve construction of school buildings, which will involve excavation for building and equipment foundations, concreting, civil works and erection of equipment, clearing of area including transplanting trees wherever required, and restoring topsoil in all playground areas within the school premises. During the operation phase, most of the construction phase impacts will get stabilized and the impacts will be restricted only to the operation and maintenance of the school building.

237. The impacts on the environment from various activities of the project can be categorized as follows:

- Impact on Physical Resources
  - Impact on Topography
  - Impact on Climate
- Impact on Environmental Resources
  - Impact on Air Quality
  - Impact on Noise Levels
  - Impact on surface Water Quality
  - Impact on ground Water Quality

- Impact on Soils and Geology
- Impact on Ecological Resources
  - Terrestrial Ecology
  - Wildlife
  - Aquatic Ecology
- Impact on Human Environment
  - Health and Safety
  - Agriculture
  - Socio-economic
  - Resettlement and Rehabilitation
  - Cultural sites
  - Traffic and Transport
  - Interference with other utilities and traffic
- Waste Disposal
  - Solid waste disposal
  - Liquid waste disposal
  - Hazardous waste disposal

238. The impacts of the project activities on various environmental attributes are discussed in subsequent sections.

5.3.1.1 Impact on Physical Resources

239. **Impact on Topography.** During the construction of the schools/kindergartens, the most prominent impact on the surface topography will be due to the excavation for foundations, removing of the trees (if any) and erection of buildings. The impact will be irreversible as the present feature of the site as well as the land use will change due to construction of new buildings for the schools/kindergartens.

240. The construction phase involves site preparation, clearing of existing vegetation and some earthworks for levelling the surface. These activities may cause some negative impacts such as:

- Change in landscape
- Emission of dust
- Associated noise
- Improper management of construction debris and solid waste may pose risk to the neighbours.

241. No topographical changes are envisaged during the operation phase of the schools and kindergartens.

242. **Impact on Climate.** Design and construction of School buildings should consider 'climate proofing design' since the occurrence of earthquakes is gradually increasing in Mongolia. Earthquake resistant design should be incorporated in design consideration of the building. Alternative solutions and final designs should be subject to expert and community consultation.

243. However, the overall impact on the climate conditions from the proposed sub-projects during operation phases will not be significant.

5.3.1.2 Impact on Environmental Resources

5.3.2.2.1 Impact on Air Quality

244. During the construction phase, the activity would involve excavation for the erection,

movement of transporting vehicles carrying the construction materials etc. along the access road. All these activities would give rise to emission of dust particles thereby affecting air quality marginally at the site which although will be transitory in nature. Though the emissions are temporary and not expected to contribute significantly to the ambient air quality and will be within prescribed limits for industrial regions by National Ambient Air Quality Standards, necessary measures are to be taken.

245. The air quality in the project area may slightly deteriorate for the time being during construction mostly due to dust emission. Dust produced will potentially negatively affect the following:

- School students, teachers, and general public
- Adjoining apartment dwellers and other buildings in the vicinity
- Community areas – playgrounds, parking areas etc.
- Construction workers

246. Regular sprinkling of water on open surface and dust emitting grounds should be done regularly until paving is done during dry season and keeping all soil, sand, and aggregate piles covered (whether on the site, or on trucks) to minimize the air pollution during the construction stage. If there is any complain of dust emission from students, teachers, and neighbours, should be given proper attention.

247. The construction of Schools/Kindergartens will not have any negative impact on the air quality of the region during the operation phase.

5.3.2.2.2 Impact on Noise Levels

248. During the construction phase, the major sources of noise pollution are movement of vehicles transporting the construction material and equipment within and outside the construction site. Most of the access roads along the location are wide enough and can be used to bring construction material without obstructing the neighbourhood roads. The major work of the construction is expected to be carried out during the daytime however the movement of trucks and concreting may happen in the night to avoid congestion in the area in the day time. There residents living nearby will be exposed to noise generated during day and night during the construction phase.

249. Construction works may cause objectionable noise nuisance to workers, students or teachers. School authority and students must be notified in writing on the date of commencement of construction work at least one month in advance. Following measures will help to keep noise and vibration in acceptable level during construction phase:

- Contractor shall equip their heavy construction equipment and plants with exhaust silencers to limit the engine noise not to exceed 75 db(A) (compacters/rollers, loaders and cranes) and regularly maintain all construction vehicles and machinery that should meet the Mongolian National Standards for Noise Emission.
- Contractor shall preferably limit working time for activities that create noise within normal waking hours of the public except for construction site near public sensitive receptors. Construction related activities closer to sensitive receptors have to be scheduled in coordination with the residents and relevant authorities.
- Contractor and its suppliers of construction materials should strictly implement noise control regulations stipulated for Noise pollution for all construction vehicles and equipment. All machines will be fitted with noise reduction devices. Ulaanbaatar has many construction sites, some of which operate 24 hours a day. Mongolian standards currently establish a maximum environmental noise goal for residential receptors of 60 decibels (A-weighted) (dB(A)) during the daytime and 45dB(A) during the nighttime, with night being defined as between 22:00-06:00 hours. Depending on noise attenuation and proximity to the construction works, 24 hour a

day construction may breach the National Standard for Noise (MNS 4585:2007). World Bank EHS guidelines 2007 for noise limits will apply as they are more stringent than the Mongolian noise standards.

250. For managing noise nuisance, construction works should be limited to daytime hours and all employees likely to be exposed to ear noise must use ear protectors. However, the noise impacts will be local limited to the premises and very short term. Loud noise may disturb the local resident apartment dwellers during normal hours of waking as well. Due consideration must be given by the Construction Company in consultation with local residents. Noise barriers may be installed by the Construction company to ensure residents are not inconvenienced.

251. During the operation phase of the project, the ambient noise level meets the World Bank EHS guidelines for residential areas (55 dB(A) during daytime and 45 dB(A) during nighttime).

252. During normal school hours, noise from playgrounds may also disturb some residents, but they have been consulted prior to the start of construction.

5.3.2.2.3 Impact on Surface Water Quality

253. The construction and operation of the schools/kindergarten will not have any major impact on the surface and ground water quality in the area. Contamination of water bodies, if any in that area, may result due to spilling of construction materials and surface runoff from the construction site adjoining the water body. There may be increase in the turbidity levels temporarily where the surface runoff during construction meets the drainage of the area. This can be avoided by careful selection of the raw material and waste material storage at the construction site.

254. Proposed activities will create temporary impacts to the existing drainage system in the area including in earthen and line drains. Thus, it will create temporary inundation closer to the above locations during rainy season. Stagnation of water will create direct impact on public health. Thus, incorporation of following measures will minimize anticipated impact due to obstruction of natural flow paths and existing drainage:

- Provisions of temporary drainage facilities to the particular locations if existing drains are obstructed due to construction activities.
- Maintenance of all drainage paths by avoiding blockages at all times.
- Contractor should minimize excavation of drainage systems in the project affected area.
- If any school is situated in immediate vicinity of the waterbody/river, adequate reinforcement of embankment will be done to ensure no surface runoff gets discharged into the waterbody/river.

255. Care shall be taken to locate the temporary construction worker sheds away from the drainage/water bodies. Adequate drinking water facilities, sanitary facilities, and drainage in the temporary sheds of the construction workers should be provided to avoid the surface water pollution. Provision of adequate washing and toilet facilities should be made obligatory. This should from an integral component in the planning stage before commencement of construction activity.

5.3.2.2.4 Impact on Ground Water Quality

256. Ground water pollution can take place, if chemical substances and oily waste get leached by precipitation of water and percolate to the ground water table. For schools/kindergartens construction activity, no chemical substance or oil is used hence there is no impact on ground water quality. The silt discharge from the earth work around water bodies, oil, grease and fuel release from the construction vehicles / equipment and spoil from construction and other construction related activities such as raw sewerage from worker

accommodation sites will mix with runoff water. This situation will increase during the rainy season and have a critical impact on surface and ground water. Thus, following measures will be required to prevent deterioration of water from the construction and construction related activities:

- All construction vehicles and equipment should be maintained in proper conditions without any leakages,
- Contractors shall use silt traps and erosion control measures where the construction is carried out near the water bodies to avoid entering of cement particles, rock, rubbles and wastewater to the surrounding drains,
- Construction activities requiring digging should be preferably done in the dry season,
- Waste oil should be collected properly and disposed to the approved location.

5.3.2.2.5 Impact on Soil and Geology

257. Project activities including excavation, cut and fill operations, removal of trees and green cover vegetation etc. will enhance the soil erosion during the rainy season. The excavation activity and land clearance in the erosion prone areas have been minimized. Levelling and stabilization of construction sites will be done after completion of construction activity. Also, increased acceleration of surface runoff will damage the topsoil. The impacts associated with excessive erosion and other civil works can be avoided or minimized by following mitigation measures:

- Effort should be taken to minimize removal of trees and green cover vegetation.
- Minimize obstruction or destruction to natural drainage pattern of the surrounding area.
- Proper treatment of clearing and filling areas against flow acceleration.
- Contractors shall restrict cut and fill operation around sharp/deep slope areas.
- Topsoil which are removed during construction must be stored separately for future utilization.

5.3.1.3 Impact on Ecological Resources

258. Since schools/kindergartens are constructed in government lands, there is no displacement of people or animals. It is also not causing any disturbance to the life of people and local animals and birds' movement. There is no dynamic equipment and moving machinery causing noise pollution, water and air pollution. There is no national wildlife park, bird sanctuary, wetland in the location of the proposed schools/kindergartens. The ecological impacts are briefly described in the following sections.

259. **Effect on Flora and Fauna.** On visual inspection, it seems that small number of trees will need to be removed at only a few schools. None of the declared environmentally sensitive areas is located within the project area. It is not expected that any flora and fauna that are rare, endangered, endemic, or threatened will be affected - no migratory paths of small mammals and reptiles may be affected due to construction activities. Also, noise, vibration and emission from construction vehicles, equipment will occur during construction and pre-construction stages in temporary manner. The impacts related to above activities are temporary and can be mitigated through following measures:

- Strict attention on worker force regarding disturbance to surrounding areas.
- Selection of approved locations for material storage yards and labor camps away from the environmental sensitive or populated areas.
- Avoid entering of construction waste (cement particles, rock, rubbles and wastewater) and sanitary waste to the surrounding water bodies.

260. **Impact on Terrestrial Ecology.** There is no sensitive ecological area / protected forest area such as national wildlife park, bird sanctuary crossing the proposed sub-project locations. The removal of herbaceous vegetation from the soil and loosening of the topsoil generally

causes soil erosion. However, such impacts would be primarily confined to the project site during initial periods of the construction phase and would be minimized through adoption of mitigation measures like paving and surface treatment and water sprinkling.

261. **Removal of Trees.** The construction works along the location involves land clearance, cutting, filling, and levelling that may cause loss of trees. About 51 trees may be affected by the construction works within the compounds of 10 schools and kindergartens. All these trees are owned by the particular school or kindergarten. The exact number of trees affected will be known during the final location survey and construction. This will be an irreversible impact. However, any tree that will be cut may be transplanted depending on its type and its suitability for transplantation within the school or kindergarten premises. This will minimize the tree loss.

262. It is highly recommended to establish a tree replanting programme which should be undertaken e.g., where two trees will be planted when a single tree is cut. This was accepted and supported by school/kindergarten managements, city, *Soum* and *Aimag* Governments concerned. The construction company would be responsible for replantation of trees cut from the construction area within the school/kindergarten premises.

263. **Effect on Local Road Network.** Iron bars, concrete materials, piling equipment, etc. will be transported through the local road network to the project site. Transporting of large quantities of materials using heavy vehicles could exceed the carrying capacity of the road. This would lead to physical damages to local road network. Thus, it will be necessary to obtain consent from the road/highway authorities to use local/national highway roads prior to transportation.

264. The Construction Company should properly maintain all road sections, install road signs warning of children crossing etc. which will be utilized for the construction related activities. In presence of multiple school/kindergarten sites in the vicinity of construction area, the Construction company will ensure free and safe access roads to each school and install appropriate road safety signs as necessary in the area.

265. **Effect on Visual Aesthetics.** The proposed project site has some grass and scrub vegetation that will be affected due to the land development. But with completion of the school building and replanting of new vegetation and trees around the building, the school building site should recover the visual aesthetics.

266. **Disposal of Debris.** As a result of construction related activities, spoil and debris will be generated during the construction stage. Improper disposal of the debris will have an impact on the surrounding ecology, public health and scenic beauty. Following measures will minimize the impacts associated with disposal of debris:

- Spoil materials (soil, sand, rock etc.) generated from construction activities shall be used wherever possible for site levelling, back - filling etc. Any dismantled and demolished structural materials, if any, should be dumped in accordance to government norms.
- Preparation of Disposal Management Plan for the project and selection of the disposal site by excluding locations, which are closer to residential, commercial and public sensitive areas, is necessary by the construction company. Prior approval should be obtained for linked facilities such dumping grounds / land fill sites from relevant local authorities.
- Dumped materials will interfere with the drainage pattern of the area, any water bodies, agricultural lands, marshlands and down slope or any environmental sensitive areas if not planned properly.

267. During operation phase, there is no requirement for disposal of debris.

268. **Wildlife.** For selected the sub-project locations, no wildlife locations have been included

as far as possible during the field visits. National Park or Protected Areas near Ulaanbaatar and other *aimag*s which are around 7-80 km away from the nearest project Schools/Kindergarten.

269. **Impact on Aquatic Ecology.** There are no major rivers or tributaries in the location of subprojects. No significant impacts on aquatic ecology of the river are envisaged and will not have any impact due to subproject activities.

5.3.1.4 Impact on Human Environment

270. **Traffic and Transport.** During the construction phase, traffic disturbance needs to be minimized by avoiding heavy traffic hours, ensuring proper access roads and avoiding road blockage. Increase in vehicular traffic in the area is likely to be experience during construction phase of the school building because of trucks ferrying in off construction material and carrying waste material from site. Following are the impacts likely to occur due to increased traffic:

(i) Slightly more congestion near the main entrance to the school.
(ii) Increased number of vehicles on local roads will result in increased wear and tear of local roads thus reducing lifespan of affected roads.
(iii) Pedestrians and cyclists using local roads will have to exercise more care with increase of vehicular traffic on the said roads.
(iv) There will be an increase of exhaust emission from vehicles, which will pollute local atmospheric air.

271. The contractor may have to carry the construction material into the site at night or during least congestion period. So, the traffic related congestion and air pollution would be least affected in this case.

272. Slightly more congestion near the main entrance to the school could exist at the gates due to limited entry available at the school site until entire construction is complete. The construction company will post traffic managers at all access roads at of the school/kindergarten sites and will ensure parking places are not encroached by placing any construction/waste material or parking of construction vehicles.

273. **Health and Safety.** Health and safety impacts will be in terms of risk of accidents and exposure to electric shock at the construction site. Necessary training regarding safety aspects to the personnel working at the schools will be provided by the construction company. The workers should wear PPE (Personal Protective Equipment), safety goggles, and other necessaries during construction period and during the maintenance work. First aid facilities will be made available with the labour gangs and doctors called in from nearby towns when necessary. Article 16 of the National Constitution of Mongolia states that every employee has the right to ‘suitable conditions of work’. The government adopted a National Program for Occupational Safety and Health Improvement in 2001 and national standards are also adopted such as the National Standard on Occupational Health and Safety MNS 5002:2000.

274. In addition, when construction work takes place in a public environment, safety measures are often lacking to protect the public. Project activities may create accidental damage to public and the construction workers. Therefore, Construction Company should take necessary action to enhance personal safety during the construction through following measures:

- Organize awareness programmes relevant to personal safety of the workers and general public in the area;
- Installation of warning signs to particular locations such as transverse points of local road network by Schools/Kindergarten;
- Provide protective safety belts, footwear, helmets, goggles, eye-shields and clothes to workers depending on their duty;
- Arrangement of proper first aid unit and transport facilities to take injured people to the hospitals;

- Health and safety issues due to construction activities will be an issue for workers, students, teachers, and others. Accident can happen occur during earth cutting, casting, construction works and installation of heavy machinery if care is not taken in their operation; and
- The whole work site will have to be fenced off and marked, to prevent the access of school children and neighbours to the construction site. When land clearing is complete, the work area is finished, and facilities are in place, all the above impacts and risks will be neutralized.

275. **Sanitation Hazard & Drinking Water.** The health of the project personnel, construction workers and laborers at the site could be impacted if arrangement of sanitation and drinking water is not ensured adequately and properly. The project activities shall make higher demand on the local utilities and service facilities particularly construction and drinking water, health, and sanitary facilities.

276. **Emergency response during construction.** The Construction Company must train its project personnel, construction workers and laborers, schoolteachers and staff to have knowledge of sufficient emergency response systems put in place. Fire safety management training and mock drill should be practiced periodically and emergency equipment and facilities like fire extinguisher/water hose, first aid etc. must be available to manage fire hazard or any medical emergency.

277. **Temporary Outage of the Electricity.** Temporary disconnection of power supply will occur during the construction activities. Thus, public and the apartment dwellers, who live in the vicinity of the sub-project area, will face inconvenience for short periods of time. Thus, following measures will have to be taken:

- Advance notice to the public about the time and the duration of the utility disruption, and
- Restore the utilities immediately to overcome public inconvenience.

5.3.1.5 Socio Economics

278. **Agriculture.** There will not be any land acquisition for the school projects.

279. **Local Employment.** Construction of Schools/Kindergartens will generate local employment, as number of unskilled laborers (both men and women) will be required at the time of construction activities. Local employment during this period will increase socio-economic standards.

280. **Resettlement and Rehabilitation.** For the construction of schools/kindergartens, no land acquisition is required, hence there is no resettlement and rehabilitation involved in the project.

281. **Cultural sites.** There are no archaeological, historical or cultural important sites along the location; hence the impacts on these sites are not envisaged.

5.3.1.6 Waste Disposal

282. **Solid Waste Disposal.** The solid waste generation will be at the location of the construction site which will include metal scraps, wooden packing material etc. Wooden waste and metal scrap will be collected and disposed of in compliance with applicable regulations and rules.

283. **Sanitary Waste Disposal at Construction Sites and Labor Camps.** The labour camps at the site of construction will be temporary in nature and the human excreta will not be

significant to cause contamination of ground water. Those places where most labour will be staying will be near apartments which may use some community or school facilities for solid waste, water and sanitation. Adequate drinking water facilities, sanitary facilities and drainage in the temporary sheds of the construction workers should be provided to avoid the surface water pollution.

284. There should be proper solid waste disposal procedure to enhance sanitation of workers who stay in camps. Thus, possibilities of infecting water borne diseases or vector borne diseases (Parasitic infections) will be eliminated by adopting proper solid waste disposal procedure. Unacceptable solid waste disposal practices such as open dumping of solid waste and poor sanitation facilities will lead to pollution of surrounding environment, contamination of water bodies and increase adverse impact to the general public inhabited in the area. Surrounding of labour camps, garbage disposal sites and material storage yards provide favourable habitats for diseases. Improper dumping of spoil materials and solid wastes may cause environmental degradation of the school area and students, teachers and neighbouring people will face problems like: bad smell, aesthetically unpleasant environment, diseases etc.

285. Thus, following measures are needed to protect and enhance the quality of environment during the construction stage:

- A better way to overcome garbage disposal as mentioned above by reducing or avoiding the construction of labour camps, thus the selection of majority of skilled and unskilled workers from the project influence area will be a proper measure in this regard.
- Proper sanitation system should be provided and at the same time, regular, proper and safe disposal of human waste should be ensured. Contractors and workers should obey appropriate means of waste removal and sanitation measures. Adequate number of toilets and bathrooms should be made for the workers, and proper disposal system (septic tank) of sewage waste should be implemented for sanitation purpose and the workers should be aware to use those facilities. Contractor should provide adequate facilities to manage its wastes in accordance with the guidance given by the Mongolian law on Solid Waste and Law on Construction, and related regulations.
- Provision of the solid waste disposal, sanitation and sewage facilities at all site of the construction/labour camps to avoid or minimize health hazards and environmental pollution.
- Contractor should handle and manage waste generated from the construction/labour camps without contamination to natural environment and it will reduce risk to public who stay close to sites. Also, Construction Company should be responsible to enhance the quality of environment.
- Adequate supply of water should be provided to the urinals, toilets, and washrooms of the workers' accommodation.
- Contractor should provide garbage bins to all worker's accommodation and construction sites, for dumping wastes regularly in a hygienic manner in the area.

286. **Liquid Waste Disposal.** There will be no oil or chemical waste generated during the construction of Schools/Kindergartens, hence no mitigation is required.

287. **Hazardous Waste Disposal.** During the Schools/Kindergartens construction generation of any hazardous waste generation is not expected. Any Asbestos, batteries, and solar panels (if used) would constitute waste material that needs to be disposed of as per Mongolian law on Solid Waste and regulations and guidelines related to Hazardous Wastes.

5.4 Environmental Impacts Associated with Operational Stage

288. **Impact on School Environment.** During operations, the school building must ensure a

better quality of school infrastructure for students (both interior and outside) besides better quality of education facilities. Improper heating, washrooms, inconvenient classroom arrangement, poor condition of classrooms, unsatisfactory teacher-student ratio, absence of separate washrooms for boys and girls, suffocation problem etc. are possible adverse impacts that will eventually lead to a poor school environment. The building would be designed to ensure the suitable heating, water, lighting, storage areas, proper ventilation, sufficient toilets & washrooms and support infrastructure.

289. **Disadvantaged children.** The new schools/kindergartens would incorporate certain design improvements required for the disadvantaged children. These would include: (i) disabled access, sanitation, and signage (wheelchair access ramps to be included above ground level if deemed appropriate by MES; wheelchair access to one toilet cubicle per sanitation block (male and female) to be included; Dual handrails on stairs for small children and adults; Brightly coloured and braille signage to be included). The construction company will ensure proper design to ensure that these are free from any encumbrances, obstruction and defect free in their installation.

290. **Increased demand of utilities-electricity, heating, sewage and drinking water.** The new/expansion buildings will require services (notably sewage, water, heating, and electricity), which could cause additional demand during periods of low water availability and load-shedding. The proposed building design features that address water and energy conservation would help considerably in this regard.

291. The schools/kindergartens must design a management procedure in coordination with PIU to maintain the septic tanks, individual heat only boiler, water heater, electricity generators (if any) on the premises. They also need to ensure proper funds are available for regular upkeep and maintenance of these facilities.

292. **Impact Due to Solid Waste.** Operation of the school building will result in production of solid waste, which will require careful storage, separation, and handling. Properly marked waste containers should be available at each floor and outside the building. All solid waste will be segregated properly, disposed to the safe places carefully. The PIU, the City Public Service Company and the Construction Company will provide training on solid waste management to both staff/students to segregate waste by placing separate containers stating waste type before being collected by the City Public Service Company.

293. Sweeping and washing should be done to provide students a waste free healthy environment. It is important that solid waste and sewage from the school/kindergarten building should not be nuisance to the community.

294. **Impact due to Liquid Discharge.** The school building will not create any process liquid. The liquid discharge will be mainly water used for domestic and toilet uses. The domestic liquid waste will be disposed through a septic tank. The project will have planned drainage system to discharge the surface runoff.

295. **Chemistry laboratory waste**. New schools will have chemistry classes' chemicals and they will manage chemical wastes according to the "Guideline on Methodology and Technology to Dispose, Storage, Transportation, Collection of Chemical Wastes; (2009). Currently, all schools collect and keep chemicals used for chemical classes which is disposed of by the District Branch of Emergency Management Agency. The Specialized Inspection Agency monitors this procedure regularly and registers all chemicals used by schools.

296. **Emergency response during operations.** The school management will have sufficient emergency response systems in place. The stairs of the building will be well designed and adequate for easy passage of the occupants. Fire safety management training and mock drill should be practiced periodically and emergency equipment and facilities like fire

extinguisher/water hose, first aid etc. must be available to manage fire hazard or any medical emergency.

297. **Electric Shock.** This may lead to death or injury to the school staff, students and public in the area if facilities are not constructed properly. This can be minimized or avoided by providing security enclosures, establishment of warning signs, and careful design using appropriate technologies to minimize hazards.

298. **Noise Generation.** There will be minimal nuisance to the community around the school/kindergartens due to operations.

6.0 ANALYSIS OF ALTERNATIVES

6.1 MES Approach for Planning of a subproject

299. At the planning stage itself, one of the factors that govern the establishment of the Schools/Kindergartens is the availability of scarce land available in the cities concerned. Preliminary location selection is done by MES based on the interpretation and walk over survey.

6.2 Alternatives for Subproject Components

300. **No "Build" Alternative.** The 'No Build' alternative in the present case would mean there would be shortage of classrooms and other facilities at proposed schools/kindergartens and hence, the development of education in Mongolia will be hampered. Hence, the 'No build' alternative is unacceptable, and the potential socioeconomic benefits of implementation of such a project far outweigh the adverse impacts, all of which can be controlled and minimized to an acceptable level.

301. **Education Sector Development.** New building construction for schools/kindergartens will ensure more access of education to students and availability of such facilities at affordable prices. Thus, it will help in development of secondary education sector in Mongolia and will contribute to building of a more efficient nation.

302. **To "Build" Alternative.** The project has been designed to provide extra space to schools at its own vacant space adjacent to existing school building, thus involved no resettlement issues. So, there is no logic to find alternative site for the project since it is in the existing school premises.

6.3 Methodology for sub-project site selection: environmental view

303. Site selection among alternatives consider requirements of environmental parameters, availability of logistic support during construction, operation and maintenance of Schools/Kindergarten and specific feasible locations that were identified based on the relevant site maps and walkover surveys.

6.3.1 Schools/Kindergarten

304. For selection of appropriate site for Schools/Kindergartens, the following points are taken into consideration:

- Site selection should consider seismicity and geography of the local area; the area should not be prone to landslide or be unstable.
- Construction activities do not adversely affect the population living near the proposed Schools/Kindergarten and does not create any threat to the survival of any community with special reference to tribal (herder) community etc.
- The location of schools/kindergartens does not affect any monument of cultural or historical importance.
- No resettlement of households by the schools/kindergartens site, no loss of livelihoods, siting of schools away from sensitive receptors with due consultation with the community and local government units concerned.
- Construction techniques and machinery selection shall be made with a view to minimize ground disturbance.
- While planning for schools/kindergarten, all underground infrastructure – drainage, sewage heating etc. shall be marked and to avoid seepage/leakages and pollution of water sources.

- Construction Company to ensure that noise will not be a nuisance to neighbouring properties. Provision of noise barriers near Schools/Kindergartens sites will be made if required.
- Security fences will be erected around Schools/Kindergarten construction sites. Warning signs shall be displayed at site and road signs to be installed at appropriate locations.
- MES shall incorporate the best technical practices to deal with environmental issues in its working.
- Design of schools/kindergarten shall be made to include modern fire control systems/firewalls. Provision of fire-fighting equipment would be made at locations easily accessible etc.
- The location of schools/kindergartens does not affect any public utility services like power, heating and gas lines, sewage, and drainage pipes other underground structures such as hydrocarbon pipelines and unstable ground feature (permafrost etc.). etc.
- Minimum cutting of trees and safety of people and property and favourable ground profile.
- Avoidance of reserved forest, archaeological and other sensitive areas, animal / bird sanctuaries
- Avoidance of rocky stretches and areas reserved for planned and future development, marshy low-lying areas, riverbeds and earth slip zones.
- The blueprint of design to ensure no shadow of the proposed new buildings should fall on to adjoining buildings in keeping with building byelaws of the Mongolia.

305. Keeping above in mind, various expansion sub-projects proposed by MES officials for funding were taken up for initial assessment of environmental impacts. Similarly, MES has selected available government lands that are available in the area which are nearly barren with no or very little vegetation for schools/kindergarten at UB and other *aimag*s**. Table 6.1** provides locational details about Schools/Kindergarten proposed in Ulaanbaatar and other *aimag*s.

Table 6.1. Locations of proposed Schools/Kindergartens in Ulaanbaatar/other *aimag*s and Land status

No	Sub-Projects	Location	Latitude	Longitude	Altitude (m)	Land Area Status
1	2	3	4	5	6	7
A	**Kindergartens**					
A 1	**Kindergartens under expansion**					
1	Kindergarten No.164	UB, Bayangol District, 4th *khoroo*	N47^{0}54'42.1	E106^{0}52'49.7	1288	480m^2 is available
2	Kindergarten No.88	UB, Bayangol District, 18th *khoroo*	N47^{0}55'17.8	E106^{0}53'05.8	1320	2500m^2 is available
3	Kindergarten No.22	UB, Bayanzurkh District, 1st *khoroo*	N47^{0}55'34.6	E 106^{0}56'16.4	1327	1100m^2 is available
4	Kindergarten No.8	UB, Bayanzurkh District, (16th *khoroo*	N47^{0}55'14.7	E106^{0}58'29.5	1328	640m^2 is available
5	Kindergarten No.82	UB, Bayanzurkh District, 16th *khoroo*	N47^{0}55'10.6	E106^{0}58'57.8	1324	1600m^2 is available
6	Kindergarten No.65	UB, Khan-Uul District, 2nd *khoroo*	N47^{0}54'05.6	E106^{0}54'13.4	1291	1100m^2 is available
7	Kindergarten No.72	UB, Khan-Uul District, 2nd *khoroo*	N47^{0}54'05.0	E106^{0}54'01.0	1290	900m^2 is available
8	Kindergarten No.84	UB, Songinokhairkhan, 6th *khoroo*	N47^{0}56'00.0	E106^{0}49'21.1	1324	1000m^2 is available
9	Kindergarten No.104	UB, Songinokhairkhan, 12th *khoroo*	N47^{0}54'57.7	E106^{0}51'09.1	1282	3000m^2 is available

No	Sub-Projects	Location	Latitude	Longitude	Altitude (m)	Land Area Status
1	2	3	4	5	6	7
10	Kindergarten No.107	UB,Songinokhairkhan, 14th *khoroo*	N47^{0}54'52.6	E106^{0}50'35.7	1279	1400m^2 is available
11	Kindergarten No.110	UB,Songinokhairkhan, 15th *khoroo*	N47^{0}54'55.5	E106^{0}50'20.3	1279	1400m^2 is available
12	Kindergarten No.176	UB, Songinokhairkhan, 31st *khoroo*	N47^{0}56'01.4	E106^{0}51'09.2	1389	400m^2 is available
13	Kindergarten No.68	UB, Sukhbaatar District, 3rd *khoroo*	N47^{0}54'41.4	E106^{0}53'56.1	1291	760m^2 is available
14	Kindergarten No.160	UB, Sukhbaatar District, 3rd *khoroo*	N47^{0}54'35.1	E106^{0}43'25.1	1290	1100m^2 is available
15	Kindergarten No.17	UB, Sukhbaatar District, 10th *khoroo*	N47^{0}55'50.8	E106^{0}55'20.9	1312	1800m^2 is available
16	New kindergarten	Govisumber, Sumber *Soum*, 3rd *bagh*	N46^{0}21'15.89	E108^0 23'.45	1327	4000m^2 is available
17	Kindergarten No.6	Khuvsgul, Murun *soum*, 8th *bagh*	N49^{0}38'21.04	E100^0 09'25,2	1282	5600m^2 is available
A 2	**Kindergartens under new construction**					
1	New kindergarten	UB Bayanzurkh District, 24th *khoroo*	N47^{0}56'09.3	E106^{0}59'41.6	1393	600m^2 is available
2	New kindergarten	UB, Nalaikh District, 7th *khoroo*	N47^{0}46'55.8	E107^{0}14'44.5	1460	6000m^2 is available
3	New kindergarten	UB, Songinokhairkhan, 25th *khoroo*	N47^{0}57'59.3	E106^{0}49'46.7	1390	300m^2 is available
B	**Schools:**					
B 1	**Schools under expansion:**					
1	School No.51	Bayangol District, UB	N47^{0}54'59.7	E106^{0}52'44.3	1297	600m^2 is available
2	School No.18	UB, Khan-Uul District	N47^{0}53'59.3	E106^{0}53'40.8	1291	200m^2 is available. Use the top of school building
3	"Erdmiin Orgil" Complex	UB, Nalaikh District	N47^{0}46'06.7	E107^{0}14'50.5	1460	6000m^2 is available
4	"Ireedui" Primary School	UB, Songinokhairkhan District	N47^{0}54'53.9	E106^{0}50'01.3	1276	600m^2 is available. Use the top of school building
5	"Ireedui" Secondary School	UB, Songinokhairkhan District	N47^{0}54'58.9	E106^{0}50'29.1	1278	600m^2 is available. Use the top of school building
6	School No.122	UB, Songinokhairkhan District, 22nd *khoroo*	N47^{0}55'10.5	E106^{0}41'44.8	1300	6000m^2 is available
7	School No.6	UB, Sukhbaatar District	N47^{0}54'36.8	E106^{0}54'05.9	1290	Use the top of school building
8	Khantaishir	Govi-Altai, Altai *soum*	N 46^{0}22' 4.09	E 114^{0}15' 18.1	2204	800m^2 is available
B 2	**School under new construction :**					
1	New school	Songinokhairkhan District, 7th *khoroo*	N47^{0}57'13.0	E106^{0}48'43.4	1329	10000m^2 is available

No	Sub-Projects	Location	Latitude	Longitude	Altitude (m)	Land Area Status
1	2	3	4	5	6	7
2	New school	Darkhan, Mangirt, 15th *bagh*	N49^{0}28'08.0	E105^{0}58'34.9	980	15000m^2 is available

Plot Size on Land available (Column 7 above)

306. The blueprints (technical drawings) will be developed by the schools/kindergartens through accredited architects in Mongolia. The plot size for each school/kindergarten will vary depending upon the size, location, orientation of land, access road, and its suitability for expansion/new construction design. Normally, a school/kindergarten plot size would vary between 400-700 square meters (i.e., 20mx20m for kindergarten and 20mx35m for school).

6.3.2 Distance from Various Receptors

307. Distance from various receptors is give in **Table 6.2** below. These details were collected by the consultant team during the site visits, public consultations and recorded in **Annexure 1**. Summary details as listed in Annexure 1 are presented in summary form. Annexure 1 can be referred for more details on each topic.

Table 6.2: Approximate distance of subprojects from Receptors

Site number	Sub-Project Components	Average Distance of Schools/Kindergartens from District HQ (Km)	Minimum distance from apartments or any buildings of constructed area (m)	Distance from other schools/kindergartens in the area (km)	Number of Trees Affected	Distance from water body (km)	Distance from Railway Line (km)	Distance from Two lane Roads (km)	Distance from Airport (km)	Distance f- waste water treatment facility (km)	Distance from Power Plant (km)	Distance from utilities – heating, water supply (km)	Distance from urban landfill site (km)	Distance from Fire station (km)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
A 1	**Kindergarten under expansion**													
1	Kindergarten No.164	0.3	50	1	2	1.8	0.9	0.2	15	10	5	0.9	20	2
2	Kindergarten No.88	6	100	0.4	0	7	2.6	0.8	16	9	6	0.4	19	7
3	Kindergarten No.22	6	60	0.4	5	0.7	8	0.4	19	14	10	0.5	9	6
4	Kindergarten No.8	1.5	40	1	4	9	8	0.1	22	18	6	1	8	8
5	Kindergarten No.82	1.9	50	0.5	8	8	8	0.3	24	20	6	0.7	8	7
6	Kindergarten No.65	5	20	2	0	0.6	1.2	0.5	19	21	5	0.8	21	3
7	Kindergarten No.72	2	20	1	0	0.6	1.2	0.3	11	17	5	1	21	8
8	Kindergarten No.84	5	50	3	0	3	12	0.2	13	8	4	1	7	19
9	Kindergarten No.104	10	80	0.3	0	5	6	0.5	16	9	5	0.4	14	10
10	Kindergarten No107	11	50	0.1	0	5	6	0.3	16	15	6	0.5	15	10
11	Kindergarten No.110	12	200	0.5	0	5-8	6	0.4	15.5	15	6	0.4	15	10
12	Kindergarten No.176	12	10	3	0	2	8	2	18	15	7	6	14	12
13	Kindergarten No.68	5	20	0.3	4	2.5	1	0.3	14	10	9	0.3	20	5
14	Kindergarten No.160	3	20	0.3	2	2.5	1	0.6	13	11	10	0.4	20	2
15	Kindergarten No.17	2.5	50	1	3	2	6	0.3	18	14	11	0.6	15	3
16	Govisumber, Sumber *Soum*, 3rd *bagh*	0.7	120	0.6	0	N/A	1	0.4	N/A	2	7	0.4	8	1
17	Kindergarten No.6, Khuvsgul, Murun *soum*, 8th *bagh*	0.6	60	0.5	4	0.8	N/A	0.1	5.2	3.2	2.7	0.2	5.3	1.6
A 2	**Kindergarten under new construction**													
1	UB Bayanzurkh District, 24th *khoroo*	9	30	1	0	9	5	1	23	20	4	6	9	18
2	UB, Nalaikh District, 7th *khoroo*	1	120	1	0	6	0.8	0.2	60	5	3	2	7	2
3	UB, Songinokhairkhan District, 25th *khoroo*	10	50	1	0	1	6	0.03	17	14	8	9	8	24
B 1	**Schools under expansion**													
1	School No.51	1	20	1	2	2	2	0.2	16	10	8	0.1	17	4

Site number	Sub-Project Components	Average Distance of Schools/Kindergartens from District HQ (Km)	Minimum distance from apartments or any buildings of constructed area (m)	Distance from other schools/kindergartens in the area (km)	Number of Trees Affected	Distance from water body (km)	Distance from Railway Line (km)	Distance from Two lane Roads (km)	Distance from Airport (km)	Distance f- waste water treatment facility (km)	Distance from Power Plant (km)	Distance from utilities – heating, water supply (km)	Distance from urban landfill site (km)	Distance from Fire station (km)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					0									
2	School No.18	0.6	30	0.7	0	0.4	1	0.2	10	8	4	0.1	17	8
3	"Erdmiin Orgil" Complex	0.5	120	0.2	0	7	0.7	0.2	N/A	2	1.8	0.1	7	1
4	"Ireedui" Secondary School	10	100	0.6	0	5	5.7	0.3	14	8	4.4	0.2	13	6
5	"Ireedui" Primary School	10	80	0.6	0	5	6	0.2	14	8	5	0.2	14	6
6	School No.122	8	120	5	0	0.3	2.5	0.2	15	9	7	5	5	17
7	School No.6	3	20	0.3	0	2.5	1	0.4	17	10	9	0.1	20	3
8	Khantaishir school	0.6	50	0.7	0	N/A	N/A	0.07	3	4	0.8	0.1	9	1
B 2	**Schools under new construction**													
1	Songinokhairkhan District, 7th *khoroo*	9	100	4	0	0.1	13	3	17	9	5	5	2	19
2	Darkhan, Mangirt, 15th *bagh*	1	900	0.9	0	N/A	3	1	N/A	5	5	0.1	4	1

NAV: Not available as detailed survey not completed by MES
Trees Affected– Lopped or cut as detailed survey will be done by construction company
N/A = Not applicable

For some of the Schools/Kindergartens sub-projects, the blueprint development is underway. The data regarding soil, topography, contour, land cutting and filling required, distance from water body and distance from major roads, details of forest/non-forest, fruit/non-fruit trees can be affected, land details will be collected by Construction Company. If sites are changed other than those indicated here, supplementary information will be supplied for each of these subprojects by MES to ADB for prior approval before contract award.

6.3.3 Distance from Reserve Forest/Protected Areas/National Park/Sanctuary

308. The distance from the Schools/Kindergarten to the national parks/protected areas/reserve forests are given in the **Table 6.3**.

Table 6.3: Distance from Protected Areas (National Parks, Sanctuaries and Forest reserves) for all subprojects

No	Sub-Projects	Location	Distance from Protected Areas (km)
1	2	3	4
A	Kindergartens		
A 1	Kindergartens under expansion		
1	Kindergarten No.164	UB, Bayangol District, 4th *khoroo*	Bogd Khan SPA is 10 km
2	Kindergarten No.88	UB, Bayangol District, 18th *khoroo*	Bogd Khan SPA is 12 km
3	Kindergarten No.22	UB, Bayanzurkh District, 1st *khoroo*	Bogd Khan SPA is 18 km
4	Kindergarten No.8	UB, Bayanzurkh District, 16th *khoroo*	Bogd Khan SPA is 22 km
5	Kindergarten No.82	UB, Bayanzurkh District, 16th *khoroo*	Bogd Khan SPA is 13 km
6	Kindergarten No.65	UB, Khan-Uul District, 2nd *khoroo*	Bogd Khan SPA is 8 km
7	Kindergarten No.72	UB, Khan-Uul District, 2nd *khoroo*	Bogd Khan SPA is 8 km
8	Kindergarten No.84	UB, Songinokhairkhan, 6th *khoroo*	Bogd Khan SPA is 9 km
9	Kindergarten No.104	UB, Songinokhairkhan, 12th *khoroo*	Bogd Khan SPA is 9 km
10	Kindergarten No.107	UB, Songinokhairkhan, 14th *khoroo*	Bogd Khan SPA is 9 km
11	Kindergarten No.110	UB, Songinokhairkhan, 15th *khoroo*	Bogd Khan SPA is 9 km
12	Kindergarten No.176	UB, Songinokhairkhan, 31st *khoroo*	Bogd Khan SPA is 17 km
13	Kindergarten No.68	UB, Sukhbaatar District, 3rd *khoroo*	Bogd Khan SPA is 8 km
14	Kindergarten No.160	UB, Sukhbaatar District, 3rd *khoroo*	Bogd Khan SPA is 7 km
15	Kindergarten No.17	UB, Sukhbaatar District, 10th *khoroo*	Bogd Khan SPA is 15 km
16	Kindergarten No.5	Govisumber, Sumber *Soum*, 3rd *bagh*	Ikh Nart Nature Reserve is 65
17	Kindergarten No.6	Khuvsgul, Murun *soum*, 8th *bagh*	Khuvsgul lake National Park is 90 km
A 2	Kindergartens under new construction		
1	New kindergarten	UB Bayanzurkh District, 24th *khoroo*	Bogd Khan SPA is 20 km
2	New kindergarten	UB, Nalaikh District, 7th *khoroo*	Bogd Khan SPA is 16 km
3	New kindergarten	UB, Songinokhairkhan, 25th *khoroo*	Bogd Khan SPA is 19 km
B	Schools:		
B 1	Schools under expansion:		
1	School No.51	Bayangol District, UB	Bogd Khan SPA is 10 km
2	School No.18	UB, Khan-Uul District	Bogd Khan SPA is 8 km
3	“Erdmiin Orgil” Complex	UB, Nalaikh District	Bogd Khan SPA is 17 km
4	“Ireedui” Primary School	UB, Songinokhairkhan District.	Bogd Khan SPA is 10 km
5	“Ireedui” Secondary School	UB, Songinokhairkhan District	Bogd Khan SPA is 10 km
6	School No.122	UB, Songinokhairkhan District, 22nd *khoroo*	Bogd Khan SPA is 19 km
7	School No.6	UB, Sukhbaatar District	Bogd Khan SPA is 9 km
8	Khantaishir	Govi-Altai, Altai *soum*	Khasagt Khairkhan National Park is 50 km
B 2	Schools under new construction :		
1	New school	Songinokhairkhan District, 7th *khoroo*	Bogd Khan Mountain SPA is 20 km
2	New school	Darkhan, Mangirt, 15th *bagh*	Tujiin Nars NP is 90 km

6.3.4 Current vs. Suggested solutions for infrastructure for sub-projects

309. Total of 30 sites including 10 schools and 20 kindergartens suggested to be supported by the project. Currently, from rest 30 project sites, 5 sites require new construction (NC), 22 sites to be built in separate buildings (SB),3 sites require additional floor (AF) expansion. Out of

them, 22 sites have connected to Central Heating (CH), 2 sites have individual Heat Only Boiler (HOB) and 1 site has Electric Heating (EH), 22 sites have connected to Central Water Supply System (CWSS), 2 sites have individual Deep Water Well (DWW) for water supply and 1 site have transporting water from other area. In total 22 sites have connected to Central Sewage System (CSS), 1 site have individual Holding Tank (HT), 1 site has no sewage facility and uses a pit for grey water disposing.

310. Basing on current situation of infrastructure and possibilities to be connected service infrastructures of project sites, the project future solution would be suggested as in **Table 6.4** that 25 sites which have the possibilities have to be connected to Central Heating (CH), 5 sites will have individual Heat Only Boiler (HOB) or Electric Heating (EH), 25 sites will be connected to Central Water Supply System (CWSS), 5 sites must have Deep Water Wells (DWW) for water supply and 25 sites will be connected to Central Sewage System (CSS), 2 sites can have individual Septic Tank (ST) and 3 sites which have no enough space for installing ST can be have Holding Tank (HT) for disposing waste water.

311. **Table 6.4** lists all current vs suggested infrastructure solutions for each sub-project site.

Table 6.4: Existing and suggested infrastructures at each sub-project site

No	Sub-Project components	Location	Type of projected construction		Current/Future situation of infrastructure or Utilities					
			NC/SB/AF	Capacity	Heating		Water Supply		Waste water	
					Current	Future	Current	Future	Current	Future
1	2	3	4	5	6	7	8	9	10	11
A	**Kindergartens**									
A1	Kindergartens under expansion									
1	Kindergarten No.164	UB, Bayangol District, 4th *khoroo*	SB	150	CH	CH	CWS	CWS	CSS	CSS
2	Kindergarten No.88	UB, Bayangol District, 18th *khoroo*	SB	140	CH	CH	CWS	CWS	CSS	CSS
3	Kindergarten No.22	UB, Bayanzurkh District, 1st *khoroo*	SB	140	CH	CH	CWS	CWS	CSS	CSS
4	Kindergarten No.8	UB, Bayanzurkh District, (16th *khoroo*	SB	240	CH	CH	CWS	CWS	CSS	CSS
5	Kindergarten No.82	UB, Bayanzurkh District, 16th *khoroo*	SB	140	CH	CH	CWS	CWS	CSS	CSS
6	Kindergarten No.65	UB, Khan-Uul District, 2nd *khoroo*	SB	240	CH	CH	CWS	CWS	CSS	CSS
7	Kindergarten No.72	UB, Khan-Uul District, 2nd *khoroo*	SB	150	CH	CH	CWS	CWS	CSS	CSS
8	Kindergarten No.84	UB, Songinokhairkhan District, 6th *khoroo*	SB	200	CH	CH	CWS	CWS	CSS	CSS
9	Kindergarten No.104	UB, Songinokhairkhan District, 12th *khoroo*	SB	140	CH	CH	CWS	CWS	CSS	CSS
10	Kindergarten No.107	UB, Songinokhairkhan District, 14th *khoroo*	SB	140	CH	CH	CWS	CWS	CSS	CSS
11	Kindergarten No.110	UB, Songinokhairkhan District, 15th *khoroo*	SB	140	CH	CH	CWS	CWS	CSS	CSS
12	Kindergarten No.176	UB, Songinokhairkhan District, 31st *khoroo*	AF	100	HOB	HOB	DWW	DWW	HT	HT
13	Kindergarten No.68	UB, Sukhbaatar District, 3rd *khoroo*	SB	150	CH	CH	CWS	CWS	CSS	CSS
14	Kindergarten No.160	UB, Sukhbaatar District, 3rd *khoroo*	SB	140	CH	CH	CWS	CWS	CSS	CSS
15	Kindergarten No.17	UB, Sukhbaatar District, 10th *khoroo*	SB	240	CH	CH	CWS	CWS	CSS	CSS

No	Sub-Project components	Location	Type of projected construction		Current/Future situation of infrastructure or Utilities					
			NC/SB/AF	Capacity	Heating		Water Supply		Waste water	
					Current	Future	Current	Future	Current	Future
1	2	3	4	5	6	7	8	9	10	11
16	Kindergarten No.5	Govisumber, Sumber *Soum*, 3rd *bagh*	NC	240	None	CH	None	CWS	None	CSS
17	Kindergarten No.6	Khuvsgul, Murun *soum*, 8th *bagh*	SB	240	CH	CH	CWS	CWS	CSS	CSS
A2	**Kindergartens under new construction**									
1	New kindergarten	UB Bayanzurkh District, 24th *khoroo*	NC	240	EH	HOB or EH	Transporting	DWW	Gray water pit	HT
2	New kindergarten	UB, Nalaikh District, 7th *khoroo*	NC	240	None	CH	None	CWS	None	CSS
3	New kindergarten	UB, Songinokhairkhan District, 25th *khoroo*	NC	150	None	HOB	None	DWW	None	HT
B	**Schools:**									
B1	**Schools under expansion:**									
1	School No.51	Bayangol District, UB	SB	320	CH	CH	CWS	CWS	CSS	CSS
2	School No.18	UB, Khan-Uul District	AF	320	CH	CH	CWS	CWS	CSS	CSS
3	“Erdmiin Orgil” Complex	UB, Nalaikh District	SB	320	CH	CH	CWS	CWS	CSS	CSS
4	“Ireedui” Primary School	UB, Songinokhairkhan District	AF	320	CH	CH	CWS	CWS	CSS	CSS
5	“Ireedui” Secondary School	UB, Songinokhairkhan District	AF	320	CH	CH	CWS	CWS	CSS	CSS
6	School No.122 (Green school)	UB, Songinokhairkhan District, 22nd *khoroo*	SB	640	HOB	HOB	DWW	DWW	HT	ST
7	School No.6	UB, Sukhbaatar District	AF	320	CH	CH	CWS	CWS	CSS	CSS
8	Khantaishir	Govi-Altai, Altai *Soum*	SB	320	CH	CH	CWS	CWS	CSS	CSS
B2	**Schools under new construction :**									
1	New school	Songinokhairkhan District, 7th *khoroo*	NC	640	None	HOB	None	DWW	None	ST
2	New school	Darkhan, Mangirt, 15th *bagh*	NC	920	None	CH	None	CWS	None	CSS

Remark: NC-New Construction, SB-Separate Building, AF-Additional Floor, CH-Central Heating, CWS-Central Water Supply, CSS-Central Sewage System, DWW-Deep Water Well, HOB-Heat Only Boiler, ET-Electric Heating, GAWDS- Ger Area Water Distribution System and HT-Holding Tank, ST-Septic Tank.

6.4 Cumulative Impact Analysis of subprojects

312. The potentially affected environment in the project area is defined principally in regard to two factors: (i) the nature and scale of the proposed action; and (ii) the sensitivity and circumstances of the environment in which the proposed action will occur or issues of special concern (such as induced and cumulative impacts, etc.). The project’s area of influence regarding potential impacts associated with noise and traffic congestion during construction will

extend to areas around the construction zones.

313. There are no physical-geological and hydro-dynamically difficult conditions that may adversely impact the construction, and there is a low earthquake potential. No environmentally sensitive areas were observed near the sites as all infrastructure improvements are located in Ulaanbaatar City and other *Aimags*/*aimag*s. There are no cultural heritage sites in the project areas.

314. **Densification of area.** The schools/Kindergartens have sufficient vacant pieces of land required for expansion project in the current premises that was not used as a playground. Therefore, the issue of densification of construction in the area does not arise.

315. **Influence zone of each School/kindergarten.** In some areas, where the other schools are located in vicinity (about 100m distance), the expansion plan is located in the other direction so the distance does not decrease. Figures in **Annexure 1b** provide details about the affected area for each school/kindergarten. The effective area of influence taken for each school is a 100 m radius for all impacts – noise, dust, and traffic.

316. **Noise.** During construction phase, there is no concurrent construction in two adjoining schools so there will be no amplification of noise to the neighbourhood. The Construction company will install noise barriers during construction if the residents complain of higher noise incidence from construction activities. However, during operations, the noise from the playgrounds may increase due to increased number of children, the residents during the consultations have assured that they would not be inconvenienced on that account.

317. **Greenhouse Gas emissions.** The project would install about 10 heat only boilers in locations where the district heating is not available (Ger areas). Given that the hours of operation would for 12 hours for 210 days (1 October to 1 May) at the emission rate of 2500g/s for 10 boilers would lead to 9 tonnes/annum (Calculated using data from **Table 14.2 in Annexure 4**). The EHS guideline which states that GHG emission limit for project should not exceed 25,000[26] tonnes/annum is well within limits. However, the discussion were held with MES to install electric floor heating and electric boiler for hot water in these schools to avoid handling of coal, ash and its related impacts of using Heat only Boiler. Eight of the nine sub-projects that will be implemented under additional financing will be connected to central heating, and the detailed design for one kindergarten building's heating has been developed using electric heating.

318. **Summary of Impacts.** Potential environmental impacts (both positive and negative) associated with all project phases were identified in this section is illustrated by the following Table. Most of the minor, temporary adverse environmental impacts relate to the building construction process, and can be relatively easily mitigated with standard best practices that are increasingly being required of the construction industry. **Table 6.5** provides a summary analysis of positive and adverse impacts of the sub-projects.

Table 6.5: Summary Analysis of Positive and Adverse Impacts:

1	Project Activities	Positive Impacts (Type)
A	**Pre-Construction**	
i	Increasing local businesses	Local business will be enhanced due to the construction activities in the area. Local construction companies will be contracted. (Temporary)
B	**Construction**	

[26] EHS Guideline, Guidance Note 3 Resource Efficiency and Pollution Prevention, 2012

i	Employment	Employment opportunity to local population. (Temporary)
C	**Operation**	
i	Socio -economic impact	Development of education facilities will help nomadic population in the country to send their children for education and thereby may develop the society and neighbourhood. (Permanent)
ii	State of Art new facilities	Most schools building are between 30-40-year-old buildings having inefficient heating, electricity, rusted water and inadequate sanitation. (Permanent)
2	**Project Activities**	**Adverse Impacts (Type)**
A	**Pre-Construction**	
i	Site Access	Loss of access to the site for students play area. (Temporary)
ii	Site preparation, clearing and earthworks	Clearing of vegetation, trees; land development may create problems in local drainage pattern; emission of dust, Improper management of construction debris and solid waste may pose risk to the students and others; construction noise (Temporary). Reduction in visual aesthetics at site, access road, truck traffic, construction equipment and permanent building (Permanent).
B	**Construction**	
i	Influx of workers	Health & safety of workers at site may pose to risk; concentration of labour force creates un-hygienic condition and sanitation hazard (Temporary).
ii	Construction equipment / materials	Brick/stone crushing and equipment installations may create noise; carrying of construction materials may create traffic congestion; cutting/filling, stockpiling of construction material and traffic movement may create dust emission, improper management of construction debris and solid waste may pose risk to the workers, students and residents (Temporary).
iii	Vehicle and pedestrian traffic	More congestion near the main entrance to the; increased number of vehicles on local roads will result in increased wear and tear of local roads thus reducing lifespan of affected roads; pedestrians to exercise care with increase of vehicular traffic on the adjacent roads and increase of exhaust emission from vehicles (Temporary).
C	**Operation**	
i	Vehicle and pedestrian traffic adjacent to School building	Slightly more congestion near the main entrance to the School; Pedestrians to exercise more care with increase of vehicular traffic at school gates for drop-pickup of students; increase of exhaust emission from vehicles, which will pollute local atmospheric air (Temporary).
ii	Generation of consumables	Improper solid waste management, sanitation hazard. (Temporary)
iii	Increased demand on local services	Increased risk of water shortages and electricity load shedding. (Permanent)
iv	Extreme climate events, disasters and emergency	Mongolia is earthquake prone area. Fire hazard or any medical emergency may arise during operation of the school. (Permanent)

319. **Impacts on key environmental parameters (Air, water, soil and Noise).** The **Table 6.6** below lists impacts on environment parameters of the sub-project areas where the project will be implemented.

Table 6.6: Impact of key environment parameters

#	Environmental Parameter	Type of Impact	Reason	Proposed Mitigation Measures

#	Environmental Parameter	Type of Impact	Reason	Proposed Mitigation Measures
1	Air Quality	Low	Insignificant air emission from the construction activity except during stacking/storage of soil, construction material at site	Sprinkling of water, proper handling of excavated soil, construction material, banned substances/VOCs etc.
2	Water Quality	Low	The project will require small quantity of water for construction. No hazardous effluent is envisaged to be discharged during construction	The required water will be sourced from tankers by the construction company. Domestic effluent shall be discharged in holding tanks which will be cleaned regularly and waste thrown at urban body's solid waste management site.
3	Soil Quality	Low	Land is available-has open/vacant areas within the school premises for expansion projects and government land for new schools.	Construction company to ensure proper housekeeping, sanitation and cleanliness at work site.
4	Noise Quality	Low	The construction activity may lead to noise pollution during concreting –steel cutting, bending, casting using vibrators, operation of mechanised equipment and drills etc. that will affect the residents of the area. Small noise related installations within shell structure may continue beyond school holidays	The schools shall be closed for summer vacation during shell construction of the building to minimize disruption. Noise monitoring will be done at regular intervals. If any night construction activity that is noise intensive is undertaken, neighbourhood must be consulted to determine suitable timings.
5	Hazardous Substance – e.g. Asbestos, VOCs	Minimal	The expansion sub-projects will not impact the main buildings of the schools	Sections of buildings, if they contain any hazardous material will not be selected for improvement actions.
6	Terrestrial Ecology	Low	No ecologically sensitive place (protected area/reserved forest/Important flora and fauna species) within 5 km radius from each sub-project site	Tree replantation/transplantation to be carried out inside school if any trees are cut by the construction company

7.0 ENVIRONMENTAL MANAGEMENT PLAN

7.1 Critical Environmental Review Criteria

(i) Loss of irreplaceable resources

320. The School/Kindergarten projects do not involve any large-scale excavation and land Thus, there will be no net "Biodiversity Loss" due to project implementation due to felling of trees.

(ii) Accelerated use of resources for short-term gains

321. The project will not use any natural resources occurring in the area during construction, operation and maintenance phases. The construction material such as steel, cement, etc. shall come from factories while the excavated soil shall be disposed in designated waste management sites designated by urban body. Thus, the project shall not cause any accelerated use of resources for short term gains.

(iii) Endangering of species

322. No endangered species of flora and fauna exist in the project area and there seems to be no possibility of endangering/causing extinction of any species.

(iv) Promoting undesirable rural-to urban migration

323. The project will not cause any submergence or loss of land holdings that normally trigger migration. It also does not involve acquisition of any private land holdings. Hence, there is no possibility of any migration.

(v) Increase in affluent/poor income gap

324. The project will increase availability of education facilities to the neighbourhood communities. Several vulnerable communities are also going to be benefitted due to these facilities. Thus, the project is expected to contribute in reduction of affluent/poor income gap by providing education opportunities for children of "herder" nomadic population thereby making them equal footing into mainstream of economic streams in future.

7.2 Disaster Management, Health and Safety, Training

325. **Disaster Management.** Though major earthquake in recent years, small to moderate earthquake have been felt in Mongolia. The flood risk in Ulaanbaatar, Darkhan and other a*imag*s is lower than that of the other parts of country. The a*imag* Emergency Management Agencies are formed under the National Emergency Management Agency (NEMA) of Government and have been designated to take care of disaster management issues in their respective areas. Disaster resilient features[27] will be built into new and expanded schools and kindergartens. The facilities will have sound seismic design to withstand earthquakes, winter snow storms, improved flood control and precipitation resistant features for all the proposed kindergartens/schools.

326. **Health and Safety Issues Management.** To avoid/ minimize inherent risks during construction, operation and maintenance, the construction company will follow national and international Environment, Health and Safety Procedure for construction and expansion of schools/kindergartens and the operations and maintenance (O&M) period. Some other

[27] The ability of a system, community, or society exposed to hazards to resist, absorb, accommodate to, and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions (UNISDR Terminology on Disaster Risk Reduction. https://www.unisdr.org/we/inform/terminology) Source: Reducing Disaster Risk by Managing Urban Land Use, Guidance Notes for Planners, ADB, 2016

implications and mitigations from safety point of view are listed in **Table 7.1** below:

Table 7.1: Safety Implication and Mitigation

No	Implication	Mitigation
1	Falling object accidents	Proper signs to avoid areas where falling objects can hurt passers-by, school children etc.
2	Open construction boundary	Construction company to install metal sheet barriers that are high enough to make a boundary so that children, residents cannot get unauthorized access into construction sites.
3	Electrical shock/fire due to any open wiring at construction site	Ensure all access points to the schools do not have any open electrical connections/wires lying in open
4	Accidents at school gates due to congestion caused during construction	Alighting area for children from cars, buses

327. **Training Programs.** The training program will be developed by PIU team comprising of Environment Specialist, M&E Specialist who will be contracted with PIU during project implementation. Each of training should last 1 day with specific program and should include interactive problem solving tasks

328. Trainings on EMP implementation for construction company, Emergency Response systems for all emergency situations, Occupational Health and Safety etc. are proposed to be held as per training program as shown below in **Table 7.2.** The costs for all the training programs are included in the ADB funding for the project.

Table 7.2: Training programme - summary of training needs

Training topic:	Summary of training purpose and content	Recipients/ Participants	Frequency or target date
Induction to EMP	Overview of EMP including site information, pollution risks and controls, and programmes. Preparation of site specific EMPs and training on implementation to staff of construction company (s)	All PIU engineers / contractors	At beginning of project
Review of EMP, Refresher training on EMP	Review of EMP including new changes and updates	All PIU Engineers / contractors	One year after project start, or more frequently if required
Training on specific pollution risks and controls			
Emergency case response planning	To identify on-site “potential accident scenario” and how to plan potential emergency response actions.	All PIU Engineers /contractors/ residents	During the project implementation
Air Quality Monitoring	Ambient Air Quality, Volatile Organic Compounds (VOCs), Particulate Matter (PM), Ozone Depleting Substances (ODS), Greenhouse Gases (GHGs)	All PIU Engineers /contractors	During the project implementation
Water Conservation	Water Monitoring and Management, Process Water Reuse and Recycling, Heating Systems	All PIU Engineers /contractors	During the project implementation
Wastewater and Ambient Water Quality	Liquid Effluent Quality, Discharge to Surface Water, Discharge to Sanitary Sewer Systems, Land Application of Treated Effluent, Septic Systems, Wastewater Management	All PIU Engineers /contractors	During the project implementation

Training topic:	Summary of training purpose and content	Recipients/ Participants	Frequency or target date
Hazardous Materials Management	General Hazardous Materials Management, Hazard Assessment, Management Actions	All PIU Engineers /contractors	During the project implementation
Fire safety	Fire, and Explosion Prevention, Control Measures,	All PIU Engineers /contractors	During the project implementation
Occupational Safety, Health and Safety	Occupational Health and Safety Emergency Preparedness and Response, Community Involvement and Awareness	All PIU Engineers /contractors	During the project implementation
Waste Management	General Waste Management, Waste Management Planning, Waste Recycling and Reuse, Treatment and Disposal, Waste Storage, Transportation, Treatment and Disposal, Commercial or Government Waste Contractors	All PIU Engineers /contractors	During the project implementation
Monitoring and evaluation			
Participatory M&E of impacts.	Simple methods for recognizing adverse impacts on environment. Methodology of monitoring and evaluation on the water quality	Local residents, School managements/ construction company	During the project implementation
Energy Efficiency and Green Buildings	Introduction to energy efficiency, heat loss, green school concept	Local residents, School managements	During the project implementation
Project management and implementation	M&E, Implementation assessment the program. Principle of donor organizations' support to local beneficiaries.	All PIU Engineers /contractors	At the beginning of the project

7.3 Environmental Impact Matrix

329. The environmental impacts management matrix has been prepared for the project that discusses the anticipated impacts, monitoring requirements, and development of mitigation measures with respect to the following stages: (i) pre-construction, (ii) construction, and (iii) operation and maintenance. Detailed, site-specific mitigation measures and monitoring plans were developed and will be implemented during the project implementation phase. A summary environmental impact matrix and the mitigation measures are mentioned in **Table 7.3**.

Table 7.3: Environmental Impact Matrix

Sl. No	Environmental attribute	Potential impacts	Nature of impact	Magnitude of impacts			Mitigation measures	Implementation and Monitoring
				Low	Medium	High		
A.	**Physical Resources**							
1.	Topography	Change in the surface features and present aesthetics due to the construction of the project.	Direct/Local/ irreversible		X		The surface soil will be restored to normal slope after erection. If there is any excess soil, it shall be disposed of at suitable location. Any loss of vegetation will be attended by MES as per existing Government of Mongolia norms and per EMP.	During construction activity.
2.	Climate	No impact on the climatic conditions	Direct/Local/ irreversible	X			No impact on the climatic conditions, hence no mitigation is required.	
B.	**Environmental Resources**							
1.	Air Quality	Project will have marginal impact on air quality during the construction period due to increase in the dust emission due to cutting/filling, stockpiling of construction material and traffic movement	Direct/Local/ reversible	X			Water sprinkling at construction site, limited bare soils, maintenance of vehicles.	During construction activity.
2.	Noise	Noise from piling, brick/stone crushing, concreting and equipment installation.	Direct/Local/ reversible	X			Restriction of noise generating activities at night and use of personal protective equipment like ear plugs, mufflers.	During construction activity.

Sl. No	Environmental attribute	Potential impacts	Nature of impact	Magnitude of impacts			Mitigation measures	Implementation and Monitoring
				Low	Medium	High		
3.	Surface and Ground Water quality	Runoff from the construction site.	Direct/Local/ reversible	X			Land development may create problems in local drainage pattern, minor impact. Careful siting of soil dump and construction material at site.	Before and during construction activity.
		Domestic wastewater from construction sites. Cutting/filling at construction site would create natural drainage blockade during rainy season.	Direct/Local/ reversible	X			Domestic waste treatment by providing septic tank/soak pits at work site for workers at each location.	During construction and operation.
4.	Soils and Geology	Soil erosion due to clearing of topsoil at site.	Direct/Local/ reversible		X		Rehabilitation and stabilization of disturbed land at the Schools/Kindergartens.	During and after the construction activity.
		Damage due to seismic activity.	Direct/regional/ reversible	X			Site selection and proper foundation design considering the geological conditions and seismicity of the area.	Before the construction activity.
		Settling of foundations due to permafrost	Direct/regional/ reversible		X		Site selection and proper foundation design considering the geological conditions of the area.	Before the construction activity.
C.	**Ecological Resources**							
1.	Terrestrial Ecology	Loss of vegetation.	Direct/Local/ irreversible		X		The tree planting/transplantation for trees felled will be done by the	Before the construction phase.

Sl. No	Environmental attribute	Potential impacts	Nature of impact	Magnitude of impacts			Mitigation measures	Implementation and Monitoring
				Low	Medium	High		
							Construction Company	
2.	Terrestrial Fauna	No significant impacts envisaged.	Direct/Local/ reversible	X			No direct impact	Before and during construction phase.
3.	Aquatic Ecology	No significant impacts envisaged.	Direct/Local/ reversible	X			Disposal of construction waste and other waste to avoid polluting any water body and streams.	Before and during construction phase
D.	**Human Environment**							
1	Health and Safety	Fires, explosion and other accidents, Health & safety of workers at site may pose to risk in some cases.	Direct/Local	X			Use of personal protective equipment during construction. Regular inspection of construction site for faults prone to accidents. Volatile organics to be handled	During construction and operation phase
		Banned Substances; Safe drinking water and Sanitation hazard	Direct/Local		X		Presence of Asbestos in old buildings, concentration of labour force creates un-hygienic condition; provide proper facilities	During construction phase
2.	Agriculture	No significant impacts envisaged.	Direct/Local/ reversible	X			No agriculture land used for new school/expansion.	Before and during construction phase.
4.	Socio-economics	Beneficial impacts job opportunities during construction phase	Direct/regional		X		Unskilled labour and indirect benefits. Overall economic growth of the region.	During operational phase
5.	Resettlement	No significant impacts envisaged.	Direct/Local/ reversible	X			No resettlement issues.	Before the construction phase.
6.	Archaeological/Cultural sites	No archaeological, historical, or cultural	Direct/Local/ reversible	X			No archaeological, historical, or cultural important sites are	--

Sl. No	Environmental attribute	Potential impacts	Nature of impact	Magnitude of impacts			Mitigation measures	Implementation and Monitoring
				Low	Medium	High		
		important sites are affected by the construction.					affected.	
7.	Traffic and Transportation	Traffic congestion due construction vehicles, ferry of construction and waste material. Increase in temporary traffic at gates due to pickup of students	Direct/Local/ reversible	X			Proper traffic signs at the construction site, ensuring availability and maintenance of proper access roads. Ensuring more staggered timings for students.	During construction phase During construction and operation phase
8.	Waste Generation	Probability of Surface and ground water pollution. Improper management of construction debris and solid waste may pose risk to the neighbours.	indirect/Local/ reversible	X			Minimization, reuse and recycle whenever possible. Final wastes to be collected and disposed off in compliance with applicable regulations and rules.	During operation phase
		Pollution from liquid discharge	indirect/Local/ reversible	X			No liquid discharge from the project, domestic sewage should be disposed through septic tank	During operation phase
9	Site Security	Improper site security may pose risk to the school children or community	Direct/Local/ reversible	X			Proper fencing and protection at the construction sites, and manned security a must at the school site.	During construction phase

7.4 Monitoring

330. In addition to the EMP, to ensure that project would not be generating a negative impact to the overall environment quality, an Environmental Monitoring Plan (EMoP) will be prepared. The monitoring activities of the project include site supervision, verification of permits, monitoring of water quality, soil, noise and air. Monitoring of the quality of water, soil, air and noise during the construction stage is a responsibility of civil works contractors. PIU engineers (who are contracted by PIU) will supervise civil works contractors. Monitoring of sanitary waste treatment should be done periodically to avoid water pollution. Other environmental good practices include noise abatement, maintaining hygienic conditions, maintenance of fire and safety equipment etc. Environmental monitoring report will check whether the project works during implementation may trigger any unanticipated impacts or any impacts on existing and/or associated facilities or not, and measures for such impacts are undertaken. Monitoring report should be prepared once in six months with the corrective action plan for the problem areas.

331. MES will be responsible for implementing internal monitoring systems for EMP implementation, and will forward semi-annual progress reports to the Government and ADB. The reports will cover EMP implementation with attention to compliance and any needed corrective actions. On-going consultation measures will be incorporated in the EMP.

332. The PIU will be responsible for internal monitoring of the EMP implementation and will develop quarterly progress reports with details of activities and progress made during EMP implementation. The PIU will submit annual monitoring reports to ADB. If project activities are noticed to have significant adverse environmental impacts, ADB requires MES to retain qualified and experienced experts[28] or qualified Non-Government Organisation (NGO) or Community Based Organization (CBO) to verify the report. If required, these external experts/NGO or CBO will report on a semi-annual basis directly to ADB to verify if sound environmental management practices were followed during implementation. In case the implementation of EMP measures is not satisfactory, the external experts/NGO or CBO will recommend actions to enhance environmental compliance. A template of the Environment Monitoring Report is attached as **Annexure 5**, which will be required to submit bi-annually by MES to ADB.

7.5 Environmental Management Plan (EMP)

333. The Environmental Management Plan (EMP) for the project is attached as **Annexure 2**, which identifies feasible and cost - effective measures to be taken to reduce potential significant, adverse, impacts to acceptable levels. Here, proper mitigation measures are proposed for each potential impact, including details on responsible parties for implementation of mitigation measures and supervision. Performance indicators which will describe the desired outcomes as measurable events to the extent possible, such as performance indicators, targets, or acceptable criteria that can be tracked over defined time periods will be designed and implemented. The performance monitoring shall be done by the PIU as part of EMP and EMoP implementation monitoring.

7.6 Environmental Monitoring Plan (EMoP)

334. The mitigation measures suggested requires monitoring of environmental attributes both during construction and operational phase of the project by the MES. During the construction and operation phase of this project, the monitoring of the environmental aspects shall be done at the Schools/Kindergarten by the environment specialist of the PIU.

335. **Review process of site specific EMPs.** The Environment Specialist will review the

[28] External expert who is not involved in day-to-day project implementation or supervision.

Contractor's internal procedures ad capacity to manage and implement site specific environmental management mitigation measures. To this end, the training program in **Table 7.2** has provision for training of the Contractor's staff. The Environment Specialist[29] will be the key person reviewing the implementation of EMP. **Annexure 3** provides the periodicity of the measurements of environmental parameters – air, noise, soil and water at the various schools/kindergartens to be implemented by the Construction Company during the construction phase. The Annexure also lays down the following checklist/clauses for the Construction Company to adhere to.

- Environmental Site Inspection and Monitoring Checklist, and
- Environmental Safeguard Clauses for Civil Works Contracts.

336. The environmental monitoring plan is to be utilized for measuring the extent of compliance with the EMP during the project implementation. The main objective of environmental monitoring is:

- to evaluate the performance of construction company in mitigating negative impacts vs. the proposed measures in the EMP;
- to provide information on unanticipated adverse impacts or sudden change in impact; to determine if any impacts are irreversible in nature which required remedial measures and monitoring;
- to suggest improvement in environmental mitigation measures, if required.

337. During the construction phase, civil works contractors should ensure that activities like handling of earth works clearing work, access road construction, putting proper traffic signals is done properly to have minimum impact. This in turn should be monitored by the construction supervision specialists responsible for the school/kindergarten project.

338. Implementation of environmental mitigation measures will be ensured through both routine and periodic monitoring. **Table 7.4** lists environmental monitoring activities during construction phase:

Table 7.4: Construction Phase Monitoring

#	Indicators of Monitoring	Types of Monitoring/ Method of Monitoring	Monitoring Frequency	Responsibility
1	Safe transportation of construction material through neighbourhood and roads	Visual Inspection Continuous	Regular during construction	Civil works contractors
2	Stockpiling of excavated materials and appropriate disposal	Visual Inspection	Regular during construction	School/Civil works contractors
3	Occupational health and safety, use of safety gears by workers	Use of PPE Visual Inspection	Regular during construction	Civil works contractors
4	Safety to students, staff, apartment dwellers etc.	Record of injury or accidents	Regular during construction	School
5	Inconvenience to apartment dwellers, water logging etc.	Visual Inspection Continuous	Regular during construction	School/Civil works contractors
6	Solid waste segregation disposal	Visual Inspection	Regular during construction	Civil works contractors
7	Cutting/trimming of trees	Continuous	Regular during construction	School, Civil works contractors
8	Environmental Parameters	Air, Water, Noise, soil	Six Monthly	Civil works

[29] The TOR for Environment Specialist lists this requirement and is attached to the Project Administration Manual (PAM)

	Quality	sampling lab testing & comparison with Baseline of the area	contractors

PPE: personal protective equipment

339. During the operation phase, the schools/kindergartens through MES could continue to conduct monitoring as specified below in **Table 7.5**:

Table 7.5: Operations Phase Monitoring

#	Indicators of Monitoring	Types of Monitoring/ Method of Monitoring	Monitoring Frequency	Responsibility
1	Solid waste management system	Records of waste collected and managed	Bi-annual	School/ PIU
2	Number of orientation and trainings on safety, facility usage to students, staff	Number of orientation and trainings conducted	Regular	School/ PIU
3	Preparation of monitoring reports and Impact audits	Preparation of monitoring reports and Compliance with EMP	Bi-Annual	School/ PIU

EMP = environmental management plan, PIU = project implementation unit

340. **Construction Contracts.** The construction company will adhere and comply with all measures and procedures identified in the EMP. The EMP and EMoP which are endorsed by the EA and Government of Mongolia, will be monitored in accordance to ADB Safeguard Policy 2009 requirements. Mitigation measures related to construction as specified in the EMP will be incorporated into civil works contracts, and their implementation will be primarily the responsibility of civil works contractors. In addition, civil works contractors will be requested to submit monthly progress reports on the implementation of EMP measures to EA/PIU.

341. **Reporting.** The EA in turn will be expected to report to the ADB on progress achieved against the EMP activities and milestones on a quarterly basis. Progress reports will include a description of implementable activities and their status; identify the responsible parties involved in their implementation; and provide project management schedules and timeframes for doing so, along with their associated costs.

7.7 Environmental Management Plan Budget Costs

342. The main benefits of the environmental mitigation plan are (i) ensuring that environmental standards are met during design, construction, and operation of the project; (ii) providing offsets to negate project impacts especially ecological impacts. Without such expenditures, the project might generate significant environmental impacts, causing the biophysical environment in the area to deteriorate and indirectly depressing the economies of local communities.

343. The compliance with the EMP has been prepared based upon optimum and reasonable costs that are derived upon minimization of mitigation measures on a “least-cost” basis. The estimated budget for implementing the EMP is USD$ 280,000 of the total project cost of USD 40 million as shown in **Table 7.6**.

Table 7.6. Estimated costs for implementing EMP.

#	Type of expenses	Cost Estimates USD $
1	Promotion and advertisement of the EMP*	30,000
2	Support the implementation of mitigation activities**	100,000
3	Reviewing and revising of EMP***	30,000
4	Training and Consultancy ****	30,000
5	Budget for the Monitoring activities	50,000
6	Budget for public consultation and feedback	40,000
	TOTAL	**280,000**

* "Promotion and advertisement of the EMP" include activities to provide awareness on EMP to relevant stakeholders and public communities in surrounding areas of construction sites as well as informing them of the roles and responsibilities of various parties involved. Costs may include development of promotional materials, advertising etc.
** Approximately 0.25% of total project cost for individual package
*** Revision of IEE/EMP, if major scope of project activities change during implementation
**** Training costs for items as per Table 7.2 above

344. The cost components include items such cost towards promotion, advertisement and implementation of mitigation activities (Construction Company's civil works scope), review and revision of IEE/EMP is scope changes, Training and consultancy (identified in Table 7.2), monitoring of EMP and support implementation of mitigation activities etc. in entire location of Schools/Kindergarten and future public consultations required. These activities will be coordinated by the PIU Coordinator, Environment Specialist, M&E specialist, and the construction supervision specialists hired for project implementation and supervision of the construction company.

7.8 Institutional Arrangements

7.8.1 Project Implementation Organizations: Roles and Responsibilities

345. The Ministry of Education and Science (MES) will be the executing agency of the project and will oversee overall project implementation and management activities to ensure smooth and timely implementation and completion of project activities. The MES and UMED will be the implementing agencies. The overall project will be implemented from September 2017 to December 2026.

346. The project steering committee will be established by MES and comprise MECSS directors, representatives of MOF, UMED, Engineering Supply Department of Ulaanbaatar Municipality, Education Evaluation Center, General Authority for Education, and Mongolian National Research Institute of Education. The MES will constitute a Project Implementation Unit (PIU) for implementing the ADB loan which will be established by MES to manage day-to-day activities of the project. **Table 7.7** below depicts Management roles and responsibilities.

Table 7.7: Management Roles and Responsibilities

Project Implementation Organizations	Management Roles and Responsibilities
Executing agency – Ministry of Education and Culture, (MES)	(i) Establish project implementation unit. (ii) Establish project steering committee. (iii) Establish systems, procedures, and mechanisms to ensure effective and efficient project implementation. (iv) Oversee overall project implementation and management activities to ensure smooth and timely implementation and completion of project activities.
Project steering committee	(i) Approve annual budgets and plans for the project. (ii) Oversee progress in project implementation. (iii) Guide and support project implementation. (iv) Provide coordination between ministries and other stakeholders involved in project implementation.
Implementing Agencies – General Authority for Education (GAE)	(i) Provide strategic, policy, and coordination support for the implementation of outputs 1–5. (ii) Supervise all project activities under outputs 1–5.
Project implementation unit	(i) Perform day-to-day management of the project. (ii) Coordinate and implement project activities, including procurement, recruitment, disbursement, contract administration, monitoring, and reporting. (iii) Prepare, on behalf of the executing and implementing

		agencies, bidding documents, terms of reference, reports, and other supporting documents and submit them for review and approval.
	(iv)	Maintain on behalf of the executing agency the imprest accounts; and prepare and submit withdrawal applications and supporting documents, quarterly and annual reports, annual audit reports and financial statements.
ADB	(i)	Provide technical support for project implementation.
	(ii)	Supervise and ensure compliance by the executing and implementing agencies with Asian Development Bank's policies and procedures in project implementation.

ADB = Asian Development Bank.

347. The project implementation unit will be staffed with experienced professionals (a project coordinator, a procurement specialist, a financial management specialist, monitoring and evaluation specialist (M&ES), social and gender specialist, curriculum and assessment specialist, teaching and learning material specialist, teacher training specialist, and a civil works subunit comprising civil, mechanical and electrical engineers, cost estimator, and environment specialist (ES)) to handle day-to-day project management.

7.8.2 Project Organization Structure

348. The interactions between steering committed, Ministry of Education, UMED and the PIU at the project level are shown in **Figure 7.1**.

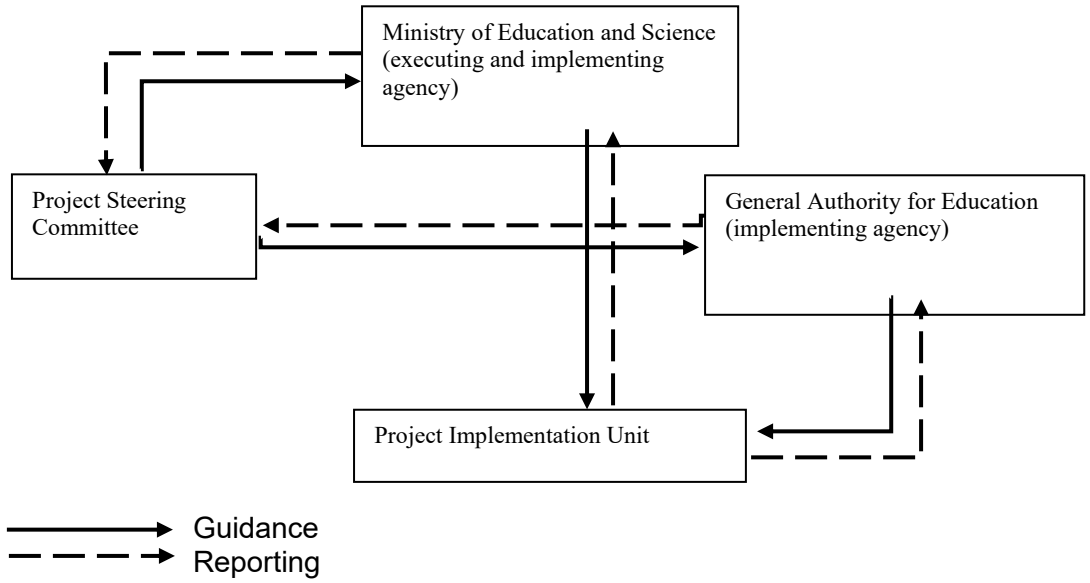


Figure 7.1: Project Organization Structure

7.8.3 EMP implementation arrangements.

349. The Project Implementation Unit (PIU) which will assume primary responsibility for the environmental assessment as well as implementation of EMP through Construction Company (civil works contractors) or any third-party consultants. The Project coordinator will be assisted by the ES for environmental monitoring and EMP measures. Given the capacity of MES, it is proposed that ES and MES to coordinate with each construction company to address environmental mitigation issues[30].

[30] ADB advises that all EAs develop in-house capability for environmental, health, and safety (EHS) program consistent with international best practices. The EHS program should include accounting for environmental benefits

350. The duties of the Environmental Specialist will include at a minimum: (i) oversight of Construction Company for monitoring and implementing mitigation measures; (ii) liaising with the school/kindergarten management and Construction Company (civil works contractors) and seeking their help to solve the environment-related issues of project implementation; and (iii) technical progress reporting as well as preparation of environmental management reports every 6 months (as required by ADB).

351. The ES will be assisted by the Monitoring and Evaluation specialist (M&ES) in monitoring of the contract requirements and any specialist functions by the construction supervision specialists (civil, mechanical and electrical engineers etc.) hired under the PIU. Additional third-party services may be employed by the MES as necessary. Further details on person/agencies responsible for EMP activities are in **Table 7.8**.

Table 7.8: Institutional Roles and Responsibilities for EMP Implementation Activities

Activity	Responsible Person/Agency
Sub-project Initiation Stage	
Establish PIU and award contracts	Project Coordinator, Procurement Specialist, PIU MES
Clearances/approvals from relevant Government of Mongolia agencies-urban, water, power etc.	PIU, MES
Disclosure of subproject EMP details on MES website	PIU, MES
Conducting discussions/meetings/workshops with APs and other stakeholders	ES and other Specialists at PIU
Updating of EMP mitigation measures based on discussions	ES, M&ES, PIU
EMP Implementation Stage	
Meetings at community/household level with APs	ES, Construction Company
Implementation of proposed EMP mitigation measures	ES, Construction Company
Consultations with APs during EMP mitigation measures implementation	ES, Construction Company
Grievances Redressal	PIU /District Administration
Internal monitoring	PIU/ MES
External monitoring*	External Experts

ADB = Asian Development Bank; AP = Affected Persons; EA = Executing Agency; EMP = Environmental Management Plan; PIU = Project Implementation Unit; ES = Environment Specialist

*Note –External monitoring only required when projects are noticed to have significant adverse environmental impacts. Normally not required for Environment Category B project.

7.9 Implementation Plan

352. The proposed project involves expansion of 9 Schools, 21 Kindergartens on their premises at and construction of 3 new Schools and 12 Kindergartens on government owned land. The project will involve survey work, land clearance, design and engineering of plant equipment, floating tenders for procurement, civil work and testing and commissioning of buildings. Total project work in is costing USD 40 million (including IDCs and contingencies).

353. The overall draft project implementation schedule for Output 1 under the project is attached **as Table 7.9.**

resulting from investment projects within three months of loan approval. The monitoring agency shall report on semi-annual basis directly to ADB and determine whether sound environmental management practices have been achieved, and suggest suitable recommendations and remedial measures for midterm correction and improvement.

Table 7.9: Overall Project Implementation Schedule (OUTPUT 1)

Activities	18	2019				2020				2021				2022				2023				2024				2025				2026	
	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
Output 1: Gap in enrolment capacity of schools and kindergartens narrowed																															
1.1 Advertise and recruit engineering firm's packages (10 schools and 20 kindergartens)																															
1.2 Prepare drawings, specifications, and BOQ for 10 schools																															
1 .3 Prepare drawings, specifications, and BOQ for 20 kindergartens																															
1.4 Prepare specifications for buildings, equipment, and furniture (10 schools and 20 kindergartens)																															
1.5 Prepare and advertise procurement packages of civil works for 2 schools' construction and 8 schools' expansion and sign civil works contracts for schools																															
1.6 Prepare and advertise procurement packages of civil works for 3 kindergartens construction and 17 kindergartens expansion and sign civil works contracts for kindergartens																															
1.7 Apply for building, land, and utility permits																															
1.8 Recruit an international construction supervision training specialist																															
1.9 Recruit 5 individual construction supervision specialists																															
1.10 Train construction supervision specialists and conduct other consultative meetings and training																															
1.11 Supervise civil works on school and kindergarten sites																															
1.12 Recruit social																															

Activities	18	2019				2020				2021				2022				2023				2024				2025				2026	
and gender specialist (international)																															
1.13 Recruit social and gender specialist (national)																															
1.14 Implement, monitor, and report on environment management plans																															
1.15 Undertake civil works for school construction and expansion																															
1.16 Conduct civil works completion inspections for the constructed and expanded schools																															
1.17 Undertake civil works for kindergarten construction and expansion																															
1.18 Conduct civil works completion inspections for the constructed and expanded kindergartens																															
1.19 Prepare and advertise procurement packages for school and kindergarten furniture, and sign contracts for school and kindergarten furniture and equipment																															
1.20 Prepare and advertise procurement packages for school furniture and equipment, and sign contracts for school furniture and equipment																															
1.21 Supply the furniture and equipment to the schools																															
1.22 Establish a working group and strengthen schools' capacity to conduct blended learning by developing guidelines and train teachers																															

NOTE - This schedule is tentative and will be finalised based on each site as well as estimated schedule indicated by bidders for each contract.

8.0 INFORMATION DISCLOSURE, CONSULTATION AND PARTICIPATION

8.1 Consultation Process

354. During the project formulation stage, MES has conducted a project scoping exercise and reconnaissance survey of the existing system. Accordingly, during public consultation sessions, considerable dialogue had been held between MES representatives, individuals, and groups from the community to make them aware of the proposed project.

355. The project-affected community residing beside the proposed Schools/Kindergartens has already gained a reasonable knowledge about the potential grievances, which may arise in the future. The community were also informed about the Grievance Redress Mechanism (GRM), which will be followed by MES as per ADB SPS 2009 guidelines.

8.2 Consultation Details

356. During the site visits, the officials and consultants made numerous observations and held discussions with school managements concerned which would be helpful for project design: (i) location of proper access roads, laydown area for materials to be used by the construction companies to use without disturbing the school working and minimizing utilization of playground areas, (ii) avoidance of underground existing pipes for water, heating, sewage etc. at these proposed work sites, (iii) right of way for construction vehicles and provide traffic safety during construction to local residents living adjoining these schools, (iv) traffic caused by construction of new buildings/expansion projects by use of concrete, dump trucks etc. transporting materials inside school premises; traffic safety for children and their parents during operations of school in normal work hours (September 2017 onwards), (vi) lack of safety equipment such as smoke alarms in most old buildings and the need for adequate firefighting extinguishers and imparting evacuation drills and emergency response procedures training, (vii) distances of these schools from non-sensitive biodiversity areas and cultural heritage sites to ensure no impact, (viii) dust and noise emissions from the construction subprojects and their impacts on school children and apartment dwellers adjoining the school area, (ix) noises from any surroundings areas during construction and operations, (x) avoid any shadow projection onto adjoining buildings due to new structures to be constructed as part of this project, (xi) any banned substances generated as part of any expansion project such as asbestos etc., (xii) emissions from coal based heating and water boilers (some cases), (xiii) if insulation works are required in schools to ensure energy efficiency, i.e. Loss of heat due to old walls (xiv) if any associated facilities are present, and (xv) check climate change vulnerability of the location.

357. The team along with district officials and schools shall also conduct group discussions with the public residing in these subproject areas to sensitize them about project activities, their impacts and get their suggestions between January 26 to March 18, 2016, and August 29, 2023. **Annexure 6** indicates a summary of public consultations conducted during the field survey along with socio economic profile in the project affected area.

358. Consultations were carried out with various stakeholders such as MES officials, Government of Mongolia officials, relevant land departments and the sub divisional magistrate of the project area. As part of the assessment, approximately 2961 representatives from surrounding households, entities, apartments/buildings have been surveyed/interviewed to collect the data during the months of January/March 2017 and August 2023. These discussions were carried out at almost at nearby apartments/buildings that were situated in the vicinity of schools.

359. The resident community consulted was requested to air their opinions freely, on the project, its impact, and suggestions for mitigating adverse impacts. People participated in voluntary public consultation sessions to express their view about the proposed project. No

major environmental issues were raised during the consultation process.

360. For the additional financing, the PIU reconsulted with the investment specialist of the Ulaanbaatar Municipality Education Department, principals of schools and the managers of kindergartens sites to clarify any land acquisition or involuntary resettlement issues in May-September 2023. Land acquisition will not be an issue for the two school expansions which will be expanded by an additional storey. Also, the PIU held public consultation meeting for nearby communities about expansion of 6th kindergarten of **Murun *soum*, Khuvsgul *aimag*** which was not included in ongoing project's scope.

361. The existing building of kindergarten in **Murun *soum* Khuvsgul *aimag*** does not meet quality and safety requirements for operation and hygiene by the state professional inspection. By supporting the Government`s Action Plan for 2020-2024 for allowing every child of the countryside to enroll in a kindergarten, EA sent a request for changing scope of the project to ADB in December 2022. The public consultation meeting was conducted in the "Citizen Hall" of the Governor's Office of Murun *Soum* on 29 August 2023 by covering a total of 79 people from the local citizens of the 3rd and 8th *khoroo* and parents (guardians) on the expansion of kindergarten. Total of 79 people including parents, teachers, and local citizens were reached with 59 or 74.7 % were women, 13 or 17.7% were from ethnic backgrounds such as Khotgoid, Darkhad and Buriad), 51 or 64,5% were with bachelor and above, 28 or 35,5% were with secondary education. All attendees supported the construction for the expansion of the kindergarten. Attendees recommended to taking mitigation measures to reduce environmental impact, and to ensure safety during the construction work.

362. **Table 8.1** provides summary of public consultations. **Table 8.2** summarizes some follow-up actions recommended by the consultees.

Table 8.1 Summary Findings of Public Consultations

#	Issues Discussed	Summary Responses and Suggestions from the Participants
1	Do you support for the construction at school.	Almost 100% of participants would support the new construction and expansion of schools/kindergartens. They expressed that accessibility to kindergartens/schools in vicinity of their homes is an important necessity. All schools and kindergartens have exceeded the number of students per their design capacity. The residents of these areas wished to have more increased access/admissions to school/kindergarten in their area.
2	What is educational status of your community?	Mostly people who reside in these areas have lower-than-average income or minimum income; completed secondary education and or even some are illiterate according to local social surveys conducted by social coordinator of the schools/kindergartens.
3	Will this construction at School/ Kindergartens give any negative impact to your apartment complex?	Majority or more than 905 of participants were explaining that there won't be any negative impacts on them regarding the noise and dust caused by the construction works since our residential area is located nearly 70-200 meters away from the school grounds. Since the playground outside kindergarten is large and spacious, no negative impact would be exerted when constructing a building. Teachers and the other employees see no negative effects. Some participant expressed that though no negative effects are expected, but safety norms and standards should be followed. At one meeting, 77% answered "no impacts" to children due to construction at the kindergarten; 2% answered there would not be significant

#	Issues Discussed	Summary Responses and Suggestions from the Participants
		negative effects. 10% answered there would be some negative effects and about 11% did not answer.
4	What benefits do you perceive from this construction?	Pre-school age children at home will be provided with an opportunity to study at kindergarten due to increased capacity. Many parents wanted to send their children to kindergartens, to be provided with opportunity to start children's education and correct upbringing, and also take up a job for a better life if the new kindergartens are constructed.
5	Would you have any problem with school if construction company makes access road in your parking area, dig any pipeline etc. for repair for diversion?	Participants see the construction as a temporary difficulty and are willing to cope with any problem for development of school/kindergarten in the future. They felt that the construction company should be accountable for the works and the environment should be rehabilitated after the installation of utilities facilities/pipes etc. is completed. After the construction, road must be maintained due to damages occurred by trucks and other machinery. Possible difficulties such as power shortage and closing of roads can take place when installing utilities facilities must be attended immediately by construction company. At one meeting 67% of the participants answered, "it can be managed temporarily", "it is ok during summertime" and a "big issue is being solved" expressing that there would not be any conflicts. 7% answered there would be issues. Remaining 26% did not answer the question.
6	Would you be having any construction causes some dust during digging and storing in the school premises?	Dust and noise will not be causing issues for children and kindergarten teachers, because they will be on holiday during construction period. Apartments are located about 120-250m distance from construction site. It would be better if construction work is conducted after children and elder people are off to their summer houses. Other than this, there will not be a problem. Infants might have difficulties to sleep due to loud noise as well as dust from construction site. So, construction work must be finished at scheduled hours.
7	Will you have a problem if the construction company required to work during the night to bringing construction material?	Most of participants expressed that since it's a development work and there should be no problems. Offices and service establishments around the areas work during the daytime, so they won't be having any difficulties. Transportation of building materials won't inconvenience the residents as even now many construction activities are ongoing without taking care residents' comfort. The construction will offer no hindrance since the main way to kindergarten and special fencing are available. They expressed that the construction work must be completed within the time specified.
8	Will you have a problem if the construction company required to work during the night to carry construction requiring extreme vibration and noise such as concreting, cutting, digging etc.?	No hindrance since the building of kindergarten is short and construction area is large. Also, most households go to their summer house or travel around countryside which results in a smaller number of residents during summertime thus we consider the problems relating to construction work will be minimal. Working hours need to finish before the night. Most of the residents reside at their summer camp house during that time, so there should be no problem there. At a meeting, some participants said that there will be no problems, majority of the residents will be out of the city at their summer camp houses, and kindergarten for our children is a vital

#	Issues Discussed	Summary Responses and Suggestions from the Participants
		need for their community. They expressed willingness to work in harmony with construction company if it works with proper procedures.
9	How would you react to construction company transporting waste and construction material through your apartment area or parking area?	Most residents are desperate for having a kindergarten for years, they don't like to complain about it. Heavy and large vehicle could cause some traffic issues, proper transportation vehicles need to be used by the construction company. Disposal and the removal process of all the wastes should be carried out daily. Every damage on nature caused by the construction work should be restored afterwards. Open loading wastes and failing to follow the waste removal procedures can cause some negative impacts. If all the waste removal procedures carried out properly, there is no problem. All the accidents while transporting materials such as things falling off or dragged through the road must be avoided. If the construction company performs well and responsibly, they don't have any negative comment or impression.
10	Are you concerned about Health & Safety of residents and children during the construction?	There are no concerns because there is plenty of space where kindergarten building will be constructed, and it has safe distance from their residences. However, there might be some cases where livestock or animals might fall into the excavated holes which would require proper fencing for preventing such incidents. For children, the construction company must set up safety zone parameter, put warning signs. Since the main construction work will be carried out during the summer break (June to September), they feel that there may not be any problems during this time. However, during other months, the children will be going to their schools, so they are worried. They recommended that proposals from parents in tandem with residents and governors must be taken up by the construction company regarding warnings, safety precautions to ensure safety and health of children.
11	Would you like to participate in safety monitoring and controlling activities?	Most of participants want to be involved if they are free during that time. Service establishment employees expressed that they won't be involved on this matter. Governor's office expressed their readiness to provide professional support such as giving guidelines and evaluation through their civil servants during the construction work.
12	Would you be willing to form a committee to help to school during the construction period?	If deemed necessary, it can be either voluntarily or in accordance with the appropriate procedures. Private sector organizations were not willing to be involved in a committee or a council activity. Citizens felt that it would be better if that type of committee or council is formed for active involvement. At a meeting, 84% of the participants answered, "inspection committee should be established" and "will take part in it if possible". 7% answered "inspection committee is not wanted". 9% did not answer.
13	Any other critical environment related issue and concern by the residents for the during construction and operation stage?	Main concern was that the environment in the area should be rehabilitated after construction. The area should be sprinkled with water to prevent from causing allergies to the people during the construction. Green area should be established. In one meeting 68% of the participants answered, "trees should not be cut", "not concerned because it is conducted during children's

#	Issues Discussed	Summary Responses and Suggestions from the Participants
		holiday" and "construction work should be conducted by taking the area where children will play into account". 11% answered "nothing to be considered". Outside of the kindergarten should be maintained. Vegetation and establishment of green area must be carried out satisfactorily and felt that it should be carried out by professional people, not a construction company. Construction wastes should be removed in a timely manner. Signs with pictures that can be understood by children should be placed around construction waste area. *Soum* Government Administration expressed interest in cooperating with the construction company regarding provision of construction materials such as sand, cement, and water. *Soum* have number of natural attractions and receives many tourists. For this reason, there should be a dedicated road for transportation of construction materials. Heavy equipment might damage the surface of the soil. They do not have a paved road except for the main road.
14	If you have any problem caused by this school/kindergarten construction, whom would you like to contact? (Construction company, school, urban department etc.)	70% of the participants answered, "construction company". 4% answered "administration of the district". 21% answered "administration of the kindergarten". They felt that clear information should be given on the issue by the Construction company and local administration organizations, district administration, educational department, and other applicable organizations such as Environment Inspector or Educational Department of Ulaanbaatar. It should be informed to the administration of the *aimag*, governor of the bag and/or the construction company.
15	What would you expect to improve at current school building (such as changing coal heating to electric heating etc.)	At most of consultations, participants said that **hot water pipelines must be renewed and reinstalled,** and **sewage pipelines must be replaced,** outside facade of the current building need to be renovated**, improvement of the surrounding areas, adding more playground** for children. Some of the participants suggested for "restructuring classrooms, maintenance for ceiling, walls, other parts, playground, physical training hall, plumbing maintenance, **heat loss**, roof, kitchen, auditorium, extension of the building and rooms and **ventilation system".**
16	Any shops/commercial establishments and industrial activity disturbed by this construction?	Main comment was that construction work such as blocking the road by heavy vehicles, digging and excavating holes and trenches should not affect the business of the area. A problem will not be caused to the shops, business and service centers that are located around kindergarten building. At some locations, there will be no problem, because there are no shops, business, industrial or service centers in/near the school area. They felt that the area was a cultural place of the *aimag*, thus construction works should be managed when the cultural place is operating.
17	What other organizations of environment & nature conservation (NGOs/CBOs/ Civil Society) active in the area? Name of these organizations	There are not so many NGOs and civil society organizations. However, at a meeting held at Ulaanbaatar, participants mentioned several NGOs but had not knowledge fi any one NGO works in this area. At consultations held in *Soums* and *Aimags*, participants expressed that environmental protection works are actively conducted in these areas. They have public

#	Issues Discussed	Summary Responses and Suggestions from the Participants
		servants, state inspector in charge of environmental matters of *Soums* and inspector in charge of environmental matters of professional inspection agency.

Table 8.2: Summary of Recommendations by the Consultees

#	Issue	Responsible Party
1	Introducing of EMP back to communities surrounding the sites for improving their knowledge about their responsibilities and participation in monitoring is important	Civil works contractors and School using Advertising budget of EMP
2	Traffic Management • The Construction company to ensure proper road safety for resident's children during construction. • To conduct transportation using a dedicated road to ensure safety of the citizens. • To park the vehicles in the dedicated parking space • If Ger area street road must be used for transportation, the least populated street shall be used	Civil works contractors adhere to EMP
3	Noise Not to conduct works that emit loud noise during night time.	Civil works contractors to adhere to EMP and to citizen council requirements
4	A Committee of citizens, schools, and MES for inspecting the quality of the construction and process of following safety procedures during construction.	MES and School Management to form citizen council
5	• New building of the kindergarten must meet the standards and use quality construction materials. • Ventilation, heating, and plumbing system should be taken into serious consideration. • Complete external landscaping and maintenance must be done e.g., fence, road, street lighting and play ground and equipment	Architect, MES, and Civil works contractors

8.2.1 Locations and participants

363. Consultation meetings were held at 33 sites in total out of them 4 sites will be under new construction where the administrations, directors of the existing school / kindergartens assisted the team. However, for 16 new construction kindergarten/school locations, consultations could not be done as there was no social or technical person has been appointed as well as lack of time availability and lack of organizers at these new locations.

364. **Annexure 6** gives the names of all participants of the public consultation conducted by the team. Consultation details for the 30 sites is also attached (Some documents are being translated). **Table 8.3** provides a summary of location and number of participants for the consultations.

Table 8.3 Location and Number of Participants of Consultations

No	Sub-Project components	Location	Number of Participants of Consultations		
			Total	Male	Female
1	2	3	4	5	6
A	Kindergartens				
A 1	Kindergartens under expansion				
1	Kindergarten No.164	UB, Bayangol District, 4th *khoroo*	51	21	30
2	Kindergarten No.88	UB, Bayangol, 18th *khoroo*	414	193	221
3	Kindergarten No.22	UB, Bayanzurkh, 1st *khoroo*	58	29	29
4	Kindergarten No.8	UB, Bayanzurkh District, (16th *khoroo*	125	31	94
5	Kindergarten No.82	UB, Bayanzurkh District, 16th *khoroo*	74	28	46

No	Sub-Project components	Location	Number of Participants of Consultations		
			Total	Male	Female
1	2	3	4	5	6
6	Kindergarten No.65	UB, Khan-Uul District, 2nd *khoroo*	468	191	277
7	Kindergarten No.72	UB, Khan-Uul District, 2nd *khoroo*	33	6	27
8	Kindergarten No.84	UB, Songinokhairkhan District, 6th *khoroo*	57	35	22
9	Kindergarten No.104	UB, Songinokhairkhan District, 12th *khoroo*	314	139	175
10	Kindergarten No.107	UB, Songinokhairkhan District, 14th *khoroo*	111	26	85
11	Kindergarten No.110	UB, Songinokhairkhan District, 15th *khoroo*	453	182	271
12	Kindergarten No.176	UB, Songinokhairkhan District, 31st *khoroo*	24	7	17
13	Kindergarten No.68	UB, Sukhbaatar District, 3rd *khoroo*	45	14	31
14	Kindergarten No.160	UB, Sukhbaatar District, 3rd *khoroo*	18	8	10
15	Kindergarten No.17	UB, Sukhbaatar District, 10th *khoroo*	45	13	32
16	Kindergarten No.5	Govisumber, Sumber *Soum*, 3rd *bagh*	234	65	169
17	Kindergarten No.6	Khuvsgul, Murun *soum*, 8th *bagh*	79	20	59
A 2	**Kindergartens under new construction**				
1	New kindergarten	UB Bayanzurkh District, 24th *khoroo*	57	26	31
2	New kindergarten	UB, Nalaikh District, 7th *khoroo*	-	-	-
3	New kindergarten	UB, Songinokhairkhan District, 25th *khoroo*	-	-	-
B	**Schools:**				
B 1	**Schools under expansion:**				
1	School No.51	Bayangol District, UB	48	16	32
2	School No.18	UB, Khan-Uul District	-	-	-
3	“Erdmiin Orgil” Complex	UB, Nalaikh District	-	-	-
4	“Ireedui” Primary School	UB, Songinokhairkhan District	-	-	-
5	“Ireedui” Secondary School	UB, Songinokhairkhan District	120	38	82
6	School No.122 (green school)	UB, Songinokhairkhan District, 22nd *khoroo*	-	-	-
7	School No.6	UB, Sukhbaatar District	-	-	-
8	Khantaishir	Govi-Altai, Altai *soum*	113	39	74
B 2	Schools under new construction :				
1	New school	Songinokhairkhan, 7th *khoroo*	-	-	-
2	New school	Darkhan, Mangirt, 15th *bagh*	20	4	16
		GRAND TOTAL	**2961**	**1131**	**1830**

8.3 Information Disclosure

365. In line with ADB’s Public Communications Policy, MES is required to ensure that relevant project information about environment safeguard issues is made available during the initial stages to affected people and other stakeholders, including the general public at *Aimag*/district headquarters where it is publicly accessible in Mongolian language and any other vernacular local language. ADB and MES will also upload and display the IEE documents for their respective websites.

366. Incorporation of the environmental concerns of affected persons (APs) through the public consultation in the decision-making process will avoid or minimize conflict situations during the implementation process as well as enable them to provide meaningful inputs into the project design and its implementation. During implementation period, MES through the schools/construction company can conduct public consultation and information disclosure through public meetings and notice.

9.0 GRIEVANCE REDRESS MECHANISM

9.1 Grievance Channels (Framework)

367. During public consultation sessions of the IEE study, the discussions with apartment dweller groups and individuals were conducted to make them aware of the proposed project. Thus, the project-affected community residing beside the proposed Schools/Kindergartens has already gained a reasonable knowledge about the potential grievances, which may arise in future.

368. The public was informed that there will be no involuntary acquisition of land, or involuntary restrictions on land use which result in physical displacement and economic displacement. After construction of School/kindergarten, the land used will be restored back to its original use.

9.2 Time Frame

369. A community awareness programme must be conducted one month prior to construction by the Project Implementation Unit (PIU) of MES regarding the scope of the project, procedure of construction activities, utility of resources, identified impacts and mitigation measures. These awareness programmes will help the community to resolve problems, clarify their distrusts related to the proposed project at initial stage. The Community should be informed about the Grievance Redress Mechanism (GRM), which is already established as per MES and Government of Mongolia procedure for making complaints, including the place and the responsible person to contact in practical way in this regard. Almost all the stakeholders related to the GRM will also be aware of the established grievance process, the requirement of grievance mechanism, goals, benefits, relevant laws regulations etc.

9.3 The Grievance Redress Mechanism

370. MES does not have any specific Environment or Social Safeguards Policy currently. ADB procedures require MES to establish a Grievance Redressal Mechanism (GRM) for Environment having suitable grievance redress procedure for the project affected persons. The GRM would address affected persons' concerns and complaints promptly, using an understandable and transparent process that is gender responsive, culturally appropriate, and readily accessible to the affected persons at no cost. This GRM consists of a Grievance Redress Committee (GRC) for Environment headed by the PIU Coordinator who is permanent official of the EA and supported by District/*Soum* officials, and environment specialist. The committee has the following constitution as listed in **Table 9.1:**

Table 9.1: Constitution of Grievance Redress Committee

1	PIU Coordinator	Chairman
2	District/*Aimag* Education officer/School Management	
3	Environment Specialist	
4	Citizens' Council representative and one woman representative	
5	Representative of Construction Company	
6	Affected Person	

371. This Grievance Redress Mechanism (GRM) would provide an effective approach for resolution of complaints and issues of the affected person/community. Project Implementation Unit (PIU) shall formulate procedures for implementing the GRM and PIU's engineering staff shall undertake GRM's initiatives that include procedures of taking/recording complaints, handling of on-the-spot resolution of minor problems, taking care of complainants and provisions of responses to distressed stakeholders etc. paying particular attention to the

impacts on vulnerable groups.

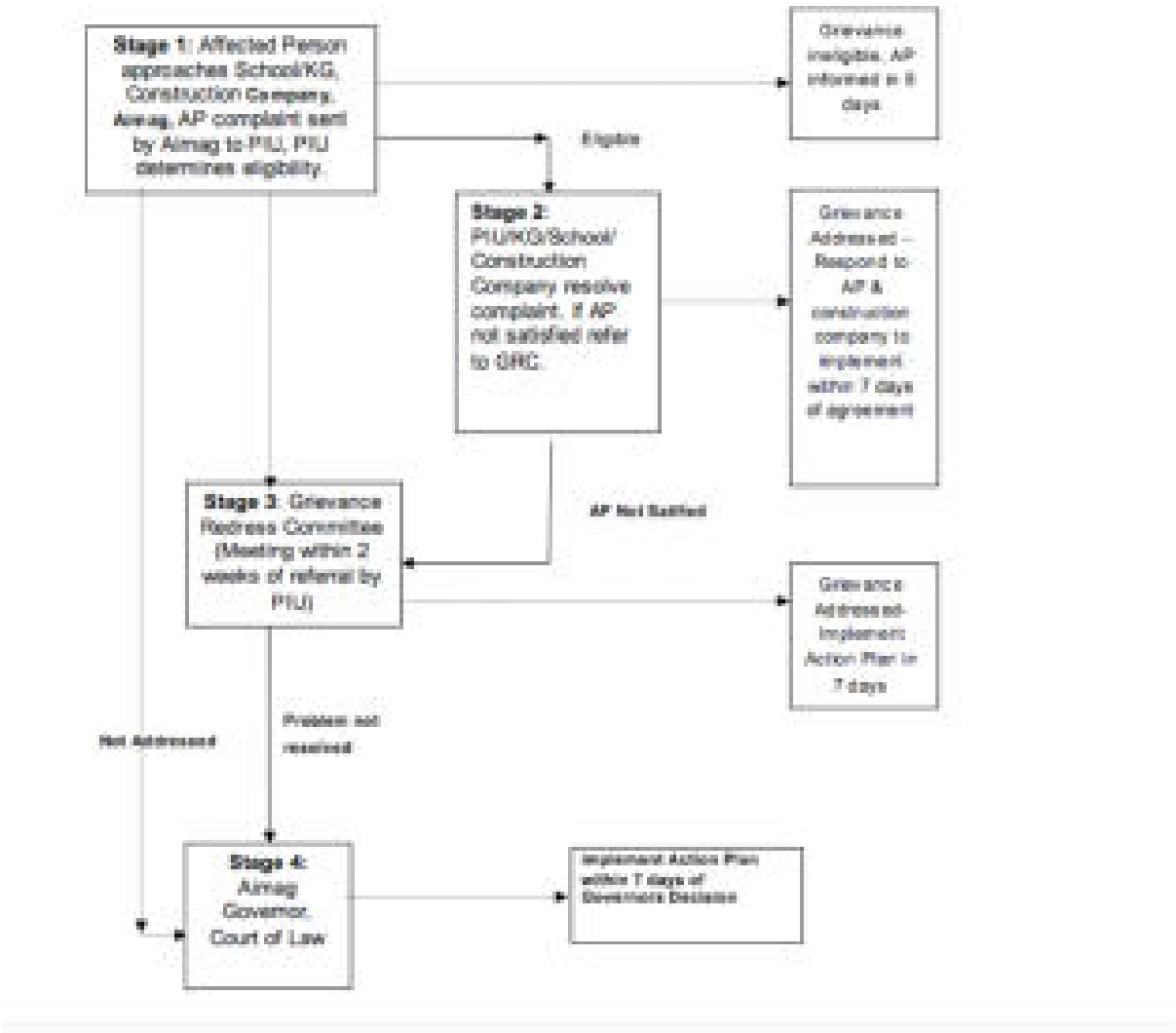
372. During Construction period, the GRM can have multiple tiers for grievance redress i.e., at Construction Company level, the district school/kindergarten administrations levels; and/or the PIU level, or by courts.

- Stage 1: **Access to GRM**. If a concern arises, the affected person (AP) [residents, government official, worker of contractor, etc.] may contact the school/kindergarten administration and the construction company. They will register APs complaint giving all details, grievance issue, solution offered and the APs decision if he would like to resolve the issue of concern directly with the construction company or make his/her complaint known to either the PIU directly, or through the *bagh* or *soum*/whichever level of authority he/she is most comfortable with. If the AP files the complaint at *bagh*/*soum* level, the *bagh*/*soum* representative will forward to the PIU.
- Stage 2: **Official Complaint to PIU**. The PIU will register the complaint and must assess its eligibility. If the complaint is not eligible, e.g., related to an issue outside the scope of the project, PIU will provide a clear reply within five working days to the AP. It the complaint is related to the scope of the project, the PIU inform the AP accordingly and as well as inform the respective *aimag*, construction company, the Steering Committee and ADB of the complaint. The PIU, with support of the loan implementation consultant will take steps to investigate and resolve the issue. This may involve instructing the construction company to take corrective actions. Within seven days of the redress solution being agreed upon, the contractor should implement the redress solution and convey the outcome to the PIU and notify ADB. However, if AP is still not satisfied or if no solution can be identified by the PIU, the complaint shall be sent to Stage 3.
- Stage 3: **GRC Meeting**. Within two weeks of the complaint being referred to Stage 3, the head of PIU Coordinator will organize a GRC meeting together with local *aimag*/district officials, citizen's council, women representative, construction company representative, environment specialist and the AP. The meeting should result in a solution acceptable to all and identify responsibilities and an action plan. The construction company should implement the agreed redress solution and convey the outcome to the GRC within seven working days.
- Stage 4: ***Aimag* Governor Resolution/Court of Law**. However, if the GRC meeting cannot resolve the problem and the AP is still unsatisfied, the PIU will set up a meeting with the *aimag* Governor to identify a solution. For the solution provided by the Governor and agreed by the AP, the construction company must be developing an implementation plan within 7 days for approval by the Governor. The GRM will not impede an AP's desire to access judicial remedies.

373. The PIU will keep records of all grievances received including: contact details of complainant, date that the complaint was received, nature of grievance, agreed corrective actions and the date these were effected, and final outcome. . The PIU will issue public notices to inform the public within the project area of the GRM. The PIU's phone number, fax, address, email address will be disseminated to the people at the *bagh* and *soum* levels. The PIU will have facilities to maintain a complaints database and communicate with construction company, construction supervision engineers, the environmental inspectors of the local offices of GASI, local *aimag* environmental authorities and representatives of affected *soums* and *bagh*s. Procedures and timeframes for the grievance redress process are as follows and shown in **Figure 9.1.**

374. The GRM will be in place for the first year of operations; and will utilize the above mentioned GRM procedure for grievance redressal.

Figure: 9.1 - Flow chart showing Grievance Redress Mechanism for Environment



* (Affected person can take the matters to Court of Law at any point of GRM)
PIU = Project Implementation Unit

10.0 CONCLUSION AND RECOMMENDATION

375. This report assessed various existing environmental parameters in and around the sub-project and the actions planned to minimize any significant negative impact. As part of Output 1, the project will support physical construction, expansion, and rehabilitation of education facilities. It was found that the existing designs used for the construction and expansion of kindergartens and schools in Mongolia are reasonably sound.

376. The sub-project sites are not located near any sensitive areas as well no significant historical and cultural areas. The project will not cause any significant adverse environmental impacts during construction and expansion of school/kindergarten buildings. Rather, the project activity will have a positive impact as indicated earlier.

377. Impacts are manageable and can be managed cost effectively - Environmental impacts are likely to result from the proposed construction of school buildings. Careful mitigation and monitoring, specific selection criteria and review/assessment procedures for subprojects have been specified to ensure that minimal impacts take place. The detailed design would ensure inclusion of any such environmental impacts that could not be specified or identified at this stage are considered and mitigated where necessary. Those impacts can be reduced using mitigation measures such as correction in work practices at the construction sites, or through the careful selection of sites and access locations.

378. The limited project impacts are associated with drainage congestion/water logging, dust and noise pollution, occupational health hazards, risk from poor sanitation system, improper lighting and ventilation system in school, and management of labour at the site. Moreover, most of the associated impacts are expected to be limited to the construction phase and will therefore be temporary in nature. Regular monitoring of the recommended mitigation measures shall also be carried out during the implementation phase of the project.

379. The selected lands for all new schools are located within the government land. Thus, acquisition of land will not be required from the surrounding communities. Since proposed for are barren, no need for removal of trees for the construction of new schools/kindergartens. No endangered or protected species of flora or fauna are reported at any of the subproject sites.

380. The proposed project will have number of positive impacts and negative impacts to the existing environment as follows:

- Construction of state-of-the-art new building for schools in Mongolia is the main positive impact.
- Environment pollution due to cut and fill operations, transportation of construction materials, disposal of debris, disturbance to the school activities, nuisance from dust, noise, vehicle fumes, black smoke, vibration etc. due to construction activities are the short-term negative impacts due to proposed project.
- Although there is negligible removal of waste, noise, health and safety, trees for the Schools/Kindergartens, which is the main negative impact to the proposed project area.

381. It is required to establish baseline parameters in the beginning to monitor changes of the quality of water, air, soil and noise during the construction and operation periods.

382. Proper GRM will have to be implemented by MES to overcome public inconvenience during the proposed project activities.

383. EMP and Environment Monitoring Plan has been prepared and attached as **Annexures 2 and 3** respectively. One round of public consultations was conducted. The results indicate broad support for the project based on perceived economic and social benefits. Most impacts are expected to occur during the construction phase and are of a temporary nature. The school

construction sites were carefully selected after undergoing an options assessment. This enabled the architects of blueprints for each building to bypass important underground utilities water supplies and resources nearby any sensitive ecological areas.

384. Environment impact analysis have been done with various criteria like demographic factors, climate and natural habitat, community and employee health and safety etc. based on the impact analysis. It was found that there is no adverse impact on any natural existing land resources nor will affect the regular life of people resident in the subproject area. The environment impact associated with Schools/Kindergartens project is limited to the extent of construction phase and can be mitigated through a set of recommended measures and adequate provision for environment and social impact which cover monitoring, measuring and mitigation. The main project impacts are associated with clearing of digging, waste management and excavation and movement of soils.

385. The IEE performed is adequate for purposes of project implementation. Based on the environmental assessment and surveys conducted for the project, the potential adverse environmental impacts can be mitigated to an acceptable level by adequate implementation of the mitigation measures identified in the EMP. Adequate provisions are being made in the project to cover the environmental mitigation and monitoring requirements, and their associated costs.

386. The potential cumulative and residual impacts of the sub-components indicate that the project classifies as a Category “B”, in accordance with ADB’s Safeguards Policy Statement 2009 and MET Guidelines of Mongolia. Thus, IEE report has been prepared for the project. Thus, a full Environmental Impact Assessments (EIA) for the project is not required. The project is not considered highly sensitive or complex.

ANNEXURES

Annexure 1: Inventorization of Schools/Kindergarten

LIST OF SCHOOL AND KINDERGARTEN EXPANSION AND CONSTRUCTION SITES

Table A1.1 Schools

No.	Location	Expansion/ New Construction	School No.
1	Bayangol District, UB	Expansion	School No.51
2	Khan-Uul District, UB	Expansion	School No.18
3	Nalaikh District, UB	Expansion	"Erdmiin Orgil" Complex
4	Songinokhairkhan District, UB, 7th *khoroo*	New Construction	
5	Songinokhairkhan District, UB	Expansion	"Ireedui" Primary School
6	Songinokhairkhan District, UB	Expansion (additional floor)	"Ireedui" Secondary School
7	Songinokhairkhan District, UB, 22nd *khoroo*	Expansion	School No.122 (green school)
8	Sukhbaatar District, UB	Expansion	School No.6
9	Darkhan *Soum*, Darkhan, Mangirt, 15th *bagh*	New Construction	
10	Altai *Soum*, Govi-Altai (Khantaishir)	Expansion	Khantaishir

Table A1.2 Kindergartens

No.	Location	Expansion/ New Construction	Kindergarten No.
1	Bayangol District, UB, 4th *khoroo*	Expansion	Kindergarten No.164
2	Bayangol District, UB, 18th *khoroo*	Expansion	Kindergarten No.88
3	Bayanzurkh District, UB, 1st *khoroo*	Expansion	Kindergarten No.22
4	Bayanzurkh District, UB, 16th *khoroo*	Expansion	Kindergarten No.8
5	Bayanzurkh District, UB, 6th *khoroo*	Expansion	Kindergarten No.82
6	Bayanzurkh District, UB, 2nd *khoroo*	New Construction	
7	Khan-Uul District, UB, 2nd *khoroo*	Expansion	Kindergarten No.65
8	Khan-Uul District, UB, 2nd *khoroo*	Expansion	Kindergarten No.72
9	Nalaikh District, UB, 7th *khoroo*	New Construction	
10	Songinokhairkhan District, UB, 6th *khoroo*	Expansion	Kindergarten No.84
11	Songinokhairkhan District, UB, 12th *khoroo*	Expansion	Kindergarten No.104
12	Songinokhairkhan District, UB, 14th khoroo	Expansion	Kindergarten No.107
13	Songinokhairkhan District, UB, 15th *khoroo*	Expansion	Kindergarten No.110
14	Songinokhairkhan District, UB, 25th *khoroo*	New Construction	

No.	Location	Expansion/ New Construction	Kindergarten No.
15	Songinokhairkhan District, UB, 31st *khoroo*	Expansion	Kindergarten No.176
16	Sukhbaatar District, UB 3rd *khoroo*	Expansion	Kindergarten No.68
17	Sukhbaatar District, UB 3rd *khoroo*	Expansion	Kindergarten No.160
18	Sukhbaatar District, UB 10th *khoroo*	Expansion	Kindergarten No.17
19	Sumber *Soum*, Govisumber	Expansion	Kindergarten No.5
20	Khuvsgul, Murun *soum*, 8th *bagh*	Expansion	Kindergarten No.6

Table A1.3 School Physical Features

No	# of Schools and Kindergartens	District	Location GPS	Type of proposed construction	Type of existing building /year constructed	Fire-fighting facilities etc.	Sewage water management facility			Heating supply			Water supply		
							Connected to central Sewage	Septic tank	Holding tank	Connected to central heating system	Heating from an own HOB	Electric heating	From central water supply system	From own water well	From transported water reserved in own water reservoir.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
A1. Kindergarten under expansion															
1	KG # 164	BGD, 4th *khoroo*	N47^{0}54'42.1 E106^{0}52'49.7	Expansion by 2 floor new building with 7 classroom 180 children and needs 480 m^2. Has no blueprint.	Current building is 2 floor building constructed in 1973. Kindergarten has 9213 m^2 area land.	Fire-fighting hydrant (FFH). Has no alarm	Yes	-	-	Yes	-	-	Yes	-	-
2	KG # 88	BGD, 18th *khoroo*	N47^{0}55'17.8 E106^{0}53'05.8	Expansion by 2 floor building. Has no blueprint. More than 2500 m^2 is available for expansion.	Current building is 1 and 2 floor, brick. Constructed in 1982. KG has 10118 m^2 area.	Fire-fighting hydrant (FFH) Has no alarm	Yes	-	-	Yes	-	-	Yes	-	-
3	KG #22	BZD, 1st *khoroo*	N47^{0}55'34.6 E 106^{0}56'16.4	Expansion by new 2 floor building.	Two floors, constructed in 1970. Has 3400m^2 land.	Fire-fighting hydrant	Yes	-	-	Yes	-	-	Yes	-	-
4	KG # 8	BZD, 16th *khoroo*	N47^{0}55'14.7 E106^{0}58'29.5	Expansion by new building	Existing 2 floor building established in 1957.	-	Yes	-	-	Yes	-	-	Yes	-	-
5	KG #82	BZD,16th *khoroo*	N47^{0}55'10.6 E106^{0}58'57.8	Expansion will be a separate two floor new building	Has 2 floor building, established in 1980, KG has 7420 m^2 land	Fire-fighting hydrant	Yes	-	-	Yes	-	-	Yes	-	-

No	# of Schools and Kindergartens	District	Location GPS	Type of proposed construction	Type of existing building /year constructed	Fire-fighting facilities etc.	Sewage water management facility			Heating supply			Water supply		
							Connected to central Sewage	Septic tank	Holding tank	Connected to central heating system	Heating from an own HOB	Electric heating	From central water supply system	From own water well	From transported water reserved in own water reservoir.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
6	KG # 65	KUD, 2nd khoroo	N47^{0}54'05.6 E106^{0}54'13.4	Expansion by 2 floor new building. Blueprint is ready.	Two floors, brick. Constructed in 1972.	None	Yes	-	-	Yes	-	-	Yes	-	-
7	KG # 72	KUD, 2nd khoroo	N47^{0}54'05.0 E106^{0}54'01.0	Expansion by 2 floor new building. 900m^2 land is available.	Two floor building constructed by brick in 1976.	None	Yes	-	-	Yes	-	-	Yes	-	-
8	KG # 84	SKD, 6th *khoroo*	N47^{0}56'00.0 E106^{0}49'21.1	Expansion by 2 floor new building with 12 classes for 280 children. Has no blueprint.1000 m^2 land is available.	KG constructed in 1948. The building is not purposed for kindergarten. KG has 3422 m^2 area. KG is taking care 240 children in 7 classes, but 2 of them are in Ger.	Fire-fighting hydrant, Has no smoke alarm.	Yes	-	-	Yes	-	-	Yes	-	-
9	KG # 104	SKD, 12th *khoroo*	N47^{0}54'57.7 E106^{0}51'09.1	Expansion by 2 floor new building connecting to old one. 3000 m^2 land is available.	Kindergarten's building constructed in 1986 by brick. KG has 10172 m^2 area.	Fire-fighting hydrant, Has no smoke alarm.	Yes	-	-	Yes	-	-	Yes	-	-
10	KG # 107	SKD, 14th *khoroo*	N47^{0}54'52.6 E106^{0}50'35.7	Expansion by 2 floor new building. 1400 m^2 land is available.	KG constructed in 1986. KG has 8659.6 m^2 land.	Fire-fighting hydrant, Has no smoke	Yes	-	-	Yes	-	-	Yes	-	-

No	# of Schools and Kindergartens	District	Location GPS	Type of proposed construction	Type of existing building /year constructed	Fire-fighting facilities etc.	Sewage water management facility			Heating supply			Water supply		
							Connected to central Sewage	Septic tank	Holding tank	Connected to central heating system	Heating from an own HOB	Electric heating	From central water supply system	From own water well	From transported water reserved in own water reservoir.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
						11alarm.									
11	KG # 110	SKD, 15th *khoroo*	N47^{0}54'55.5 E106^{0}50'20.3	Expansion by 2 floor new building with 12 classes for 280 children. Has no blue print.1400 m^2 land is available.	KG constructed in 1987 by brick. KG has 10026 m^2 area.	Fire-fighting hydrant, Has no smoke alarm.	Yes	-	-	Yes	-	-	Yes	-	-
12	KG # 176	SKD,31st *khoroo*	N47^{0}56'01.4 E106^{0}51'09.2	Expansion by additional floor on the top of the building with capacity of 2 classrooms and 50 children.	The KG is constructed in 2011. Capacity is 2 classrooms, 50 children. The KG has 125 children.	None	-	-	Yes	-	Yes	-	-	Yes	-
13	KG # 68	SBD, 3rd *khoroo*	N47^{0}54'41.4 E106^{0}53'56.1	Expansion by 2 floor new building. 760m^2 land is available.	Two floor, brick. Constructed in 1973.	None	Yes	-	-	Yes	-	-	Yes	-	-
14	KG # 160	SBD, 3rd *khoroo*	N47^{0}54'35.1 E106^{0}43'25.1	Expansion by 2 floor new building.	2 floor building, constructed in 1980.	None	Yes	-	-	Yes	-	-	Yes	-	-
15	KG # 17	SBD, 10th *khoroo*		The expansion will be a two floor separate building. 1800m^2 land is available.	Has 2 floor building, constructed in 1963. KG has 3950m^2 land, 810m^2 area is under the	FFH	Yes	-	-	Yes	-	-	Yes	-	-

No	# of Schools and Kindergartens	District	Location GPS	Type of proposed construction	Type of existing building /year constructed	Fire-fighting facilities etc.	Sewage water management facility			Heating supply			Water supply		
							Connected to central Sewage	Septic tank	Holding tank	Connected to central heating system	Heating from an own HOB	Electric heating	From central water supply system	From own water well	From transported water reserved in own water reservoir.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
					building.										
16	KG #5	Sumber, 3rd bagh, Govisumber *aimag*	N46^{0}21'15.89 E108^0 23' 9.45	The area is located nearby main road and surrounded by Ger khashaa plots and small services.	Government owned 300m^2 land is available. Has blue print. Access road is available	-	-	-	-	-	-	-	-	-	-
17	KG #6	Khuvsgul, Murun *soum*, 8th *bagh*		Expansion by new 2 floor building.	2 floor building, constructed in 1976.	-	Yes	-	-	Yes	-	-	Yes	-	-
A2 Kindergarten Under New Construction															
1	Branch of KG # 168	BZD,24th *Khoroo*	N47^{0}56'09.3 E106^{0}59'41.6	New building	Gers used as class room	-	-	-	-	-	-	-	-	-	-
2	New KG	Nalaikh district, 7th *khoroo*	N47^{0}46'55.8 E107^{0}14'44.5	New building with 8 classrooms for 240 children. 6000 m^2 area is available.	Will build new building	-	-	-	-	-	-	-	-	-	-
3	New KG	SKD. 25th *khoroo*	N47^{0}57'59.3 E106^{0}49'46.7	New building. 300m^2 land area is available. Has blue print.	None	-	-	-	-	-	-	-	-	-	-
B1 Schools Under Expansion															
1	SCH # 51	BGD	N47^{0}54'59.7 E106^{0}52'44.3	Expansion by new building. Has blue print.	3 floor, brick /1974	None	Yes	-	-	Yes, but not sufficient	-	-	Yes	-	-
2	SCH # 18	Khan uul,	N47^{0}53'59.3 E106^{0}53'40.8	Expansion by adding new floor on top.	3 Floor, brick /1979	None	Yes	-	-	Yes	-	-	Yes	-	-
3	Primary	Nalaikh	N47^{0}46'06.7	Expansion by	The primary	None	Yes	-	-	Yes	-	-	Yes	-	-

No	# of Schools and Kindergartens	District	Location GPS	Type of proposed construction	Type of existing building /year constructed	Fire-fighting facilities etc.	Sewage water management facility			Heating supply			Water supply		
							Connected to central Sewage	Septic tank	Holding tank	Connected to central heating system	Heating from an own HOB	Electric heating	From central water supply system	From own water well	From transported water reserved in own water reservoir.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	school "Erdmiin Orgil"	district, 2nd *khoroo*	E107^{0}14'50.5	new building with 14 classrooms for 640 students.	school has a 1 floor building constructed in 1970.										
4	High SCH # 1 of "Ireedui"	SKD, 15th *khoroo*	N47^{0}54'58.9 E106^{0}50'29.1	Expansion by adding one more floor on top. Has a model blue print.	Building is 2 floor, constructed in 1983. School has 14602.2 m^2 land.	Fire-fighting hydrant, Has no smoke alarm.	Yes	-	-	Yes	-	-	Yes	-	-
5	Primary school # 3 of "Ireedui"	SKD, 17th khoroo	N47^{0}54'53.9 E106^{0}50'01.3	Expansion by additional floor. Has a blue print.	Building is 2 floor, constructed in 1983. School has 14281.7 m^2 land.	Fire-fighting hydrant, Has no smoke alarm.	Yes	-	-	Yes	-	-	Yes	-	-
6	SCH #122	SKD, 22nd *khoroo*	N47^{0}55'10.5 E106^{0}41'44.8	The expansion will be 3 floor building with capacity of 640 students and has a blue print for building.	Has 18,000 m^2 land, 4 floor building, with capacity of 640 students, constructed in 2013. currently 1500 students.		-	-	HT	-	HOB	-	-	-	Yes
7	SCH #6	SBD, 3rd *Khoroo*	N47^{0}54'36.8 E106^{0}54'05.9	Expansion by adding one more floor on top.	Two floor, brick. Constructed in 1973.	None	Yes	-	-	Yes	-	-	Yes	-	-
8	SCH Khantishir	GA, Altai town,	N 46^{0}22' 4.09 E 114^{0}15' 18.1	School has 3567 m^2 land. The expansion will be a new 3 floor, with capacity of	The school has one floor building constructed in 1961, used as	None	Yes	-	-	Yes	-	-	Yes	-	-

No	# of Schools and Kindergartens	District	Location GPS	Type of proposed construction	Type of existing building /year constructed	Fire-fighting facilities etc.	Sewage water management facility			Heating supply			Water supply		
							Connected to central Sewage	Septic tank	Holding tank	Connected to central heating system	Heating from an own HOB	Electric heating	From central water supply system	From own water well	From transported water reserved in own water reservoir.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
				320 students.	office for construction company.										
B2 Schools Under New Construction															
1	New SCH	SKD, 7th *Khoroo*	N47^{0}57’13.0 E106^{0}48’43.4	New school building with 24 classrooms for 960 students. Has blue print. 1.0 ha land is available.	No building.		Far from CSS			Has no possibility to connect CHS			Has no possibility to connect to CWS		
2	New SCH	Darkhan-Uul *aimag*, Darkhan city	N49^{0}28’08.0 E105^{0}58’34.9	Construct new school building with capacity of 960 students.	1.5 ha area is available		Possible to connect to CSS			Has a possibility to connect to CHS			Possible to connect to CWS		

FFH = Fire Fighting Hydrant, HOB = Heat Only Boiler, HT = Holding Tank, CSS = Central Sewage System, CHS = Central Heating System, CWS = Central Water Supply, KG = Kindergarten, SCH = School, BZD = Bayanzurkh district, BGD = Bayangol district, SBD = Sukhbaatar district, SKD = Songinokhairkhan district, KUD = Khan-Uul district, SUD = Sukhbaatar district, GA = Govi-Altai.

Table A1.4 Other Physical Distances

No	School Name	District	Aerial Distance from National Parks	Aerial Distance from Industrial Zones	Aerial Distance from Gas station	Aerial Distance from Solid waste site	Aerial Distance from Railway/ Major Road	Aerial distance from Power station, power line, substation	Aerial Distance from any river/water body
1	2	3	4	5	6	7	8	9	10
A1. Kindergarten under expansion									
1	KG # 164	BGD, 4th *khoroo*	10 km to Bogd Khan SPA	1 km to Train repair center	2 km	20 km	0.9 km	5 km to Thermal Power Plant # 3	5 km to Tuul river, 1.8 km to Dund gol river
2	KG # 88	BGD, 18th *khoroo*	12 km to Bogd Khan SPA	5 km	4 km	19 km	2.6 km	6 km to Thermal Power Plant # 3	7 km to Tuul river
3	KG #22	BZD, 1st *khoroo*	Bogd Khan SPA is 18 km away from site	3km to car repair	0.5 km	9km	0.7km highway 8km railway	10 km to Thermal Power Plant # 3	Selbe river is 0.7 km, Tuul river is 12 km
4	KG # 8	BZD, 16th *Khoroo*	10 km to Bogd Khan SPA	500 m to Tsaiz market	800 m	8 km	8 km	6 km to Amgalan Thermal Plant	9 km to Tuul river
5	KG #82	BZD,16th *khoroo*	Bogd Khan SPA is 13 km	1km to Tsaiz market	900m	8 km	8km	6 km to Amgalan Thermal Plant	Uliastai river is 8 km, Tuul river is 10 km
6	KG # 65	KUD, 2nd *khoroo*	8 km to Bogd Khan SPA	3 km to Tinning factories	2 km	21 km	1.2 km	5 km to Thermal Power Plant # 3	3 km to Tuul river, 0.6 km to Dund gol river
7	KG # 72	KUD, 2nd *khoroo*	8 km to Bogd Khan SPA	3 km to Tinning factories	2 km	21 km	1.2 km	5 km to Thermal Power Plant # 3	3 km to Tuul river, 0.6 km to Dund gol river
8	KG # 84	SKD, 6th *khoroo*	15 km to Bogd Khan SPA	14 km to main industrial area and 0.5 km to building material factory	1.5 km	7 km "Ulaan chuluut" waste dumping	12 km	4 km to Thermal Power Plant #2	15 km to Tuul river and 3 km to Baruun Salaa river
9	KG # 104	SKD, 12th *khoroo*	9 km to Bogd Khan SPA	7 km	1.9 km	14 km	6.0 km	5 km to Thermal Power Plant #3	8 km to Tuul river and 5 km to Dund gol river
10	KG # 107	SKD, 14th *khoroo*	9 km to Bogd Khan SPA	7 km	2.0 km	15 km	6.0 km	6 km to Thermal Power Plant #3	8 km to Tuul river and 5 km to Dund gol river
11	KG # 110	SKD, 15th *khoroo*	9 km to Bogd Khan SPA	7 km	2.0 km	15 km	6.0 km	6 km to Thermal Power Plant #3	8 km to Tuul river and 5 km to Dund gol river
12	KG # 176	SKD,31st *khoroo*	12 km to Bogd Khan SPA	10 km from main industrial area	1.0 km	14 km to "Ulaan chuluut" waste dumping	8 km from main railway	7 km to Thermal Power Plant #3	13 km from Tuul river and 2 km from Dund gol river
13	KG # 68	SBD, 3rd *khoroo*	10 km to Bogd Khan SPA	3 km to Train repair centre.	0.8 km	20 km	1 km	9 km to Thermal Power Plant # 3	7 km to Tuul river, 2.5 km to Dund gol river
14	KG # 160	SBD, 3rd *khoroo*	10 km to Bogd Khan SPA.	2 km to Train repair centre.	0.7 km	20 km	1 km	9 km to Thermal Power Plant # 3	7 km to Tuul river, 2.5 km to Dund gol river

Table A1.4 Other Physical Distances

No	School Name	District	Aerial Distance from National Parks	Aerial Distance from Industrial Zones	Aerial Distance from Gas station	Aerial Distance from Solid waste site	Aerial Distance from Railway/ Major Road	Aerial distance from Power station, power line, substation	Aerial Distance from any river/water body
1	2	3	4	5	6	7	8	9	10
15	KG # 17	SBD,10th *khoroo*	Bogd Khan SPA is 15 km	1 km to construction market	900m	15km	6km	11 km to Thermal Power Plant # 3	Selbe river is 2 km
16	KG #5	Sumber, 3rd *bagh*, Govisumber *aimag*	65 km away from Ikh Nart Nature Reserve.	2km to market	0.5km	8km	1km	0.7km to Heating Center	No river
17	KG #6	Khuvsgul, Murun *soum*, 8th *bagh*	Khuvsgul lake National Park is 90 km.	2.5 km	0.5 km	5km	0.2 km	0.2 km	0.7 km to Delger murun river
A2 Kindergarten Under New Construction									
1	Branch of KG # 168	BZD,24th *khoroo*	11 km to Bogd Khan SPA	600m to Auto market, Car repair shops	1 km	9 km	5 km	4 km to Amgalan Thermal Plant and 0.3 km to Power Station	9 km to Tuul river
2	New KG	SKD,25th *khoroo*	18 km to Bogd Khan SPA	2 km to market places	1 km	8 km	6 km	8 km to Thermal Power Plant # 2	2 km to Baruun Salaa river and 1 km to Zuun Salaa river
3	New KG	Nalaikh district, 7th *khoroo*	16 km to Bogd Khan SPA and 9 km to Gorkhi-Terelj NP.	1.4 km to Coal Mining	0.6 km	6 km	0.8 km	2.8 km to Thermal Heating Plant of Nalaikh	6 km to Tuul river
B1 Schools Under Expansion									
1	SCH # 51	BGD	8 km to Bogd Khan SPA	3 km	2km	17 km	2 km	8 km to Thermal Power Plant # 3	7 km to Tuul river, 2 km to Dund gol river
2	SCH # 18	KUD	5 km to Bogd Khan SPA	1 km to Tinning factories	1 km	17 km	1 km	4 km to Thermal Power Plant # 3	2 km to Tuul river and 400 m to Dund Gol river
3	Primary school "Erdmiin Orgil"	Nalaikh district, 2nd *khoroo*	15 km to Bogd Khan SPA and 10 km to Gorkhi-Terelj NP.	2 km to Coal Mining	1 km	7 km	0.7 km	1.8 km to Thermal Heating Plant of Nalaikh	7 km to Tuul river
4	High SCH #1 of Ireedui	SKD, 15th *khoroo*	10 km to Bogd Khan SPA.	8 km	1.5 km	14 km	5.7 km	4.4 km to Thermal Power Plant #3	8 km to Tuul river and 5 km to Dundgol river
5	Primary school #3	SKD, 17th *khoroo*	10 km to Bogd Khan SPA.	7.5 km	1.0 km	13 km	6.0 km	5 km to Thermal Power Plant #3	8 km to Tuul river and 5 km to Dundgol river

Table A1.4 Other Physical Distances

No	School Name	District	Aerial Distance from National Parks	Aerial Distance from Industrial Zones	Aerial Distance from Gas station	Aerial Distance from Solid waste site	Aerial Distance from Railway/ Major Road	Aerial distance from Power station, power line, substation	Aerial Distance from any river/water body
1	2	3	4	5	6	7	8	9	10
	of Ireedui								
6	SCH #122	SKD, 22nd *khoroo*	Bogd Khan SPA is 19 km	8km to oil/petrolium storage	4km	5km	2.5km	7 km to Thermal Power Plant #2	Takhilt (small seasonal creek) river is 0.3 km
7	SCH #6	SBD, 3rd *khoroo*	10 km to Bogd Khan SPA	3 km to Train repair centre.	0.8 km	20 km	1 km	9 km to Thermal Power Plant # 3	7 km to Tuul river, 2.5 km to Dund gol river
8	SCH Khantishir	GA, Altai *soum*	50 km far from Khasagt Khairkhan National Park.	0.7km to market	0.3km	9km	N/A	0.8km to HOB	No river
B2 Schools Under New Construction									
1	New SCH	SKD, 7th *khoroo*	16 km to Bogd Khan SPA.	17 km to main industrial area and 3 km to building material factory.	2.0 km	2 km "Ulaan chuluut" waste dumping.	13 km to main railway and 1 km to sub-railway	5 km to Thermal Power Plant #2	13 km to Tuul river and 0.02 km to Baruun salaa river.
2	New School	Darkhan-Uul *aimag*, Darkhan city	None.	2 km from industrial area	1 km	4 km from Darkhan waste point	3 km	5 km to Thermal Heating Plant of Darkhan	5 km to Kharaa river

KG = Kindergarten, SCH = School, BZD = Bayanzurkh district, BGD = Bayangol district, SBD = Sukhbaatar district, SKD = Songinokhairkhan district, KUD = Khan-Uul district, GA = Govi-Altai, NP = National Park, SPA = Strictly Protected Area.

Table A1.5 School Receptors

No	School Name	District	Distance from Road (all sides)	Setback and type of buildings/distance in meters				Adverse impact if any	Trees to be cut/ transferred	Debris/Soil disposal reqd. outside premises
				Front	Back	Left side	Right side			
1	2	3	4	5	6	7	8	9	10	
A1. Kindergarten under expansion										
1	KG # 164	BGD, 4th *khoroo*,	Left 80 m	50 m to apartment	70 m to apartment	70 m apartmnt	30 m to new apartment	None	No	yes
2	KG # 88	BGD, 18th *khoroo*,	Back 110 m, front 26 m.	school #96. 30 m	10 m garages	30 m garages	15 m garages and 50 m to Apartment	None	No	Yes
3	KG #22	BZD, 1st *khoroo*	Right 200m, left 40m	Apartment 100m	Apartment 80m	Apartment 60m	Apartment 55m School 45m	None	No	Yes
4	KG # 8	BZD, 16th *khoroo*	20 m to Dandar Baatar street road	Small road 30 m	Housing 30 m	Housing 20 m	Housing 20 m	none	No	Yes
5	KG #82	BZD, 16th *khoroo*	Front 200m, left 50m	Apartment 100m	Apartment and garage 70m	Apartmnt 60m	Apartment 30m	None	8 trees will be transferred	Yes
6	KG # 65	KUD, 2nd *khoroo*	Back 15 m small road	20 m Apartment	20 m to Apartment	School # 52 50 m	40 m Apartment	None	No	yes
7	KG # 72	KUD, 2nd *khoroo*	Left side 40 m small street	20 m to old apartment	30 m to apartment	Apartment 20 m	Private house 20 m	None	2 trees	yes
8	KG # 84	SKD, 6th *khoroo*	Back 80m, left 60m	Apartment 100m	Ger housing 150m	Apartmnt 80m	Office and Apartment 50m	None	None	Yes
9	KG # 104	SKD, 12th *khoroo*	Left 300m	Kindergarten 120m	Apartment 100m	Garage 80m	Apartment 80m	None	None	Yes
10	KG # 107	SKD,14th *khoroo*	Left 80m, right 50m	Kindergarten 50m	Open field	Apartment 200m	School 100m	None	None	Yes
11	KG # 110	SKD, 15th *khoroo*	Right 60m	KG 150m	Apartment 200m	Apartmnt 200m	Garage 50m	None	None	Yes
12	KG # 176	SKD,31st *khoroo*	Left 50m	Ger area 10m	Ger area 100m	Ger area 40m	Ger area 50m	None	None	Yes
13	KG # 68	SBD, 3rd *Khoroo*	Back 10 m small road	40 m to School #6	20 m to Apartment	Apartment 20 m	20 m to Apartment	None	4 trees	yes
14	KG # 160	SBD, 3rd *Khoroo*	Front 20 m small road	Housing 30 m	Apartment 20 m	Apartment 20 m	Apartment 20 m	None	2 trees	yes
15	KG # 17	SBD,10th *khoroo*	Left 60m	Apartment 80m	Garage 60m	Apartment 50m	Apartment 50m	None	3 trees	Yes
16	New KG	Sumber, 3rd *bagh*, Govisumber *Aimag*	Front 110m, right 200m	Apartment 120m	Nothing	School 250m	Nothing	None	None	Yes

No	School Name	District	Distance from Road (all sides)	Setback and type of buildings/distance in meters				Adverse impact if any	Trees to be cut/ transferred	Debris/Soil disposal reqd. outside premises
				Front	Back	Left side	Right side			
1	2	3	4	5	6	7	8	9	10	
17	KG #6	Khuvsgul, Murun *soum*, 8th *bagh*	Khuvsgul lake Nature Complex is 90 km.	Apartment 60 m	Housing 80 m	Apartment 70 m	Apartment 60 m	None	4 trees will be cutted, 50 trees will be transferred	Yes
A2 Kindergarten Under New Construction										
1	Branch of KG # 168	BZD,24th *khoroo*	1.2 km to Shar Khad road	Open area 80 km	Households with Ger 20 m	Households with Ger 10 m	Shop 20 m	If remove the existing Ger classrooms during the construction, the operation of kindergarten will stop.	No	Yes
2	New KG	SKD, 25th *khoroo*	Front 10 m road	Road 10 m	Shop 10 m	Shop 30 m	Restaurant 10 m	None	No	yes
3	New KG	Nalaikh district, 7th *khoroo*	Back 80m,	Nothing	Ger area 120m	Nothing	Nothing	None	None	Yes
B1 Schools Under Expansion										
1	SCH # 51	BGD	Back 20 m Front 150 m to Peace Avenue	Group Housing 50 m	University, Group Housing 20 m	Group Housing 20 m	Group Housing 20 m	Shadow to residents in back	20 – Bitola, Birch trees	Yes
2	SCH # 18	KUD	Front 150 m to Chinggis Khan Avenue	Apartment building 40 m	Mechanical Engineering School 60 m	Apartment building 30 m	Dormitory of Mechanical Engineering School 30 m	None	No	Yes
3	Primary school "Erdmiin Orgil"	Nalaikh district, 2nd *khoroo*	Front 100m	Garage 120m	Gear area 280m	School 150m	Current school building 50m	None	None	Yes
4	High SCH #1 of Ireedui	SKD, 15th *khoroo*	Left 100m	School 100m	Apartment 130m	Apartmnt 100m	Apartment 120m	None	None	Yes
5	Primary school #3 of Ireedui	SKD, 17th *Khoroo*	Bach 150m	School 150m	Apartment 180m	Apartmnt 140m	Apartment 80m	None	None	Yes
6	SCH #122	SKD, 22nd *khoroo*	Front 200m, right 190m	Ger area 250m	Vegetable planting 120m	Nothing	Ger area 400m	None	None	Yes

No	School Name	District	Distance from Road (all sides)	Setback and type of buildings/distance in meters				Adverse impact if any	Trees to be cut/ transferred	Debris/Soil disposal reqd. outside premises
				Front	Back	Left side	Right side			
1	2	3	4	5	6	7	8	9	10	
7	SCH #6	SBD, 3rd *Khoroo*	Front "Narnii zam" road100 m	Housing 30 m	Kindergarten # 68 40 m	Apartment 30 m	Apartment 20 m	None	No	yes
8	SCH Khantais hir	GA, Altai town	Front 90m, Right 130m	Gas station 200m	Group housing 50m	Housing 70m	Ger area 400m	None	None	Yes
B2 Schools Under New Construction										
1	New SCH	SKD, 7th *Khoroo*	Right 290m, Left 180m	Nothing	Nothing	Ger area 200m	Ger area 100m, Baruun salaa river 20m	In the medow of river, may be flood prone, risckable area	None	Yes
2	New School	Darkhan-Uul *aimag*, Darkhan city	Front 180m, Left 180m	Nothing	Nothing	Kindergarten 900m	Ger area 1000m,	None	None	Yes

Abbreviations:
KG = Kindergarten, SCH = School, BZD = Bayanzurkh district, BGD = Bayangol district, SBD = Sukhbaatar district, SKD = Songinokhairkhan district, KUD = Khan Uul district, GA = Govi-Altai

Table A1.6 School Follow-up Actions

No	School Name	District	Consultations	Construction safety training	Access for construction period	Preferred start of construction	Additional recommen-dation	Remarks
1	2	3	4	5	6	7	8	9
A1. Kindergarten under expansion								
1	KG # 164	BGD, 4th *Khoroo*	Consultation held in 16 Feb 2017 with residents of front, left and right sides	Must to students and teachers by Construction Company	Separate entrance must opened in south side for construction.	During Break – June-August	The wall of existing building of KG needs improvement of insulation.	A small storage built by kindergarten management should be under attention during the transporting construction material.
2	KG # 88	BGD, 18th *Khoroo*	Consultation held in 30 Jan 2017 with residents of right sides and school	Must to students and teachers by Construction Company	Separate entrance must be used for construction	During Break – May-August	Access road should be established in the western side of the kindergarten premises.	Transportation of construction material should be scheduled clearly and informed to

No	School Name	District	Consultations	Construction safety training	Access for construction period	Preferred start of construction	Additional recommen-dation	Remarks
1	2	3	4	5	6	7	8	9
			management					nearest residents and signed.
3	KG #22	BZD, 1st *Khoroo*	Consultation held in 19 Feb 2017 with residents of right, front, back and left sides	Must to students and teachers by Construction Company	Separate entrance must be used for construction	During Break – May-August	Access road should be established in the northern side of the kindergarten premises.	Transportation of construction material should be scheduled clearly and informed to closest residents and signed.
4	KG # 8	BZD, 16th *Khoroo*	Consultation held in 9 Feb 2017 with residents of back and left sides	Must to students and teachers by Construction Company	Separate entrance must be used for construction	During Break – May-August	Support improving the insulation and plumbing system.	The current building does not meet the requirements of the EHS guideline of WB because of the washrooms have poor sanitation condition, walls and ceiling of classrooms are broking down, and water and wastewater plumbing systems have deteriorated.
5	KG #82	BZD,16th *khoroo*	Consultation held in 20 Jan 2017 with residents of front and left sides	Must to students and teachers by Construction Company	Separate entrance must be used for construction	During Break – May-August	Support improving the insulation of existing building.	The wall of existing building is constructed by limestone bricks so has many cracks and loses much heat.
6	KG # 65	KUD, 2nd *Khoroo*	Consultation held in 30 Jan 2017 with residents of back side	Must to students and teachers by Construction Company	Separate entrance must opened in north-east side for construction	During Break – June-August	Access road should be established in the southern side of the kindergarten premises.	Transportation of construction material should be schedulled clearly and informed to closest school, residents and signed.
7	KG # 72	KUD, 2nd *Khoroo*	Consultation held in 29 Jan 2017 with residents of front, right and back sides.	Must to students and teachers by Construction Company	Separate entrance must opened in front side for construction.	During Break – June-August	Support improving the insulation of existing building.	The wall of existing building is constructed by limestone bricks so has many cracks and loses much heat.
8	KG # 84	SKD, 6th *Khoroo*	Consultation held in 23 Jan 2017 with residents of back, front and left sides	Must to students and teachers by Construction Company	Separate entrance must be used for construction	During Break – May-August	Access road should be established in the southern side of the kindergarten premises.	The plumbing systems of current building is too old.

No	School Name	District	Consultations	Construction safety training	Access for construction period	Preferred start of construction	Additional recommen-dation	Remarks
1	2	3	4	5	6	7	8	9
9	KG # 104	SKD, 12th *Khoroo*	Consultation held in 13 Jan 2017 with residents of back and right sides	Must to students and teachers by Construction Company	Separate entrance must be used for construction	During Break – May-August	Access road should be established in the north-eastern side of the kindergarten premises.	Transportation should be schedulled clearly and informed to closest school, residents and signed.
10	KG # 107	SKD, 14th *Khoroo*	Consultation held in 23 Jan 2017 with residents of left sides	Must to students and teachers by Construction Company	Separate entrance must be used for construction	During Break – May-August	Access road should be established in the western side of the kindergarten premises.	Transportation should be schedulled clearly and informed to closest school, residents and signed.
11	KG # 110	SKD, 15th *Khoroo*	Consultation held in 1 Feb 2017 with residents of back and left sides	Must to students and teachers by Construction Company	Separate entrance must be used for construction	During Break – May-August	Access road should be established in the western side of the kindergarten premises.	Transportation should be schedulled clearly and informed to closest school, residents and signed.
12	KG # 176	SKD,31st *Khoroo*	Consultation held in 1 Feb 2017 with residents of four sides	Must to students and teachers by Construction Company	Back side entrance must be used for construction	During Break – May-August	Improve water and coal storage in the kindergarten's building.	The north entrance of the fencing can be used as access road.
13	KG # 68	SBD, 3rd *Khoroo*	Consultation held in 16 Feb 2017 with residents of left and back sides	Must to students and teachers by Construction Company	Separate entrance must opened in north-east side for construction	During Break – June-August	Access road should be established in the north-eastern side of the kindergarten premises.	Transportation should be schedulled clearly and informed to closest school, residents and signed.
14	KG # 160	SBD, 3rd *Khoroo*	Consultation held in 22 Feb 2017 with residents of left side	Must to students and teachers by Construction Company	Separate entrance must opened in south-east side for construction	During Break – June-August	None	None
15	KG # 17	SBD,10th *khoroo*	Consultation held in 9 Feb 2017 with residents of back, right and left sides	Must to students and teachers by Construction Company	Separate entrance must be used for construction	During Break – May-August	Support improving the insulation and plumbing system of existing building.	None
16	KG # 5	Sumber, 3rd *bagh,* Govisumber *aimag*	Consultation held in 18 Feb 2017 with residents of front, side apartment	Must to residents by Construction Company	The entrance must be defined by contractor,	Any time of the year	New area. No recommendation	None
17	KG #6	Khuvsgul,	Consultation held in	Must to students	Separate	Any time of the	Improve playground	The transportation

No	School Name	District	Consultations	Construction safety training	Access for construction period	Preferred start of construction	Additional recommen-dation	Remarks
1	2	3	4	5	6	7	8	9
		Murun *soum*, 8th *bagh*	29 Aug 2023 with residents and citizens of surrounding apartments	and teachers, residents by Contractor	entrance should be used for civil work	year	and existing underground engineering facility	schedule should be informed to residents
A2 Kindergarten Under New Construction								
1	Branch of KG # 168	BZD,24th *khoroo*	Consultation held in 24 Feb 2017 with residents of left and back side	Not necessary	Road safety marks have to be installed	During Break – May-August	Suggest to install holding tank and drilled water well for drinking water and sewage water.	Has individual electric heating, no any holding tank for waste water and uses simple pit, transporting drinking water.
2	New KG	SKD,25th *khoroo*	Required with residents of front and left sides	Must to students and teachers by Construction Company	The entrance must be defined by constructor,	Whenever possible any time of the year	New area. No recommendation	None
3	New KG	Nalaikh district, 7th *khoroo*	Required with residents of back side	Must to students and teachers by Construction Company	The entrance must be defined by constructor,	Any time of the year	New area. No recommendation	None
B1 Schools Under Expansion								
1	SCH # 51	BGD	Consultation held in 24 Feb 2017 with residents of back side	Must to students and teachers by Construction Company	Separate entrance must be used for construction	During Break – June-August	Fire fighting in old building required.	- Construction company to ensure proper safety - Add one more floor on top.
2	SCH # 18	KUD	Consultation held in 9 Jan 2017 with residents of front side	Must to students and teachers by Construction Company	Separate entrance must be opened in the right side for construction	During Break – June-August	None	None
3	Primary school "Erdmiin Orgil"	Nalaikh district, 2nd *Khoroo*	Consultation held in 23 Feb 2017 with residents of front, side apartment	Must to students and teachers by Construction Company	Separate entrance must be opened in the back side	During Break – June-August	Construction site have to have sheet barrier	Current premise is big enough
4	High SCH #1 of Ireedui	SKD, 15th *Khoroo*	Required with residents of backt, left and right sides apartment	Must to students and teachers by Construction Company	Separate entrance must be opened in the back side	During Break – June-August	None	None
5	Primary	SKD,	Consultation held in	Must to students	Separate	During Break –	None	None

No	School Name	District	Consultations	Construction safety training	Access for construction period	Preferred start of construction	Additional recommen-dation	Remarks
1	2	3	4	5	6	7	8	9
	school #3 of Ireedui	17th *khoroo*	16 Feb 2017 with residents of backt, left and right sides apartment	and teachers by Construction Company	entrance must be opened in the back side	June-August		
6	SCH #122	SKD, 22nd *khoroo*	Not required	Must to students and teachers by Construction Company	Separate entrance must be opened in the back side	During Break – June-August	Green school blue print can be introduced in this site	Ministry of Environment and Tourism is supporting to develop green school concept here.
7	SCH #6	SBD, 3rd *khoroo*	Required with residents of right side	Must to students and teachers by Construction Company	Separate entrance must opened in south side for construction.	During Break – June-August	None	None
8	SCH Khantais hir	GA, Altai town	Consultation held in 7 Feb 2017 with residents of front, and right sides apartment	Must to students and teachers by Construction Company	Separate entrance must be opened in the back side	During Break – June-August	The blue print of the expansion should be focus how to connect new and existing buildings.	Existing building of the school is not proposed for school but for office of construction company.
B2 Schools Under New Construction								
1	New SCH	SKD, 7th *khoroo*	Required with residents of Ger areas	Not necessary	Separate entrance must be opened in the back side	Any time of the year	Suggest to install septic tank and drilled water well.	The area is far away from infrastucture.
2	New School	DarkhanUul *aimag*, Darkhan city	Consultation held in 6 Feb 2017 with residents of east side ger area	Not necessary	Separate entrance must be opened in the back side	Any time of the year	New area. No recommendation	None

Abbreviations:KG-Kindergarten, SCH-School, BZD-Bayanzurkh district, BGD-Bayangol district, SBD-Sukhbaatar district, SKD-SonginoKhairkhan district, KUD-Khan Uul district, SUD-Sukhbaatar district, GA-Govi-Altai,

Annexure 1b: Google Earth Images of Schools Identified

A1	Kindergartens under expansion		
1	KG # 164	BGD, 4th *khoroo*,	
2	KG # 88	BGD, 18th *khoroo*,	
3	KG #22	BZD, 1st *khoroo*	

4	KG # 8	BZD, 16th *Khoroo*	
5	KG #82	BZD,16th *khoroo*	
6	KG # 65	KUD, 2nd *khoroo*	

7	KG # 72	KUD, 2nd *khoroo*	
8	KG # 84	SKD, 6th *khoroo*	
9	KG # 104	SKD, 12th *khoroo*	

10	KG # 107	SKD, 14th *khoroo*	
11	KG # 110	SKD, 15th *khoroo*	
12	KG # 176	SKD,31st *khoroo*	

13	KG # 68	SBD, 3rd *khoroo*	
14	KG # 160	SBD, 3rd *khoroo*	
15	KG # 17	SBD,10th *khoroo*	

16	KG # 5	Sumber, 3rd *bagh*, Govisumber *aimag*	
17	KG #6	Khuvsgul, Murun *soum*, 8th *bagh*	
A2	Kindergartens under new construction		
1	Branch of KG # 168	BZD,24th *khoroo*	

2	New KG	Nalaikh district, 7th *khoroo*	
3	New KG	SKD,25th *khoroo*	
B1	Schools under expansion		
1	SCH # 51	BGD	

2	SCH # 18	KUD	
3	Primary school “Erdmiin Orgil”	Nalaikh district, 2nd *khoroo*	
4	High SCH #1 of Ireedui	SKD, 15th *khoroo*	

5	Primary school #3 of Ireedui	SKD, 17th *khoroo*	
6	SCH #122	SKD, 22nd *khoroo*	
7	SCH #6	SBD, 3rd *khoroo*	

8	SCH Khantaishir	GA, Altai town	
B2	Schools under new construction		
1	New SCH	SKD, 7th *khoroo*	
2	New School	Darkhan-Uul *aimag*, Darkhan city	

Annexure 2: Environment Management Plan (EMP)

Project Activity	Potential Environmental Impact	Mitigation Action	Parameters to be Monitored	Standards[31]/ Measurement/ Frequency	Institutional Responsibility	Implementation Schedule
Pre-construction and Design						
1. Physical Resources						
Building specifications and design parameters	Release of effluents in receptors (air, water, land).	Avoid all underground utilities during design	Blue prints	Inspection Agency - Once.	MES	Detailed design.
	Structural Safety for construction of extra floor.	Schools to get Specialized Inspection Agency approval for structural integrity	Seismic design in Blue Prints	Inspection Agency - Once.	MES	Detailed design.
Rehabilitation of old infrastructure in school/ kindergarten	Decayed infrastructure will damage new installations. Loss of heating and seepage etc. in building	Install modern fire control systems/firewalls, building insulation, plumbing and heating system upgrades	Structural safety of the old buildings and connected utilities to the building	Inspection Agency - Once.	MES	Detailed design.
2. Environment Resources (Receptors)						
Location of land for Schools/ Kindergarten	Impact to the existing surface water environment.	Construction facilities should be placed at suitable distance from water bodies, natural flow paths, important ecological habitats and residential areas. Careful site selection to avoid existing settlements	Water and Air Quality. Site location (distance to dwelling, and/or utilities).	Consultation with local authorities and land owners. Air quality Standards and Water Quality standards – Once.	MES	Detailed design/Planning Stage.
Schools/Kindergartens location and design for Noise	Noise generation Exposure to noise, Nuisance to neighbouring properties.	Schools/Kindergartens location/designed to ensure noise will not be a nuisance to neighbouring properties.	Expected noise emissions based on Schools/Kindergartens design, noise levels.	Noise control regulations Noise levels to be specified in tender documents	MES	Detailed design/Planning Stage
Interference with drainage	Temporary flooding hazards.	Appropriate siting.	Site selection.	Consultation with local authorities	MES	Detailed location

[31] World Bank EHS guidelines will be used as a standard if any local Mongolian Standards are less stringent as per ADB SPS 2009

Project Activity	Potential Environmental Impact	Mitigation Action	Parameters to be Monitored	Standards[31]/ Measurement/ Frequency	Institutional Responsibility	Implementation Schedule
patterns				and design engineers.		survey and design.
Dismantling of portions of buildings for connectivity of expansion section	Asbestos present as insulation in some section of the building	Asbestos shall be handled carefully during dismantling, storage and disposal	Air quality	Air quality standards – once	MES	Part of detailed project siting and survey and design.
3. Ecological Resources						
Encroachment into precious ecological areas	Loss of precious ecological values/ damage to precious species.	Avoid encroachment by careful site and location selection and reconnaissance before final siting of activities.	Floral and faunal habitats loss.	Enumeration of flora and fauna at site.	ESO of MES.	Detailed design/Planning Stage.
4. Human Environment						
Involuntary resettlement or land acquisition.	Loss of lands and structures.	Compensation paid for temporary/ permanent loss of residential land.	Public complaints	Rates paid as per the Resettlement plan/Frame work for the project.	ESO of MES	Prior to construction phase/Land Acquisition.
Removal of Trees	Loss of trees.	Avoid siting of structures to avoid any permanent loss of trees wherever possible. Implement tree replantation or transplantation as the case may be	Statutory approvals for tree trimming /removal from competent authority.	Consultation with local authorities and design engineers in consonance with MES.	MES	Part of detailed location survey and design.
Location and design of Schools/Kindergartens	Disturbance to adjacent lands and the people due to digging and construction operations.	Maintain adequate clearance, construction of retaining structures, minimize digging close to the dwellings.	Building specifications and compliance with setback distances (“as-built” diagrams).	Technical specification- Once Measure setback distances to nearest house structures – Once.	MES	Detailed design/Planning Stage.
Location of Schools/Kindergartens location and design	Exposure to safety related risks.	Setback of dwellings to designed in accordance with permitted safety distances	location selection with respect to nearest dwellings.	Setback distances to nearest houses – Once.	MES	Part of siting survey and detailed location survey and

Project Activity	Potential Environmental Impact	Mitigation Action	Parameters to be Monitored	Standards[31]/ Measurement/ Frequency	Institutional Responsibility	Implementation Schedule
						design.
Explosions/Fire	Hazards to life	Design of Schools/Kindergarten to include modern fire control systems/firewalls. Provision of firefighting equipment to be located close to electrical/heating installations.	Schools/Kindergartens design compliance with fire prevention and control codes.	Tender document to mention detailed specifications – Once.	MES	Part of detailed Schools/Kindergartens layout and design /drawings
Construction Phase						
A. Physical Resources						
Construction site clearance	Removal of topsoil and loose soil storage at site may lead to dust emission	Sprinkle water at site and cover soil dump against air pollution	Air and water pollution	Visual inspection (Dust)	Contractor through contract provisions under supervision of MES	Construction period
Removal or disturbance to other public utilities	Public inconvenience	Advance notice to the public about the time and the duration of the utility disruption Use of well trained and experienced machinery operators to reduce accidental damage to the public utilities Restore the utilities immediately to overcome public inconvenience	Disruption to other commercial and public activities / Public complaints	Technical specification	MES and Contractor through contract provisions	Throughout construction period
Electrical/fire safety Equipment layout and installation	Sparks and fire hazard during construction	Record of all Schools/Kindergartens electric fittings and fire safety devices located within secure casings	Electrical casings at Schools/ Kindergartens	As per International standards Once in year	MES Contractor through contract provisions	Throughout construction/ erection period
Asbestos is found during construction	Lead to inhalation and long term health impact on workers and occupants	Record of all Schools/Kindergartens	Roofing and walls at school/kindergartens	Mongolian national standards (MNS) 3838: 2008 and	Contractor through contract provisions	Construction period

Project Activity	Potential Environmental Impact	Mitigation Action	Parameters to be Monitored	Standards[31]/ Measurement/ Frequency	Institutional Responsibility	Implementation Schedule
				Construction standard package # 91.040.– once a year	under supervision of MES	
Use of Volatile organic compounds	Toxicity and air contamination inside building	Use of low or no volatile organic compounds – water based nontoxic etc.	Air quality – measure volatility as per Mongolian standards – four times a year	Mongolian national standards (MNS) 3838: 2008 and Construction standard package # 91.040. – four times a year	Contractor through contract provisions under supervision of MES	Construction period
Surplus earthwork/soil	Runoff to cause water pollution, solid waste disposal	Storage of excess soil near drainage and settlement areas stored in restricted area and construction work should be carefully designed to minimize obstruction or destruction to natural drainage. Excess soil from foundation excavation to be reused on site or disposed of in accordance to construction site management plan by contractor.	Location and amount (m^3) of fill disposal Soil disposal locations and volume (m^3)	Visual inspection (Turbidity and sedimentation) Appropriate fill disposal and dispersal locations quarterly	Contractor through contract provisions under supervision of MES	Construction period
B. Environment Resources						
Equipment layout and installation	Noise and vibrations	Selection of construction techniques and machinery to minimize ground disturbance.	Construction techniques and machinery	Minimal ground disturbance Monthly	Contractor through contract provisions, MES	Construction period
Provision of facilities for construction workers at work site	Contamination of receptors (land, water, air).	Construction workforce facilities to include proper sanitation, water supply and waste disposal facilities at work site.	Amenities for Workforce facilities.	Presence of proper sanitation, water supply and waste disposal facilities - Once.	Contractor through contract provisions under supervision of MES	Construction period
Mechanized construction	Noise, vibration equipment wear and	Construction equipment to be well maintained. Construction techniques	Construction techniques and	Technical specifications,	Contractor through	Construction period

Project Activity	Potential Environmental Impact	Mitigation Action	Parameters to be Monitored	Standards[31]/ Measurement/ Frequency	Institutional Responsibility	Implementation Schedule
	tear and operator safety, efficient operation	and Machinery selection to minimize ground disturbance. Proper maintenance and turning off plant not in use. Noise barriers will be installed to reduce incidence of noise to local residents.	equipment - estimated noise emissions and operating schedules.	safety regulations, Noise control regulations- Quarterly.	contract provisions under supervision of MES.	
Construction of access road for ingress into premises	Increased land requirement for temporary accessibility	Existing separate gates used for construction and maintenance access to the site wherever possible.	Access gates, road, locations (length and width of access roads).	Blue print design for access restricted to from normal school entrances not used by students.	Contractor through contract provisions under supervision of MES.	Construction period
C. Ecological Resources						
Site clearance	Vegetation	Marking of vegetation to be removed prior to clearance, and strict control on clearing activities to ensure minimal clearance. Construction Company will replant or transplant trees to be cut within the school/kindergarten premises.	Vegetation marking and clearance control (area in m^2).	Clearance strictly limited to target vegetation – Once.	Contractor through contract provisions under supervision of MES.	Construction period
Trimming/cutting of trees within school boundary	Loss of vegetation and deforestation	Trees that can survive pruning to comply should be pruned instead of cleared. Felled trees and other cleared or pruned vegetation to be disposed of as authorized by the statutory bodies. Construction Company will replant or transplant trees to be cut within the school/kindergarten premises.	Species-specific tree retention as approved by statutory authorities (average and maximum tree height at maturity, in meters).	Presence of target species	MES, Contractor through contract provisions under supervision of department	Construction period
D. Human Environment						
Construction schedules for Schools/Kindergartens	Noise nuisance to neighbouring properties	Minimize construction activities undertaken during the night and local communities informed of the construction schedule. Noise barriers will be installed to reduce incidence of noise to local residents.	Timing of construction (noise emissions in decibels (dBA).	Construction as per Scheduled timings only.	MES, Contractor through contract provisions.	Construction period.
Temporary	Losses to	Contract clauses specifying careful	Contract clauses	Incorporating	Contractor	Construction

Project Activity	Potential Environmental Impact	Mitigation Action	Parameters to be Monitored	Standards[31]/ Measurement/ Frequency	Institutional Responsibility	Implementation Schedule
use of land	neighbouring land uses/ values.	construction practices. School Land will be reinstated following completion of construction.	Design basis and layout. Reinstatement of land status (area affected, m2).	good construction management, design engineering practices. C	through contract provisions under supervision of MES	period.
Transportation and storage of materials	Nuisance to the general public.	Transport loading and unloading of construction materials should not cause nuisance to the people by way of noise, vibration and dust. Avoid storage of construction materials beside the road, around water bodies, residential or public sensitive locations. Construction materials should be stored in covered areas to ensure protection from dust, emissions and such materials should be bundled in environment friendly and nuisance free manner.	Water, Air Quality and Noise in decibels (dBA).	xx Emission standards and Water Quality standards - Quarterly.	Contractor through contract provisions under supervision of MES.	Construction period.
Temporary outage of the electricity	Loss of power supply to the local community when distribution lines crossing the new Schools/Kindergartens are switched off.	Advance notice to the public about the time and the duration of the utility disruption. Restore the utilities immediately to overcome public inconvenience.	Power disruption to houses and commercial premises.	Regular monitoring during the period of strengthening the conductors	Contractor through contract provisions under supervision of MES	Throughout the construction period.
Health and safety	Injury and sickness of workers and members of the public.	Contract provisions specifying minimum requirements for construction camps. Contractor to prepare and implement a health and safety plan and provide workers with required PPE. Contractor to arrange for health and	Contract clauses (number of incidents and total lost-work days caused by injuries and sickness).	MES and ADB Health and safety standards - Monthly.	Contractor through contract provisions under supervision of MES.	Construction period.

Project Activity	Potential Environmental Impact	Mitigation Action	Parameters to be Monitored	Standards[31]/ Measurement/ Frequency	Institutional Responsibility	Implementation Schedule
		safety awareness programmes including on AIDS and sexually transmitted diseases (STD).				
Community Health and Safety	Injury and accidents caused to residents in the area	Installation of proper warning signage, installation of sheet barriers to avoid people, children, animals falling into trenches, or projectile material hitting the residents walking by or damaging property	Contract clauses (number of incidents caused by injuries and accidents in neighbourhood).	EHS guidelines, MN Health and safety standards - Monthly.	Contractor through contract provisions under supervision of MES.	Construction period.
Capacity Building	Improve standards of implementation and monitoring.	Training of MES.	Training schedules.	Number of training program - Yearly.	MES.	Construction period.
Operation and Maintenance Phase						
A. Physical Resources						
Operation of Electrical safety systems, fire safety systems	Electric sparks, fire and explosion	Record of all Schools/Kindergartens electrical switchbox located within secure casings.	Schools/Kindergartens electricity distribution boards – Monthly.	MNS: 0640 (1989) Fire safety standard - Monthly	MES.	Throughout the operation.
B. Environmental Resources						
Oil spillage	Contamination of land/nearby water bodies.	Record of all oil spillage at schools/kindergartens	Schools/Kindergartens bounding ("as-built" diagrams)- Monthly.	Guideline on Transportation, storage, use and disposal of toxic and hazardous chemicals (2009) - Yearly	MES.	Throughout the operation
C. Ecological Recourses						
None						
D. Human Environment						
Effluent Management from School	Chemicals from Chemistry laboratory, sewage flowing into city drains	Schools to ensure that chemistry class effluent is collected and disposed off to the District Branch of Emergency Management Agency	Water discharge parameters as specified in EMoP	Waste water standards – quarterly	School	Throughout operations

Project Activity	Potential Environmental Impact	Mitigation Action	Parameters to be Monitored	Standards[31]/ Measurement/ Frequency	Institutional Responsibility	Implementation Schedule
		Maintenance and regular upkeep of septic tanks and holding tanks by school to avoid surface discharge.				
Training on Health and safety and emergency response	Lack of awareness for health and safety procedure.	Training of School personnel and children on safety and emergency response in compliance with District's Emergency Management Agency requirements	Training schedules.	Number of training program- Yearly.	MES	Operation
Segregation of Solid waste	Nuisance to local community	Training of School personnel and children in proper segregation and storage and waste at school	Training by PIU	Number of training program- Yearly.	Schools and kindergartens	Operation
Management of emissions from HOB	Low ambient air quality inside premises	Monitoring of HOBs operations to ensure the air emissions, ash handling etc. are within permissible limits	Air quality and contamination of soil	Air quality and soil contamination standards – every six months	Schools and kindergartens	Operation
O&M of building equipment- heating, building insulation and generators etc.	Loss of heating, high operational costs	Insulation to ensure efficient operations	Energy efficiency parameters	Energy conservation norms of buildings – Once/year	Schools and kindergartens	Operation
Electric shock or accidents	Death or injury to the staff and public.	Security warnings around fittings. Careful design using appropriate technologies to minimize hazards.	Proper maintenance of distribution boxes and sign boards. Usage of appropriate technologies (lost work days due to injuries).	Periodic maintenance. Number of programmes and percent of staff/ workers covered.	Schools and kindergartens	Throughout the operation

Annexure 3: Environment Monitoring Plan (Environmental Parameters)

Environmental component	Project stage	Parameters to be monitored	Sampling Location	Monitoring Frequency	Regulatory Standards for parameter	Performance indicator	Agency responsible for implementation
1.Air Quality	A. Pre-construction and Design stage (Baseline development)	PM_{10}, $PM_{2.5}$, SO_2, NOx, SPM, CO (Visible dust)	Boundary of Schools/Kindergartens	One time	National Air quality standards of MNS 4585- 2007 "Air quality. General technical requirements" (Maximum acceptable level of toxic elements in outdoor air)	Results of measured tests and records of activities before, during and after construction	MES
	B. Construction Stage	PM_{10}, $PM_{2.5}$, SO_2, NOx, SPM, CO (Visible dust)	Boundary of Schools/Kindergartens	Every one month of construction period	National Air quality standards of MNS 4585- 2007 "Air quality. General technical requirements" (Maximum acceptable level of toxic elements in outdoor air)		Construction Company
	C. Operation Stage	PM_{10}, $PM_{2.5}$, SO_2, NOx, SPM, CO (Visible dust)	Boundary of Schools/Kindergartens	One time during commissioning	National Air quality standards of MNS 4585- 2007 "Air quality. General technical requirements" (Maximum acceptable level of toxic elements in outdoor air)		MES
2.Water Quality	A. Pre-construction and Design stage (Baseline development)	EC, TSS, DO, BOD, P^H Oil and grease, Pb,	Nearest well near Schools/Kindergarten	One time	National water quality standards of MNS 4586:1998	Results of measured tests and records of activities before, during and after construction	MES
	B. Construction Stage	EC, TSS, DO, BOD, P^H Oil and grease, Pb,	Nearest well near Schools/Kindergarten	One time	National water quality standards of MNS 4586:1998		Construction Company
	C. Operation Stage	EC, TSS, DO, BOD, P^H Oil and grease, Pb,	Nearest well near Schools/Kindergarten	One time during commissioning	National water quality standards of MNS 4586:1998		MES
3.Noise/ Vibration	A. Pre-construction and Design stage (Baseline development)	Noise level [dB(A)]	Boundary of Schools/Kindergartens	One time	National standards for Noise MNS 4585:2007	Results of measured surveys/reports and records of activities before, during and after construction	MES
	B. Construction	Noise level	Boundary of Schools/Kind	Every one month of	National standards for Noise MNS		Construction Company

Environmental component	Project stage	Parameters to be monitored	Sampling Location	Monitoring Frequency	Regulatory Standards for parameter	Performance indicator	Agency responsible for implementation
	Stage	[dB(A)]	ergartens	construction period	4585:2007	construction	
	C. Operation Stage	Noise level [dB(A)]	Boundary of Schools/Kindergartens	One time during commissioning	National standards for Noise MNS 4585:2007		MES
4. Soil	A. Pre-construction and Design stage (Baseline development)	Visible spills and/or soil staining, Oil & grease	1 location inside Schools/Kindergartens	One time	Guideline on Transportation, storage, use and disposal of toxic and hazardous chemicals (2009)	Results of measured surveys/reports and records of activities before,	MES
	B. Construction Stage	Visible spills and/or soil staining, Oil & grease	1 location inside Schools/Kindergartens	One time	Guideline on Transportation, storage, use and disposal of toxic and hazardous chemicals (2009)	during and after	Construction Company
	C. Operation Stage	Visible spills and/or soil staining, Oil & grease	1 location inside Schools/Kindergartens	One time during commissioning	Guideline on Transportation, storage, use and disposal of toxic and hazardous chemicals (2009)		MES

Abbreviations:

SO_2 = Sulphur Dioxide; NO_{2-} = Nitrogen Dioxide; CO = Carbon Monoxide; Pb = Lead; $PM_{2.5}$ = Particulate Matter <2.5; PM_{10} = Particulate Matter <10;
EC = Electric Conductivity; TSPM = Total Suspended Particulate Matter; DO = Dissolved Oxygen; TSS = Total Suspended Solids;
BOD = Biological Oxygen Demand; ORP = Oxidation Reduction Potential; NAAQS = National Ambient Air Quality Standards specified by MET.

Environmental Safeguard Clauses for Civil Works Contracts

The general environment, health and safety obligations of the Contractor within this Contract, without prejudice to other official provisions in force, include the following:

- The Contractor shall ensure that the construction and decommissioning of project facilities comply with (a) all applicable laws and regulations of Mongolia relating to environment, health and safety; (b) the Environmental Safeguards stipulated in ADB's Safeguards Policy Statement (2009); and (c) all measures and requirements set forth in the Generic environmental management plan (EMP).
- The Contractor shall establish a telephone hotline to received community complaints, staffed at all times during working hours. Contact details shall be prominently displayed at the sites. The Contractor shall disseminate in a timely manner information on the construction progress, including anticipated activities that might cause safety risk.
- The Contractor shall secure all necessary permits and licenses before undertaking the works.
- The Contractor shall assign sufficient qualified staff to manage site-EMP implementation, and ensure adequate financial resources are available to implement the site-EMP throughout the construction period.
- The Contractor shall provide equal pay for equal work, regardless of gender or ethnicity; provide those they employ with a written contract; provide the timely payment of wages; use local unskilled labor, as applicable, comply with core labor standards and the applicable labor laws and regulations, including stipulations related to employment, e.g. health, safety, welfare and the workers' rights, and anti-trafficking laws; and not employ child labor. The Contractor shall maintain records of labor employment, including the name, ethnicity, age, gender, domicile, working time, and the payment of wages.
- All buildings shall be designed in compliance with relevant the Government of Mongolia's design standards and codes for energy-efficient, safe buildings, including but not limited to: Mongolian national standards (MNS) 3838: 2008 and Construction standard package # 91.040. Only low or no volatile organic compound (VOC)-emitting materials shall be used (including paints, coatings, adhesives, carpet and furniture's) to ensure high indoor air quality. Water-based nontoxic, no allergenic paint for drywall or plaster surfaces shall be preferred to latex or oil-based paints. All facilities shall be properly sited to minimize the risk of scouring that may result from increase intensity of precipitation as a result of climate change.
- The Contractor shall take necessary precautions to avoid interruptions to water supply, wastewater collection, heating and other utility services during the civil works.
- The Contractor shall prepare a construction site-EMP based on the Generic construction EMP.
- The Contractor shall take appropriate sanctions against personnel violating the applicable specifications and provisions on environment, health and safety.
- The Contractor shall document, and systematically report to the school management and the project implementation unit (PIU), of each incident or accident, damage or degradation caused to the environment, workers or residents or their assets, in the course of the works.
- The Contractor shall provide all relevant information about the Generic EMP and the Site-EMP to subcontractor/s and be responsible for their actions.
- The Contractor shall provide the school administration and the PIU with a written notice of any unanticipated environmental, health and safety risks or impacts that arise during implementation of the contract that were not considered in the Generic EMP.

Environmental Site Inspection and Monitoring Checklist

Note: This form is designed for use by the project implementation unit (PIU) project coordinator during site inspections and monitoring and may not be exhaustive. Modifications and additions may be necessary to suit individual sub-projects and to address specific environmental issues and mitigation measures.

Name of school: _____
Location: _____
Inspection Date: _____
Inspection Time: _____
Inspector(s): _____

Inspection Item	Yes	No	N.A.	Remarks (i.e. problem observed, possible cause of nonconformity and/or proposed corrective/ preventative actions)
1. Has contractor appointed a construction supervisor and is the supervisor on-site?				
2. Is information pertaining to construction disclosed at construction site (including construction period, contractor information, grievance hotline, etc)?				
3. Are chemicals/hazardous products and waste stored on impermeable surfaces in secure, covered areas?				
4. Is there evidence of oil spillage?				
5. Are chemicals stored and labelled properly?				
6. Is construction equipment well maintained (any black smoke observed)?				
7. Is there evidence of excessive dust generation?				
8. Are there enclosures around the main dust-generating activities?				
9. Does contractor regularly consult with school management as well as nearby residents to identify concerns?				
10. Is there evidence of excessive noise?				
11. Any noise mitigation measures adopted (e.g. use noise barrier / enclosure)?				
12. Is construction wastewater and domestic wastewater discharged to sewer systems (if possible), or are on-site treatment facilities (septic tank) provided?				
13. Is there any wastewater discharged to soil or surface water?				
14. Is the site kept clean and tidy (e.g. litter free, good housekeeping)?				
15. Are separated labelled containers/areas provided for facilitating recycling and waste segregation?				

Inspection Item	Yes	No	N.A.	Remarks (i.e. problem observed, possible cause of nonconformity and/or proposed corrective/ preventative actions)
16. Are construction wastes/recyclable wastes and general refuse removed off site regularly?				
17. Is safe supply of clean water and an adequate number of toilets provided for workers?				
18. Is personal protection equipment provided for workers?				
19. Are clear information and warning signs placed at construction sites in view of the students and staff as well as the public?				
20. Are all construction sites made secure, discouraging access through appropriate fencing?				
21. Are disturbed areas properly re-vegetate after completion of works?				
22. Were any complaints filed with the contractor, and have staff and nearby residents raised any concerns related to the performance of contractor?				
23. Any other problems identified or observations made?				

Date, Name and Signature of PIU staff/ consultant

Annexure 4: Standards for Environment Monitoring for Air, Water, Noise and Soil Sampling

MNS 4585- 2007 "Air quality. General technical requirements"

Table 1. Maximum acceptable level of toxic elements in outdoor air

Toxic elements	Average duration of measurement	Measuring unit	Maximum acceptable content
Chemical influence			
(SO_2)*	Average for 10 minute Average for 20 minute Average for 24 hours Average for 1 year	mkg/ m^3	500 450 20 10
(CO)*	Average for 30 minute Average for 1 hour Average for 8 hours	mkg/ m^3	60000 30000 10000
(NO_2)*	Average for 20 minute Average for 24 hours Average for 1 year	mkg/ m^3	85 40 30
(O_3)*	Average for 8 hours	mkg/ m^3	100
Dust (Total particular matter)*	Average for 30 minute Average for 24 hours Average for 1 year	mkg/ m^3	500 150 100
Particular matter bigger size (PM 10)*	Average for 24 hours Average for 1 year	mkg/ m^3	100 50
particular matter small size (PM 2.5)*	Average for 24 hours Average for 1 year	mkg/ m^3	50 25
(Pb)*	Average for 24 hours Average for 1 year	mkg/ m^3	1 0,5
($C_{20}H_{12}$)*	Average for 24 hours	mkg/ m^3	0,001
Physical influence			
Noise* - day time (07-23) - night time (23-07)	 Average of 16 hours Average of 8 hours	dB	60 45
Note: * Can be used for indoor air quality			

Table 2. Maximum acceptable level of toxic elements in indoor air

	Average duration of measurement	Measuring unit	Maximum acceptable content
Chemical influence			
(CO_2)	Average for 24 hours	mkg/ m^3	1800
(Rn)	Average for 24 hours	Mk3v/ m^3	0,005
(CH_2O)	Average for 24 hours	mkg/ m^3	0,3
Air oxidizing	Average for 24 hours	mkg/ m^3	4000-6000

Table 3. Maximum acceptable level physical features of outdoor air

	Assessment condition	Measuring Unit	Acceptable level
Temperature*	In average	^0C	18-22
Velocity of air movement		m/c	0.2-0.4
Relative humidity		%	30-60
Luminescence - People stay permanently - People do not stay permanently		 Lux	 150-300 50-150

Table 4. Ambient Air Quality Standards in Respect of Noise: MNS 4585-2007

Area Code	Category of Area/Zone	Limits in dB(A) Leq *	
		Day Time	Night Time

(A)	Industrial area	75	70
(B)	Commercial area	65	55
(C)	Residential area	55	45
(D)	Silence Zone	50	40

Note;

1. Day time shall mean from 6.00 a.m. to 10.00 p.m.
2. Night time shall mean from 10.00 p.m. to 6.00 a.m.
3. Silence zone is defined as an area comprising not less than 100 metres around hospitals, educational institutions and courts. The silence zones are zones which are declared as such by the competent authority.
4. Mixed categories of areas may be declared as one of the four above mentioned categories by the competent authority.

*dB(A) Leq denotes the time weighted average of the level of sound in decibels on scale A which is relatable to human hearing.

A "decibel" is a unit in which noise is measured.

"A", in dB(A) Leq, denotes the frequency weighting in the measurement of noise and corresponds to frequency response characteristics of the human ear.

Leq: It is an energy mean of the noise level, over a specified period.

Source: Ministry of Environment and Tourism

Table 5. World Bank Environmental Air Quality Guideline (IFC 2007)

Parameter	Average duration of measurement	**Measuring unit**	Maximum acceptable content
Particular matter bigger size (PM 10)	Average for 1 year	mkg/m^3	20
	Average per 24 hour	mkg/m^3	50
particular matter small size (PM 2.5)	Average for 1 year	mkg/m^3	10
	Average per 24 hour	mkg/m^3	25
(SO_2)	Average per 24 hour	mkg/m^3	20
	10 minutes	mkg/m^3	500
(NO_2)	Average for 1 year	mkg/m^3	40
	Average per hour	mkg/m^3	200
Ozon (O_3)	Average per 8 hour	mkg/m^3	100

Table 6. Soil microbiological pollution standard MNS 3297:91

Soil Sanitation Condition	**E.Coli, titer**	**CL, perfringens, titer**
No pollution	1.0<	0.1<
Low pollution	0.1-0.01	0.1-0.01
Medium pollution	0.01-0.001	0.01-0.001
High pollution	0.001>	0.0001>

Table 7. Quality parameters of water sphere MNS4586:1998

Parameters	Quality parameters of water sphere MNS4586:1998
HCO3-	N/A
CO32-	N/A
Cl	300/150
SO42-	100/100
NO3	9/3-N
Na+	N/A
K+	N/A
Ca2+	none<45
Mg2+	none<30
Mineralization	none<300
Hardness	none<3.55
ПИЧ	none<5.0
pH	6.5-8.8

Table 8. Mongolian and WHO Standards for drinking water quality (permissible limit of chemical composition)

Parameters		WHO 2011 4th edition	MNS 900 : 2010	MNS 6148: 2010	MNS 4943 : 2011	MNS 4586: 1998
Aluminum	Al	(0.9)([1])(*ha*)([2])	0.5(***)([3])	0.5	0.5	
Ammonium	NH_4^+	*n.g.* ([4]) (1.5)	1.5(**)	3.0	6.0 (as N)	0.5 (as N)
Antimony	Sb	0.020	0.020(***)	0.006		
Arsenic	As	0.010	0.01	0.01	0.01	0.01
Barium	Ba	0.7	0.7	2	1.5	
Beryllium	Be	*n.g.* (0.012)(*ha)*	0.0002(*)	0.001	0.001	
Bor	B	2.4	0.5	1.0	0.3	
Bromide	Br	*n.g.*		0.01 *bromate*?		
Cadmium	Cd	0.003	0.003(*)	0.003	0.03	0.005
Calcium	Ca	*n.g.*(300)	100			
Cloride	Cl	*n.g.*(250)	350	350		300
Chromium	Cr	0.050	0.050	0.070	0.300	0.050
Chromium 6^+	Cr^{6+}	*n.g.*		0.005	??	0.010
Cobalt	Co	*n.g.*			0.020	0.010
Copper	Cu	2.0	1.0	1.0	0.3	0.010
Cyanide	CN^-	*n.g.* (0.070)	0.010(*)	0.1/0.005([7])	0.05/0.005([7])	
Fluoride	F	1.5	0.7-1.5	1.5		1.5
Hydrosulfuric acid	H_2S	*n.g* (0.1)	0.1	0.002	0.5	
Iodine	I	*n.g.*	1.0(***)			
Iron	Fe	*n.g.* (0.3)	0.3(***)	0.3	1.0	
Lead	Pb	0.010	0.010(***)	0.050	0.100	0.010
Magnesium	Mg	*see Hardness*	30			
Manganate	Mn	0.4(ha)/(0.1)	0.1	0.1	0.5	0.1
Mercury	Hg	0.006 ([5])	0.0005(*)	0.002	0.001	0.0001
Molybdenium	Mo	*n.g.* (0.070)	0.070	0.040	0.500	0.250
Nicle	Ni	0.070	0.020(***)	0.1	0.2	0.010
Nitrate	NO_3^-	50	50(**)	50	15 (as tot N)	9.0 (as N)
Nitrite	NO_2^-	3.0	1.0(**)	1.0		0.02 (as N)
Phosphate	PO_4^{3-}	*n.g.*	3.5	3.5	1.5 (as tot P)	0.1 (as P)
Selenium	Se	0.040	0.010	0.040	0.020	
Argentium	Ag	*n.g.*(0.1)(*ha*)	0.1	0.1		
Sodium	Na	*n.g.* (200)	200			
Strontium	Sr	*n.g.*	2		2.0	
Sulphate	SO_4^{--}	*n.g.* (250)	500	500		100
Thallium	Tl	*n.g.*		0.0005		
Vanadium	V	*n.g.*		0.06 V_2O_5	0.1	
Copper	Zn	*n.g.* (4.0)	5.0(***)	5.0	1.0	0.01
Temprature	*T*°C	*n.g.*			20°C	
pH	*pH*	*n.g.* (6.5-8.5)	6.5-8.5	6.5-8.5	6.0-9.0	6.5-8.5
Total dissolvable solids	*TDS*	*n.g.* (1000)	1000(1500)		1000 ([8])	
Hardness	*H* meq/L	(15 meq/L)	7.0 meq/L			??
Uranium	U	0.03/10 Bq/L	0.015	0.020	0.050	
Radium	^{226}Ra	1 Bq/L				
Total alpha	α tot	0.5 Bq/L ([6])	0.1 Bq/L			
Total beta	β tot	1 Bq/L ([6])	1 Bq/L			

Remark:

1. ([1]):(xx) Sub-normative for drinking water; ([2]) : (*ha*) Health monitoring (aging); ([3]) : (**) industrial or Agricultural pollution, (***) eliminate pollution; ([4]) : *n.g.* or clarified : ther is no interpretation, value; ([5]) non organic mercury; ([6]) screening level to be studied further; ([7]) total/free; ([8]) value that more than max or natural contents by 20%; put the values to be checked in cells highlighted or shaded by color. The measuring unit would be mg/l when the values are not indicated.

2. MNS 900: 2010 – Drinking water. Hygienic requirement and quality monitoring
WHO ISBN 978 92 4 154815 1 – Drinking water quality general guideline, 4th edition, 2011.
MNS 6148: 2010 – Water quality. Maximium limit for polluters in underground water
MNS 4943: 2011 – Neutralised wastewater effluent to the environment
MNS 4586: 1998 – Water quality, general requirement (To evaluate surface water quality)

Table 9. Drinking Water Standards

Parameter	Standard Drinking water Specification as	
	Desirable Limit	Permissible Limit in absence of alternate source
Essential Characteristics-Physical Parameter		
Color, Hazen Units	5	25
Odour	Unobjectionable	-
Taste	Agreeable	-
Turbidity, NTU	5	10
pH	6.5 – 8.5	-
Essential Characteristics-Chemical Parameters		
Total Hardness as $CaCO_3$	300 Mg / L	600 Mg / L
Iron as Fe	0.3 Mg / L	1.0 Mg / L
Chloride as Cl	250 Mg / L	1000 Mg / L
Residual Free Chlorine	0.2 Mg / L	-
Desirable Characteristics-Chemical Parameters		
Dissolved Solids	500 Mg / L	2000 Mg / L
Calcium as Ca	75 Mg / L	200 Mg / L
Magnesium as Mg	30 Mg / L	100 Mg / L
Copper as Cu	0.05 Mg / L	1.5 Mg / L
Manganese as Mn	0.1 Mg / L	0.3 Mg / L
Sulphate as SO_4	200 Mg / L	400 Mg / L
Nitrate as NO_3	45 Mg / L	No relaxation
Fluoride as F	1.0 Mg / L	1.5 Mg / L
Phenolic Compounds as C_6H_5OH	0.001 Mg / L	0.002 Mg / L
Mercury as Hg	0.001 Mg / L	No relaxation
Cadmium as Cd	0.01 Mg / L	No relaxation
Selenium as Se	0.01 Mg / L	No relaxation
Arsenic as As	0.05 Mg / L	No relaxation
Cyanide as CN	0.05 Mg / L	No relaxation
Lead as Pb	0.05 Mg / L	No relaxation
Zinc as Zn	5 Mg / L	15 Mg / L
Anionic Detergents as MBAS	0.2 Mg / L	1.0 Mg / L
Chromium as Cr^{+6}	0.05 Mg / L	No relaxation
Mineral Oil	0.01 Mg / L	0.03 Mg / L
Alkalinity	200 Mg / L	600 Mg / L
Aluminum as Al	0.03 Mg / L	0.2 Mg / L
Boron as B	1 Mg / L	5 Mg / L
Bacteriological Characteristics		
Coliform Organisms	10 CFU	10 CFU
E. Coli	Absent	Absent

Remark: CFU-Colony Forming Unit

Table 10. Water analysis parameters

Parameter	Desirable Limit	Permissible Limit in absence of alternate source
Color, Hazen Units	5	25
Turbidity, NTU	5	10
Residual Free Chlorine	0.2 Mg / L	-

Copper as Cu	0.05 Mg / L	1.5 Mg / L
Manganese as Mn	0.1 Mg / L	0.3 Mg / L
Phenolic Compounds as C_6H_5OH	0.001 Mg / L	0.002 Mg / L
Mercury as Hg	0.001 Mg / L	No relaxation
Cadmium as Cd	0.01 Mg / L	No relaxation
Selenium as Se	0.01 Mg / L	No relaxation
Arsenic as As	0.05 Mg / L	No relaxation
Cyanide as CN	0.05 Mg / L	No relaxation
Lead as Pb	0.05 Mg / L	No relaxation
Zinc as Zn	5 Mg / L	15 Mg / L
Anionic Detergents as MBAS	0.2 Mg / L	1.0 Mg / L
Chromium as Cr^{+6}	0.05 Mg / L	No relaxation
Mineral Oil	0.01 Mg / L	0.03 Mg / L
Aluminum as Al	0.03 Mg / L	0.2 Mg / L
Boron as B	1 Mg / L	5 Mg / L

Table 11. Acceptable level of pollutants in effluent to be discharged into surface water
MNS 4943:2000

#	Pollutants	Measuring unit	Acceptable level
1	Water temperature	^0C	20
2	Hydrogen indicator		6-9
3	BOD	mgO/l	20
4	COD	mgO/l	50
5	Permanganit oxidation	mgO/l	20
6	Particular matter	mg/l	35
7	Dissolved salt	mg/l	800
8	Cianyte	mg/l	0.05
9	Fhenol	mg/l	0.05
10	Mineral grease	mg/l	1
11	Fat	mg/l	5
12	Sulpfide	mg/l	0.2
13	Cuprum	mg/l	0.3
14	Cadmium, Cd	mg/l	0.03
15	Manganuim	mg/l	0.5
16	Mercury	mg/l	0.001
17	Sb	mg/l	0.05
18	Nikel, Ni	mg/l	0.2
19	Selenium	mg/l	0.02
20	Ferrum	mg/l	1
21	Plumbum	mg/l	0.1
22	Chromium total	mg/l	0.3
23	Chromium 6	mg/l	0.05
24	Zinc	mg/l	1
25	ammonium	mg/l	8
26	Total nytrogen	mg/l	20 2.5' 21
27	Total Phosporius	mg/l	1.5 0.3'
28	Left chloride	mg/l	1.5
29	Threchloretilen	mg/l	0.2
30	Tetrachloretilen	mg/l	0.1
31	Phosporius organic compounds	mg/l	0.2

Table 12. Acceptable level of pollutants in effluent to be discharged into ground soil MNS 4943:2000

#	Pollutants	Measuring unit	Acceptable level
1	Water temperature	^0C	20

2	Odor		Odor has not to be smelled
3	Hydrogen indicator		6-9
4	BOD	мгО/л	50
5	COD	мгО/л	100
6	Permanganit oxidation	мгО/л	30
7	Particular matter	mg/l	150
8	Dissolved salt	mg/l	1000
9	Cianyte	mg/l	0.2
10	Mineral grease	mg/l	3
11	Fat	mg/l	10
12	Sulphide	mg/l	0.5
13	Cu	mg/l	0.5
14	Cd	mg/l	0.05
15	Manganuim	mg/l	1
16	Mercury	mg/l	0.001
17	Sb	mg/l	0.1
18	Ni	mg/l	0.5
19	Selenium	mg/l	0.02
20	Fe	mg/l	2
21	Pb	mg/l	0.5
22	Chromium total	mg/l	0.5
23	Chromium 6	mg/l	0.1
24	Zn	mg/l	2
25	Ammonium	mg/l	15
26	Nytrogen total	mg/l	30
27	Phosphor total	mg/l	5

Table 13. Acceptable content of chemical susbstances in water sphere . MNS 4586:1998

#	Substances	Measuring unit	Acceptable level
1	pH		6,5-8,5
2	Oxigen dissolved*	mgO/l	Not less than 6 and 4
3	BOD_5	mgO/l	3
4	COD- Mn	mgO/l	10
5	NH_4-N	mgN/l	0,5
6	NO_2-N	mgN/l	0,02
7	NO_3-N	mgN/l	9.0
8	PO_4-P	mgP/l	0,1
9	Cl	mg/l	300
10	F	mg/l	1.5
11	SO_4	mg/l	100
12	Mn	mg/l	0.1
13	Ni	mg/l	0.01
14	Cu	mg/l	0.01
15	Mo	mg/l	0.25
16	Cd	mg/l	0.005
17	Co	mg/l	0.01
18	Pb	mg/l	0.01
19	As	mg/l	0.01
20	Cr total	mg/l	0.05
21	Cr^{6+}	mg/l	0.01
22	Zn	mg/l	0.01
23	Hg	мkg/л	0.1
24	Mineral fat	mg/l	0.05
25	Phenol	mg/l	0.001
26	Surface active complex substances	mg/l	0.1
27	Benzo (a) pyren	mkg/l	0.005

* It has to be not less than 6 mgO/l in warm season and not less than 4 mgO/l in the period with ice cover.

Table 14. MNS 5457- 2005 "Maximum acceptable level and measuring method of toxic elements (CO, SO_2, NOx, ash) in the exhaust gases contents of heating boilers and home stoves"

Table 14.1.

	Boiler installed capacity (Q), MW	(NO_x)				(SO_2)			
		Emitted by burning 1kg fuel equivalent, g/kg f.e.	Emitted by 1 MJ heat produced, g/MJ	Concentration in the exhaust gases mg/m^3	Emitted in unit of time, g/s	Emitted by burning 1kg fuel equivalent, g/kg f.e.	Emitted by 1 MJ heat produced, g/MJ	Concentration in the exhaust gases mg/m^3	Emitted in unit of time, g/s
1	Q ≤ 0.8	6.75	0.23	450	0.3	12.0	0.4	800	0.4
2	0.8 ≤ Q ≤ 3.15	6.0	0.2	400	0.25	9.0	0.3	600	0.5

Table 14.2.

	Boiler installed capacity (Q), MW	(CO)				Ash			
		Emitted by burning 1kg fuel equivalent, g/kg f.e.	Emitted by 1 MJ heat produced, g/MJ	Concentration in the exhaust gases mg/m^3	Emitted in unit of time, g/s	Emitted by burning 1kg fuel equivalent, g/kg f.e.	Emitted by 1 MJ heat produced, g/MJ	Concentration in the exhaust gases mg/m^3	Emitted in unit of time, g/s
1	Home stove			4000				2500	
2	Q ≤ 0.8	37.5	1.28	2500	1.8	6.0	0.15	400	0.34
3	0.8 ≤ Q ≤ 3.15	30	1.02	2000	1.5	4.5	0.2	300	0.23

Annexure 5: Sample Environment Monitoring Report

Environmental Safeguards Document

Environment Monitoring Report
(-XX)

Document Stage:
Project Number:
Period –
Reporting –

Mongolia: Sustaining Access to and Quality of Education During Economic Difficulties

Prepared by Ministry of Education, Culture, Science and Sports (MES) for Asian Development Bank

The environment monitoring report is a document of the borrower. The views expressed herein do not necessarily represent those of ADB's Board of Directors, Management, or staff, and may be preliminary in nature.

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Annexure 6: Details of Public Consultation (Environment)

1. Details of Public Consultation (Environment) (1-5)

No	Participants' opinion, comments and suggestions from consultation meetings with residents of surrounding area of sites.					
	Issues	**1. School Khantaishir in Govi-Altai *Aimag***	**2. School #18, in UB, Khan-Uul district**	**3. School #122, in UB Songinokhairkhan district**	**4. Kindergarten #84 In UB, Songinokhairkhan, 6th *khoroo***	**5. New school in Mangirt bag of Darkhan Uul *Aimag***
		1	**2**	**3**	**4**	**5**
1	Do you support for the construction at school?	All the 61 /28 men and 33 women/ participants support the construction of school building extension. Schools and kindergartens being in the vicinity of their home is very important to the parents	All participants supported the construction.	All participants supported because of the school has almost 2 times exeeded number of students	100% of the participants are encouraged constructing a new building for the kindergarten. The kindergarten is being run activities in an old building which was built in 1948.	Construction of new school building is supported 100%.
2	What is educational status of your community?	People's educational level is average and most of the households are below subsistence level. Extension of the school building will help pushing educational level forward.	Education level of this area is at satisfactiry level	Most of residents of this area are resettled from countryside, and they have low education and lack of livelihood income.	Education level of the people who live around this area is medium. There are many immigrated people from the *aimag*s.	We do not have a secondary school in the area.
3	Will this construction at Schools/Kindergarten give any negative impact to your apartment complex?	Majority of the participants said there would be no significant negative effects and the minority of the participants said that there might be some negative effects such as noise and dust. It was also said that the negative effects can be managed since a favourable condition for learning is created for the children.	No, this consruction is small than other big buildings constructing in this area.	We do not see any negative impact because of this area is more remote from other residential settlement and buildings.	There is no positive influence on the solution of the problems. A new building can be constructed in the north side of the kindergarten building where is an emptier place.	There will be no effects to the kindergarten since it is 450 m distant.
4	What benefits do you perceive from this construction?	Favourable condition for learning is created for the children and access to education will be increased. Children's	Children's educational condition will be improved, more children can involved in school, claas size will be	We hope that the school class shift will be reduced from 3 shift to 2 shift, and students studying condition will be	Pre-school group B student Bilegsaikan's mother Delgertsetseg: I have nursed my children who are 2-4 years old at	Construction of this school shall allow those children, who commute 2-4 km from home to school, to go to a school that is near to their

No	Participants' opinion, comments and suggestions from consultation meetings with residents of surrounding area of sites.					
	Issues	**1. School Khantaishir in Govi-Altai *Aimag***	**2. School #18, in UB, Khan-Uul district**	**3. School #122, in UB Songinokhairkhan district**	**4. Kindergarten #84 In UB, Songinokhairkhan, 6th *khoroo***	**5. New school in Mangirt bag of Darkhan Uul *Aimag***
		1	**2**	**3**	**4**	**5**
		commute to school and back to home will be safer. Time will be saved, and the parents will be more satisfied. Children's enthusiasm to learn will be raised and the number students will increase. Appearance of the city will be elevated. And the income of the near service centers will increase.	decreased	improved.	home and from this year I have started to work. Since this year my children have started educating in the kindergarten. My spouse is also employing and there are many mothers like me around here. Medium group B student Anar-Erdene's mother Munkhtungalag: I am very glad that my youngest child is educated in the kindergarten, and I have possibilities to work somewhere. Medium group B student Mandakhnaran's father Nyamdavaa: It is already 12 years have passed but there is not have been built new kindergarten around this place. Before the elections to the parliament the party candidates promised to build new building in the territory of our *khoroo*. This meeting is one of these kinds of promises. If the promise is real thing, I will be pleased to hear it.	homes. Construction of apartment area is planned in the area. Thus, children living in the apartments can go to this school too.
5	Would you have any problem with school if construction company makes access road in your parking area, dig any	If a road for construction work is determined, there shall be a little effect on the parking. Due to having a little space in	May be some problem in our car parking and there could be increased trafic gem during the transporting construction	There would not be any conflict because of the distance between school and households is far more than 250m.	There is no conflict because the new building will be constructed in the territory of the kindergarten. There is	If the road for the construction work is settled, there shall be a little effect on the parking. Due to having a little space in that area,

No	Participants' opinion, comments and suggestions from consultation meetings with residents of surrounding area of sites.					
	Issues	**1. School Khantaishir in Govi-Altai *Aimag***	**2. School #18, in UB, Khan-Uul district**	**3. School #122, in UB Songinokhairkhan district**	**4. Kindergarten #84 In UB, Songinokhairkhan, 6th *khoroo***	**5. New school in Mangirt bag of Darkhan Uul *Aimag***
		1	**2**	**3**	**4**	**5**
	pipeline etc. for repair for diversion?	that area, vehicles should be parked in the construction area. There is a cultural place near construction site. Therefore, no difficulties should be caused to its operations. Some of participants said that there will be no impact because the parking area is distant.	material.		spacious surrounding area around kindergarten #84.	vehicles should be parked in the construction area. There is a cultural place near construction site. Therefore, no difficulties should be caused to its operations.
6	Would you be having any construction causes some dust during digging and storing in the school premises?	Dust and noise will affect to a certain degree. However, construction of kindergarten is more important for the local development. We, the residents, will try to stay level-headed and will be involved in mitigating difficulties.	There will not be any dust raising because of this is the expansion on top of the school, adding one floor	There would not be any conflict because of the distance between school and households is far more than 250m.	We encourage to build a new kindergarten.	Construction site is 600 m distant from the settlement area. Therefore, there will be no issues.
7	Will you have a problem if the construction company required to work during the night to bringing construction material?	There will be no difficulties caused for the people who work in offices and service centers, because they will be in the area only during the day time. Households in the immediate vicinity of the construction site are expected to have more difficulties. We hope they will not be transporting construction materials every night. And, we will be involved in mitigating difficulties.	That is better to bring construction material during the night time, because of preventing trafic gem during day time.	No problem	Difficulties for us will not be created because it will be big investment for our children.	Construction site is 600 m distant from the settlement area. Therefore, there will be no issues.
8	Will you have a problem if	There will be no	Do not think so, the		There are no difficulties	Construction site is 600 m

No	Participants' opinion, comments and suggestions from consultation meetings with residents of surrounding area of sites.					
	Issues	**1. School Khantaishir in Govi-Altai *Aimag***	**2. School #18, in UB, Khan-Uul district**	**3. School #122, in UB Songinokhairkhan district**	**4. Kindergarten #84 In UB, Songinokhairkhan, 6th *khoroo***	**5. New school in Mangirt bag of Darkhan Uul *Aimag***
		1	**2**	**3**	**4**	**5**
	the construction company required to work during the night to carry construction requiring extreme vibration and noise such as concreting, cutting, digging etc.?	difficulties caused to the people who work in offices and service centers. Compared to young people, the elderly might have more difficulties such as having trouble to sleep. So, we would like the construction company to properly manage their works.	expansion can be mostly using wooden material	No problem	for activities of the kindergarten. The kindergarten is running its activities during the day time.	distant from the settlement area. Therefore, there will be no issues.
9	How would you react to construction company transporting waste and construction material through your apartment area or parking area?	There will be no problem if transportation norms are observed. Any accidents related to falling and dragging of things being transported should be prevented. Wastes that are harmful to health must be removed immediately in a timely manner. There will be no negative impressions if these are taken care of.	If the construction company has proper schedule about the transportation and imforme us, there would not be any problem.	Will not have negative perception	There are no difficulties. It is related to the creation.	Construction site is 600 m distant from the settlement area. Therefore, there will be no issues.
10	Are you concerned about Health & Safety of residents and children during the construction?	All the participants expressed their concerns related to safety of children. Works such as patrolling should be conducted by involving the patrols of the construction site, school teachers, workers, parents, and the people who live in the area, especially during the time when school starts and finishes.	We hope so that the construction activity will be carried out during vocation of school and all parties have to set up proper protection barriers around the site.	If the construction will continue during the school time, there should be built proper barriers.	The teachers should inform parents about constructing process and parents have to pay more attention to their children especially during the earth moving work. Also, a construction company should pay more attention on the safety.	Construction site is 600 m distant from the settlement area. Therefore, there will be no issues.

No	Participants' opinion, comments and suggestions from consultation meetings with residents of surrounding area of sites.					
	Issues	**1. School Khantaishir in Govi-Altai *Aimag***	**2. School #18, in UB, Khan-Uul district**	**3. School #122, in UB Songinokhairkhan district**	**4. Kindergarten #84 In UB, Songinokhairkhan, 6th *khoroo***	**5. New school in Mangirt bag of Darkhan Uul *Aimag***
		1	**2**	**3**	**4**	**5**
11	Would you like to participate in safety monitoring and controlling activities?	People who work in offices and service centers expressed their interests not to be involved. However, the residents were supporting the idea of conducting inspections and they expressed their interests in being involved in conducting inspections.	If school requires our participation we will be organized.	Yes we would like to participate	Our teachers and workers can control if it is required.	Such council can be established.
12	Would you be willing to form a committee to help to school during the construction period?	Most of the participants proposed an establishment of a council to ensure the safety of children and to protect the rights of the residents. Also, it can conduct inspections for the construction work.	Some of participants liked this idea and decided to discuss with school management.	We would establish such acouncil.	If it is necessary, we can organize a committee of the teachers and the parents.	We want it.
13	Any other critical environment related issue and concern by the residents for the during construction and operation stage?	Number of things should be taken into account. For example, damages to school building, its green area, roads, and the environment should be prevented. After the construction, the area should be maintained. Construction materials such as sand and aggregate should be supplied from a designated place.	The expansion is on the top of school there for we are concerning for protection measurement against falling down something.	None	I have no idea on it.	Environmental impact assessment should be conducted by professional organization. And the assessment should be observed for the works.
14	If you have any problem caused by this school/kindergarten construction, whom would you like to contact?	Management of the contractor / company/. Administration of the school. Responsible person of the	School management, construction company and District Government	Construction company and school	A construction company and for other related officials	Will contact the Darkhan city Governor's office and urban development office

No	Participants' opinion, comments and suggestions from consultation meetings with residents of surrounding area of sites.					
	Issues	**1. School Khantaishir in Govi-Altai *Aimag***	**2. School #18, in UB, Khan-Uul district**	**3. School #122, in UB Songinokhairkhan district**	**4. Kindergarten #84 In UB, Songinokhairkhan, 6th *khoroo***	**5. New school in Mangirt bag of Darkhan Uul *Aimag***
		1	**2**	**3**	**4**	**5**
	(Construction company, school, urban department etc.)	sum administration. Responsible person of the *aimag* administration and/or State professional inspector.				
15	What would you expect to improve at current school building (such as changing coal heating to electric heating etc.)	Heating is supplied from steam boiler in Govi-Altai *aimag*, but it is not enough to meet the standard. Due to issues related to heating, many new buildings cannot operate during winter. Poor heating of building deteriorates its quality and durability. Therefore, we prefer electric heating.	The insulation of school has to be improved	Transportation of water should be changed with deep water well, school has to have office for teachers	The building is old and it was built in 1948. Plumbing and sewage system will be changed, front side and facade will be fixed and ventilation will be improved.	The building to be constructed should use environmentally friendly solar energy and power for its heating. Energy saving technology should be used.
16	Any shops/commercial establishments and industrial activity disturbed by this construction?	There will be no problem, because there are no shops, business, industrial or service centers in the school area. However, there is the cultural place of the *aimag*, thus construction works should be managed when the cultural place is operating.	No shops, commercial activities disturbed.	None	There are no large markets and stores and shops around the kindergarten.	There are no shops or business/service centers in the area.
17	What other organizations of environment & nature conservation (NGOs/CBOs/ Civil Society) active in the area? Name of these organizations	Environmental protection works are actively conducted in the area. There are no NGOs and civil society organizations. We have public servants, state inspector in charge of environmental matters of sums and inspector in charge of environmental	We do not know.	None	No idea.	No information.

No	Participants' opinion, comments and suggestions from consultation meetings with residents of surrounding area of sites.					
	Issues	**1. School Khantaishir in Govi-Altai *Aimag***	**2. School #18, in UB, Khan-Uul district**	**3. School #122, in UB Songinokhairkhan district**	**4. Kindergarten #84 In UB, Songinokhairkhan, 6th *khoroo***	**5. New school in Mangirt bag of Darkhan Uul *Aimag***
		1	**2**	**3**	**4**	**5**
		matters of professional inspection agency.				
	Other issues	-To construct the building with quality material within the expected date. -To observe health and safety norms and standards during the construction work. -To consider comments and proposals from local administration and citizens. -To fulfil its social responsibility to rehabilitate the environment after the construction.	None	The construction should be finished on time.	None	-Landscaping and maintenance of the environment and green area should be taken into serious consideration. -Safety should be number one importance during construction and the workers of every stage of the project should be trained on HSE. -Professional and experienced company should be selected for the construction. -Clean water should be used properly for the activities of the project. -There should be a dedicated point for landfill and a contract should be concluded with the authorized organization regarding landfill. Wastes should be taken to the landfill on a regular basis. Sanitation and disinfection shall be carried out regularly and environmental pollution should be prevented. -To cooperate with organizations and agencies in charge to ensure the implementation of law on environmental protection. -Information board shall be operated for the public; vehicles should be properly

No	Participants' opinion, comments and suggestions from consultation meetings with residents of surrounding area of sites.					
	Issues	**1. School Khantaishir in Govi-Altai *Aimag***	**2. School #18, in UB, Khan-Uul district**	**3. School #122, in UB Songinokhairkhan district**	**4. Kindergarten #84 In UB, Songinokhairkhan, 6th *khoroo***	**5. New school in Mangirt bag of Darkhan Uul *Aimag***
		1	**2**	**3**	**4**	**5**
						parked without blocking movements and signs should be placed. -For the lighting of the building, energy saving lights shall be used. -Tools and equipment to prevent from fire and other disasters should be ready for use. -To create conditions for vehicles to move and pass freely in case of emergency.

No	Participants' opinion, comments and suggestions from consultation meetings with residents of surrounding area of sites.					
	Issues	**6. KG#22 in Ulaanbaatar**	**7. KG #82 in Ulaanbaatar**	**8. KG #65 in Ulaanbaatar**	**9. KG# 8 in Ulaanbaatar city**	**10. Kindergarten #107, in UB Songinokhairkhan 14 *khoroo***
		6	**7**	**8**	**9**	**10**
1	Do you support for the construction at school.	Citizen, Battumur: An idea to extend the kindergarten building is supported for a reason that there is no land for construction of new school or kindergarten in the area. With the extension of kindergarten building, number of enrolled children at the kindergarten will increase and the parents will be enabled to work.	Supported by the 94% of the participants.	Number of children in one class will be less, teachers' work load will reduced, and they will be given an opportunity to work with every child. Children will be learning in safer environment. Parents will have time to work and increase their income. Our kindergarten has a land for extension. According to a law, there should be 25 children in a class, but we have 60-70 children. Due to this	We support the construction. The kindergarten should have 8 to 12 classes.	105 participants out of 111 are supporting of expansion. 5 participants say they don't support if the construction will be a new commercial building because they are not sure if Kindergarten will be made.

No	Participants' opinion, comments and suggestions from consultation meetings with residents of surrounding area of sites.					
	Issues	**6. KG#22 in Ulaanbaatar**	**7. KG #82 in Ulaanbaatar**	**8. KG #65 in Ulaanbaatar**	**9. KG# 8 in Ulaanbaatar city**	**10. Kindergarten #107, in UB Songinokhairkhan 14 *khoroo***
		6	**7**	**8**	**9**	**10**
				problem, children get sick easily and there is not enough air. Kindergarten building extension is what we want.		
2	What is educational status of your community?	Our district is one of the oldest districts of the capital city and the residents of the 1st *khoroo* are sedentary or hardly resettled, and their educational level is above average.	Of the participants, 17% said the enrolment is satisfactory; 35% - average; 5% - no; 28% - not satisfactory.	The 65th kindergarten became one of the top kindergartens among state owned kindergartens in 2016, the best kindergarten of Khan-Uul district twice, and the best kindergarten award from "Kharaatsai" cultural competition organized by the World Vision. Teachers and the employees have many years of experience.	Educational level is average.	49 participants replied good, 38 replied medium and 17 evaluated bad.
3	Will this construction at Schools/Kindergarten give any negative impact to your apartment complex?	There will be no effects. If labor safety is observed in a dedicated area, there will be no effects. Many new buildings were constructed in a place where we live, and we had no issues related to noise or dust.	77% answered "no" because children will be enrolled in kindergarten. 2% answered there would not be significant negative effects. 10% answered there would be negative effects. 11% did not answer.	The kindergarten has a land for extension on its left side. Thus, there will not be negative effects in the area.	No negative effects, because it is distant from houses and apartments located along the road.	92 participants replied that there will be no negative impact. 14 felt that there will be impact because of lack of car parking area in the vicinity.
4	What benefits do you perceive from this construction?	Every child will go to kindergarten and a favourable environment will be created for children to learn and develop. Access to kindergarten will be	Every child will go or will be given an opportunity to go to kindergarten. 84% of the participants answered a favourable condition was created for the children. 16%	Children will be 100% enrolled in kindergarten. Number of children in one class will be less, teachers' work load will reduced, and they will be given	Children will be provided with an opportunity to learn in more comfortable environment and the number of enrolled children will increase. With the	105 participants out of 111 are supporting of expansion. 5 participants say they don't support if the construction will be a new commercial building because they are not sure if

No	Participants' opinion, comments and suggestions from consultation meetings with residents of surrounding area of sites.					
	Issues	**6. KG#22 in Ulaanbaatar**	**7. KG #82 in Ulaanbaatar**	**8. KG #65 in Ulaanbaatar**	**9. KG# 8 in Ulaanbaatar city**	**10. Kindergarten #107, in UB Songinokhairkhan 14 *khoroo***
		6	**7**	**8**	**9**	**10**
		increased as well as workplace.	answered no.	an opportunity to work with every child. Children will be learning in safer environment. Parents will have time to work and increase their income.	increase of number of enrolled children, workplace will be added. We see it as an investment for the children. Number of children in one class will be reduced.	Kindergarten will be made.
5	Would you have any problem with school if construction company makes access road in your parking area, dig any pipeline etc. for repair for diversion?	It is a temporary difficulty, and we should see the development in the future. Construction company should be accountable for the works they had done, and the environment should be rehabilitated after the installation of utilities facilities /pipes etc./. After the construction, road must be maintained due to damages occurred by mixer truck. Possible difficulties such as power shortage and closing of road can take place when installing utilities facilities, and they should be taken care of.	67% of the participants answered, "it can be managed temporarily", "it is ok during summer time" and a "big issue is being solved" expressing that there would not be any conflicts. 7% answered there would be issues. Remaining 26% did not answer the question.	There will not be a problem related to vehicles entering and exiting construction site and installation of pipes etc.	There will not be a problem. We expect the roads and pavements would not be used, because the construction will be conducted in the plot of the kindergarten.	49 participants replied good, 38 replied medium and 17 evaluated bad.
6	Would you be having any construction causes some dust during digging and storing in the school premises?	It would be better if construction work is conducted after children and elder people are off to their summer houses. Other than this, there will not be a problem. Infants might have difficulties to sleep due to loud noise	64% of the participants answered, "it can be managed temporarily", "it can be worked out" and "no". 2% answered "a little bit". 21% answered it will be a difficulty, thus it should be conducted during day	Dust and noise will not be causing issues for children and kindergarten teachers, because they will be on holiday during construction. Apartments are 120-250 m distant from	Noise will be a problem. But it can be managed by closing the windows etc.	92 participants replied that there will be no negative impact. 14 felt that there will be impact because of lack of car parking area in the vicinity.

No	Participants' opinion, comments and suggestions from consultation meetings with residents of surrounding area of sites.					
	Issues	**6. KG#22 in Ulaanbaatar**	**7. KG #82 in Ulaanbaatar**	**8. KG #65 in Ulaanbaatar**	**9. KG# 8 in Ulaanbaatar city**	**10. Kindergarten #107, in UB Songinokhairkhan 14 *khoroo***
		6	**7**	**8**	**9**	**10**
		from construction. And construction dust might have negative effects on human body. So, construction work must be finished at scheduled hours.	time.	construction site.		
7	Will you have a problem if the construction company required to work during the night to bringing construction material?	There will not be a significant problem. The other construction companies might have transported construction materials during night time. We did not hear any noise and slept through it.	77% of the participants answered, "it is not a big issue since it is for the children", "it can be worked out if it is not very late" and "no". 12% answered it is unacceptable during night time, thus it should be conducted during work hours.	Night time construction and transportation is acceptable, because apartments are 120-250 m distant from construction site.	We, the citizens, will support the construction if it is carried out according to the relevant legislations.	81 people said no problem, where 24 said if the Construction Company works during the night, it will be difficult. 4 people said no idea.
8	Will you have a problem if the construction company required to work during the night to carry construction requiring extreme vibration and noise such as concreting, cutting, digging etc.?	Since the Government is not building a kindergarten for us, we will try to negotiate on the terms. If labour safety is observed in the area, there will be no effects.	74% of the participants answered, "it is ok if not for many days", "it can be worked out" and "no difficulties". 21% answered "the construction company should take the residents into account" and "there will be issues".	There will not be a problem.	We will try to be patient because it is a construction of kindergarten. We hope there will not be loud noises every day and night. The construction company should understand that there are people trying to rest and sleep.	70 people answered if they work during day time it is no problem as they are working for kindergarten. 36 persons felt if the noise increased beyond limitations norm, it will be difficult.
9	How would you react to construction company transporting waste and construction material through your apartment area or parking area?	There is nothing to object the night time transportation. It should be conducted taking the parking load into consideration. Heavy vehicles and trucks might collide with the other cars when they enter and exit the	70% of the participants answered, "there will not be problems if kindergarten is being constructed", "it is ok" and "no difficulties if it is rehabilitated after the work". 17% answered "there will be negative effects".	The fact that there are 65-70 children in one class is one of the biggest difficulties and it is bigger and more serious than construction waste.	They should inform us about how they are going to manage construction waste. We can stay unworried as long as there is a contract or rules applied regarding waste management and transportation.	73 replied there should not be any negative perception. 31 said if the transportation will be according to guideline, there will be no problem.

No	Participants' opinion, comments and suggestions from consultation meetings with residents of surrounding area of sites.					
	Issues	**6. KG#22 in Ulaanbaatar**	**7. KG #82 in Ulaanbaatar**	**8. KG #65 in Ulaanbaatar**	**9. KG# 8 in Ulaanbaatar city**	**10. Kindergarten #107, in UB Songinokhairkhan 14 *khoroo***
		6	**7**	**8**	**9**	**10**
		construction site, thus such incidents must be prevented.				
10	Are you concerned about Health & Safety of residents and children during the construction?	There will not be a problem if the construction company is accountable for its actions by observing relevant safety norms. And we, parents, will keep an eye on our children.	Very concerned. It should be conducted during holiday and safety must be ensured. A person who oversees construction work must take these into consideration. Construction company is responsible for the safety. 70% of the participants answered, "it is ok when it is taken into account" and "yes". 30% answered "there is nothing to object since there are a lot of buildings in the area".	We do not have concerns over children's health and safety because they are sent to camps or summer houses during that time. Signs should be placed around construction area.	Safety norms and standards must be observed during construction to prevent from potential accidents. A contract on accountability should be concluded. Safety should be a priority in the works of the construction company.	66 people replied that construction should be continued for short period of time. 35 people replied that labour safety rules have to be followed accurately and Construction Company must take into account installation of barrier and other safety measures.
11	Would you like to participate in safety monitoring and controlling activities?	If no specialization is required, we can take part in it. Citizen, Otgonsuren: I think professional people should be recruited.	67% of the participants answered, "acceptable if possible" and "wanted". 30% answered "no or not wanted".	We would like to take part in it.	We, teachers and kindergarten employees, can conduct inspection. The construction company can inform us about how we can be involved.	52 people said that they do not want to participate. 46 relied on if they have time, they can participate. 6 people have no idea.
12	Would you be willing to form a committee to help to school during the construction period?	We want it and professionals should be recruited. And the other people should not intervene when there are people already recruited.	84% of the participants answered, "inspection committee should be established" and "will take part in it if possible". 7% answered "inspection committee is not wanted". 9% did not answer.	Council of the kindergarten, parents' council, and teachers' council should be involved.	A council which will help works of the kindergarten should be established. A council comprised of teachers of the kindergarten and representatives of parents can be established, but we want to understand the benefits of establishing	71 people said it was not necessary, 28 persons said they want to form a council whereas 2 have no idea.

No	Participants' opinion, comments and suggestions from consultation meetings with residents of surrounding area of sites.					
	Issues	**6. KG#22 in Ulaanbaatar**	**7. KG #82 in Ulaanbaatar**	**8. KG #65 in Ulaanbaatar**	**9. KG# 8 in Ulaanbaatar city**	**10. Kindergarten #107, in UB Songinokhairkhan 14 *khoroo***
		6	**7**	**8**	**9**	**10**
					such a council first.	
13	Any other critical environment related issue and concern by the residents for the during construction and operation stage?	Environment should be rehabilitated after construction. The area should be sprinkled with water to prevent from causing allergies to the people during the construction.	Green area should be established. 68% of the participants answered, "trees should not be cut", "not concerned because it is conducted during children's holiday" and "construction work should be conducted by taking the area where children will play into account". 11% answered "nothing to be considered".	Construction wastes should be removed in a timely manner. Signs with pictures that can be understood by children should be placed around construction waste area.	Outside of the kindergarten should be maintained. Vegetation and establishment of green area must be carried out satisfactorily. It should be carried out by professional people, not a construction company.	65 people said no problem, 31 said protection barriers must be established correctly. The Construction Company has to define the parking area for construction machinery. The children's playground has to be renovated and trees and bushes should not be destroyed.
14	If you have any problem caused by this school/kindergarten construction, whom would you like to contact? (Construction company, school, urban department etc.)	30 people answered to contact the construction company; 9 people answered to contact the kindergarten administration;12 people answered to contact the administration of the district; 5 people answered they did not know;	70% of the participants answered, "construction company". 4% answered "administration of the district". 21% answered "administration of the kindergarten".	If any issue arises, we will contact the construction company for resolution.	Construction company and the other responsible people.	Construction Company, Kindergarten management, city and district government and *khoroo* government
15	What would you expect to improve at current school building (such as changing coal heating to electric heating etc.)	It is very cold during winter unless heated by electricity. An advanced technology should be used.	24% of the participants voted for "restructuring classrooms, maintenance for ceiling, walls, other parts, playground, physical training hall, plumbing maintenance, heat loss, roof, kitchen, auditorium, extension of the building and rooms and ventilation system". 31%	Power source equipment should be renewed, bathrooms of the classrooms should be maintained, some of the pipes should be re-installed and kitchen should be extended to the principal's room.	It is connected to the central heating, thus not necessary. Auditorium, physical training hall, bathrooms and bedrooms must be separate. Ventilation system must be properly installed.	Improve the plumbing system, the class rooms must be big and have natural light. The current old building has to be renovated.

No	Participants' opinion, comments and suggestions from consultation meetings with residents of surrounding area of sites.					
	Issues	**6. KG#22 in Ulaanbaatar**	**7. KG #82 in Ulaanbaatar**	**8. KG #65 in Ulaanbaatar**	**9. KG# 8 in Ulaanbaatar city**	**10. Kindergarten #107, in UB Songinokhairkhan 14 *khoroo***
		6	**7**	**8**	**9**	**10**
			voted for "extension of building". And 25% voted for "improvement of green area".			
16	Any shops/commercial establishments and industrial activity disturbed by this construction?	Construction work such as blocking the road by heavy vehicles, digging and excavating holes and trenches should not affect the business of the area.	62% of the participants answered "no" and "it would be ok". 7% answered "there will be issues" and "construction company will resolve the issues". 16% answered "do not know".	A problem will not be caused to the shops, business and service centers that are located around kindergarten building.	There are no service centers in the area.	86 participants said that the construction would not interrupt the commercial and shop business.
17	What other organizations of environment & nature conservation (NGOs/CBOs/ Civil Society) active in the area? Name of these organizations	No information.	No information.	None	No information.	No idea

No	Participants' opinion, comments and suggestions from consultation meetings with residents of surrounding area of sites.					
	Issues	**6. KG#22 in Ulaanbaatar**	**7. KG #82 in Ulaanbaatar**	**8. KG #65 in Ulaanbaatar**	**9. KG# 8 in Ulaanbaatar city**	**10. Kindergarten #107, in UB Songinokhairkhan 14 *khoroo***
		6	**7**	**8**	**9**	**10**
	Other issues		Playground should be renovated and maintained. Building extension should be completed prior to the commencement of the next academic year. Ventilation system, plumbing, building insulation and the roof should be maintained because of mold and fungus caused by humidity. The building has been in use for many years, and it should be extended. Population is growing year by year because of construction of apartments in the area and all of the children could not go to kindergarten. Therefore, the building should be extended.	Extension of kindergarten building be completed before the start of the next academic year. Proposals from the administration of kindergarten be reflected. Bedrooms of the classes to be separate. Music lesson hall, storage, rooms for principal and senior teacher must be reflected in the design.	New building of the kindergarten must be meeting the standards and be completed within short amount of time by using quality construction materials. Each class should have a place for eating and bedrooms etc. Ventilation, heating and plumbing system should be taken into serious consideration. We hope many kindergartens will be constructed. Construction work should be started with proper construction hoarding without stopping the operations.	One kindergarten constructed in some part of the same Kindergarten; it was privatised. This should not happen. If that happens again, we are not allowing this construction expansion.

3. Details of Public Consultation (Environment) (11-15)

No	Participants' opinion, comments, and suggestions from consultation meetings with residents of surrounding area of sites.					
	Issues	**11. New KG in Sumber *Soum* of Govisumber**	**12. KG #88 in Ulaanbaatar Bayangol, 18th *khoroo***	**13. KG # 104 in UB Songinokhairkhan 12 *khoroo***	**14. KG# 176 in Ulaanbaatar city**	**15. KG# 68 in Ulaanbaatar**
		11	**12**	**13**	**14**	**15**
1	Do you support for the construction at school.	We support the idea of constructing a new kindergarten because the	All participants supported the construction because there is lack of	Increase the size of kindergarten is priority in our *khoroo* and they	Out of over 800 children in the age of 2 - 6 living in micro district 31, only 125	Since all the children in the age of 2 to 5 of all households residing in micro districts 3

No	Participants' opinion, comments, and suggestions from consultation meetings with residents of surrounding area of sites.					
	Issues	**11. New KG in Sumber *Soum* of Govisumber**	**12. KG #88 in Ulaanbaatar Bayangol, 18th *khoroo***	**13. KG # 104 in UB Songinokhairkhan 12 *khoroo***	**14. KG# 176 in Ulaanbaatar city**	**15. KG# 68 in Ulaanbaatar**
		11	**12**	**13**	**14**	**15**
		currently operating 5 kindergartens are overcrowded. Those children who could not go to one of these 5 kindergartens go to private kindergarten, so we need a new kindergarten in town.	kindergarten space for children.	support the construction expansion.	children are brought up at the kindergarten. For this reason, it is reasonably required to build extension for kindergarten.	and 5 cannot attend in kindergarten, we strongly support construction of new extension building for the kindergarten.
2	What is educational status of your community?	Education sector activities are perceived to be satisfactory.	98% of all participants expressed that the education level of *khoroo* is sufficient.	245 participants said good quality of education, 69 participants said "Medium".	Mostly people who have lower-than-average income or minimum income reside here. According to the studies of parents, educational attainment of residents includes complete secondary education and even illiteracy.	According to our consideration, educational attainment for the residents is excellent since it is within "A" class location of the city.
3	Will this construction at Schools/Kindergarten give any negative impact to your apartment complex?	Teachers and the other employees see no negative effects.	They feel there will be no negative impact if the construction company does not park any trucks and cars blocking any residential roads.	300 particpants replied that there would not be any negative impact. 16 replied that they will negatively impacted if childrens playground in front their building is used.	Considering that it won't affect comfort and convenience of residents.	Since the playground outside kindergarten is large and spacious, no negative impact would be exerted when constructing a building.
4	What benefits do you perceive from this construction?	Pre-school age children at home will be provided with an opportunity to go to kindergarten. Every child should have pre-school education.	All children of *khoroo* can get education at this kindergarten.	All children of *khoroo* can get education at this kindergarten. They hope the condition of education will improve and parents will be satisfied.	Many parents say that they would give their children to kindergarten, be provided with opportunity to start children's education and upbringing correctly and do any job for a better life if the new kindergarten is constructed.	We conclude that it can provide those who cannot attend with kindergarten, reduce number of children per teacher and enable to work with every single child.
5	Would you have any	We do not object since an	There will be no conflict.	If the construction	No problem arising from.	No conflict will be raise.

No	Participants' opinion, comments, and suggestions from consultation meetings with residents of surrounding area of sites.					
	Issues	**11. New KG in Sumber *Soum* of Govisumber**	**12. KG #88 in Ulaanbaatar Bayangol, 18th *khoroo***	**13. KG # 104 in UB Songinokhairkhan 12 *khoroo***	**14. KG# 176 in Ulaanbaatar city**	**15. KG# 68 in Ulaanbaatar**
		11	**12**	**13**	**14**	**15**
	problem with school if construction company makes access road in your parking area, dig any pipeline etc. for repair for diversion?	environment that enables provision of education for our young children is created.	They will be happy if the kindergarten is constructed for their children.	company will have good coordination and organising for keeping construction material, trucks, cars, there would not having any conflict. Because the kindergarten area is big enough fenced area. The construction will be carried out inside the kindergarten construction area. Activities such as digging of soil etc. should be inside the fenced area of the kindergarten. If they dig some channels, and carryout some piping activity, there should be enough signages and warnings.	We strongly support construction of extension for the school/kindergarten.	
6	Would you be having any construction causes some dust during digging and storing in the school premises?	We do not think it is impossible. It is important to carry out quality work during the construction. Other than that, there are no difficulties.	Maybe noise can be increased and disturb them. Within their residential area, generally there is no dust rising because all roads are constructed roads. If the construction company inform and introduce the plan and schedule of activities, they can coordinate their work and life to that schedule thereby making it easy for all parties.	312 participants replied there would not any interruption in the work	Noise and dust from construction work won't affect residents and those who are living around.	If they consider it from the perspective of constructing kindergarten, they will indeed respect us, instead of interrupting.
7	Will you have a	Noise from construction	There will be no problem	297 participants said	Transportation of building	We assume there won't be

No	Participants' opinion, comments, and suggestions from consultation meetings with residents of surrounding area of sites.					
	Issues	**11. New KG in Sumber *Soum* of Govisumber**	**12. KG #88 in Ulaanbaatar Bayangol, 18th *khoroo***	**13. KG # 104 in UB Songinokhairkhan 12 *khoroo***	**14. KG# 176 in Ulaanbaatar city**	**15. KG# 68 in Ulaanbaatar**
		11	**12**	**13**	**14**	**15**
	problem if the construction company required to work during the night to bringing construction material?	will not be a problem.	as they are expecting that construction company will not transport construction material every day and regularly at night.	there will not be any problems. 15 said if they create big noise in sleeping time it will be difficult.	materials won't affect comfort and convenience of residents.	any difficulties since residents in micro district 3 and 5 are pleased with construction of extension for kindergarten.
8	Will you have a problem if the construction company required to work during the night to carry construction requiring extreme vibration and noise such as concreting, cutting, digging etc.?	The 5th kindergarten is distant from the new kindergarten location. So, there will be no problems related to noise. And the kindergarten operates until 5 PM.	There would be some problem, but the construction company will have to collaborate with residents of the area and inform and negotiate when such activities will happen.	282 participants said there will be no problem. 32 participants replied the noise making activities should not continue for long time. They will be patient in this regard.	Noise from construction work won't affect residents and those who are living around.	It is impossible to predict about any potential hindrance or risk prior to commencement of work since the construction company and client work together for the sake of children by concluding tripartite agreement.
9	How would you react to construction company transporting waste and construction material through your apartment area or parking area?	We do not think there is a negative impact related to transporting construction waste.	They hope that the construction company will be transporting the waste regularly in time.	The kindergarten has separate garbage point. If they can collect all refuse from that point then there would be no problem. The construction company if does not organise its storage of waste, there may be some problem.	No negative impression on transporting debris.	If the construction company performs well and responsibly, we won't express any negative comment or impression.
10	Are you concerned about Health & Safety of residents and children during the construction?	If the health, safety and environment norms and standards are followed properly, we do not think there will be any danger to the safety of the people.	They not worried about that as construction company will follow all norms and regulations. Even now many buildings are ongoing construction besides the kindergarten.	They are little bit concerned if there will be rise of dust from construction. The construction company must link the construction to weather and wind condition.	Consider on warning residents not to let their children play around the building when it is under construction.	Introduced recommendations and proposals from parents in tandem with residents and governors. We consider there is nothing to worry about since all residents and parents warn to ensure safety and health of children.
11	Would you like to participate in safety monitoring and controlling activities?	The commission from professional organization should include representative of the	They were not sure to participate according to most participants	235 replied that it is not necessary to participate. 75 participants said they can be involved in safety	Would like to engage in ensuring safety and health of children.	

No	Participants' opinion, comments, and suggestions from consultation meetings with residents of surrounding area of sites.					
	Issues	**11. New KG in Sumber *Soum* of Govisumber**	**12. KG #88 in Ulaanbaatar Bayangol, 18th *khoroo***	**13. KG # 104 in UB Songinokhairkhan 12 *khoroo***	**14. KG# 176 in Ulaanbaatar city**	**15. KG# 68 in Ulaanbaatar**
		11	**12**	**13**	**14**	**15**
		parents.		and environment pollution controlling at the site		
12	Would you be willing to form a committee to help to school during the construction period?	Yes	They were not interested to participate in the committee.	It is not necessary to establish such as a council by 263 participants. 49 participants said they would need such a council because of after completion of construction, the Construction company must clean up and restore the area.	Fully able to establish committee for assisting construction work.	Parents' council of kindergarten consists of 24 members, and we request for activating the council.
13	Any other critical environment related issue and concern by the residents for the during construction and operation stage?	Clean and waste water pipes should be installed according to the standards and the ventilation system of the bathroom should be considered.	Do not destroy the playground and the young trees planted a few years ago. If the trees are removed, there should be planning and implementation for landscaping and greening the area.	There is big need and demand for not destroying the soil, bushes and planted trees.	No problems will occur in terms of environment.	Proposing to construct playground and make improvement work within the environment after completion of extension.
14	If you have any problem caused by this school / kindergarten construction, whom would you like to contact? (Construction company, school, urban department etc.	Contact to the client organization of construction is preferred.	To inform the construction company and kindergarten management.	Construction company, kindergarten and *Khoroo* Governor.	Will apply to the construction company, district administration, educational department, and other applicable organizations.	Will apply to kindergarten and Educational Department of Ulaanbaatar.
15	What would you expect to improve at current school building (such as changing coal heating to electric heating etc.)	Wastewater from the kindergarten should be well thought out and the heating should be considered. Cold classrooms are the main	Expecting that the kindergarten rooms will be full of lights (windows), enough space. The construction company will ensure good quality	Improve the heating and insulation and reduce loss of heat.	There are 2 Ger groups. It's appropriate and more convenient to provide the ones who have steam boiler for heating with electric heating.	Nothing to say.

No	Participants' opinion, comments, and suggestions from consultation meetings with residents of surrounding area of sites.					
	Issues	**11. New KG in Sumber *Soum* of Govisumber**	**12. KG #88 in Ulaanbaatar Bayangol, 18th *khoroo***	**13. KG # 104 in UB Songinokhairkhan 12 *khoroo***	**14. KG# 176 in Ulaanbaatar city**	**15. KG# 68 in Ulaanbaatar**
		11	**12**	**13**	**14**	**15**
		cause of children catching cold and flu during winter.	material according to hygienic and sanitation standard.			
16	Any shops/commercial establishments and industrial activity disturbed by this construction?	Due to construction work in progress, there will not be much of that issue.	There will be no interruption due to this activity.	There is no shop or commerical organisation in the area.	There aren't any stores or other organizations that cancelled their operation due to construction work as of now.	Nothing to say.
17	What other organizations of environment & nature conservation (NGOs/CBOs/ Civil Society) active in the area? Name of these organizations	An agency in charge of environmental issues is doing a lot of work. Teachers, students, parents and the other employees work to establish green area outside schools and kindergartens.	No	No	N/A	Nothing to say.
	Other issues	The building in which the 5th school is operating is for 640 students and the enrolment is increasing every year. Therefore, the building should be extended. Currently 910 students are attending in the school from 2016-2017. Due to lack of classrooms, students cannot have practice time or optional classes that are designated to contribute to the development of students. And it is inevitable that there will be new classes due to population increase.	Expressed thanks for kindergarten expansion project.	No		

4. Details of Public Consultation (Environment) (16-20)

No	Participants' opinion, comments, and suggestions from consultation meetings with residents of surrounding area of sites					
	Issues	**16. KG #160 in Ulaanbaatar city**	**17. KG #72 Ulaanbaatar**	**18. Erdmiin Orgil" Complex UB Naiakh District**	**19.School # 51 in Ulaanbaatar city**	**20. Branch of KG# 168 in Ulaanbaatar**
		16	**17**	**18**	**19**	**20**
1	Do you support for the construction at school.	Since children cannot be provided with pre-school education overall, we fully support construction of new building for kindergarten. It would be appreciated if extension building is constructed. In our opinion, it is so important to have bedrooms in classes with high number of children. If there are bedrooms, children can develop within comfortable and free environment.	Although there are so many pre-school children in our *khoroo*, they cannot acquire pre-school education. For this reason, the right of child to study is seriously violated. From this perspective, we support this extension of building for kindergarten.	All participants supported the construction.	Participants showed 100% support. "We are all delighted to hear that construction issues of our school extension are finally being resolved. It was discussed last year but never heard from it ever since. We are happy to hear that our children will be studying in a comfortable and healthy environment".	All the participants showed 100% support. Currently children are enrolled in Mongolian yurt kindergarten, but it can't provide enough space for more children, and since there are many rainy days during the summer, all the roof sheadings can get bit smelly in the autumn resulting bad uncomfortable environment for our children. Mongolian Gers /yurts/ always needs extra care in order sustain its sanitation, so it's not a healthy option for our children.
2	What is educational status of your community?	Higher educated.	Since there are so many young families and new apartment buildings out there, it can consider that educational attainment is generally good. Educational background and knowledge of parents to children who attend in the kindergarten are good.	This area is newly established and constructed area that is why 80% of all residents are young families and they have mostly high education.	"We think that we are in a good position regarding our education level. This extension work is what we all here have been waiting for such a long time".	There is currently no kindergarten in 24th micro district, so a lot of children currently don't have a kindergarten to go to.
3	Will this construction at Schools / Kindergarten give any negative impact to your apartment complex?	No negative impact. Since there are so many buildings over the place we are living in, we have no right to interrupt children's development, considering that the building for kindergarten would affect our living.	No negative impact since the ongoing building is not tall enough to shade sun and relatively far from homes.	Ready to cooperate with construction company and school management because of it will help in improving children's education condition. 44 out 50 participants expressed concern about garbage/waste issue.	If all the proper safety guidelines are met, we see no problem there. There should be always a fencing around the construction site and we prefer less heavy machinery driving around during the daytime. Obviously there will be some negative impacts	We don't think there will be any serious problems or negative impacts.

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	Issues	**16. KG #160 in Ulaanbaatar city**	**17. KG #72 Ulaanbaatar**	**18. Erdmiin Orgil" Complex UB Naiakh District**	**19.School # 51 in Ulaanbaatar city**	**20. Branch of KG# 168 in Ulaanbaatar**
		16	**17**	**18**	**19**	**20**
					such as noise and dust caused by construction site and lesser space for our children to play on. The construction company that will be working at this site need to concentrate heavily on these types of problems such as building a temporary pedestrian bridge on dug out holes.	
4	What benefits do you perceive from this construction?	Children will be enabled to attend kindergarten. Upon reducing number of children in class and group, teachers will be enabled to work with every single child. Children will develop within much comfortable environment.	Will provide all children who are within must-attend area with kindergarten. Providing children with pre-school education and ensuring their rights to study and develop.	The children's learning condition will be improved through school that is closer and thereby enhancing safety concerns of the children	"It will affect our children's grades, and it will benefit both parents and their children. Our children will be able study in a comfortable environment, and it will be convenient for our children".	There will be a 100% kindergarten enrolment rate in our micro district. Our children will be able to grow up in a comfortable environment, and kindergarten availability will increase.
5	Would you have any problem with school if construction company makes access road in your parking area, dig any pipeline etc. for repair for diversion?	No conflict out there. We fully support construction since this activity contributes to the development and prosperity of our city. It is advisable that the construction company needs to complete work within scheduled time.	No hindrance since the main way to kindergarten is available. It won't seem tiresome for residents if construction work is performed fast.	48 particpants agreed to participate the parking area with Construction Company as they have many parking areas available.	Pedestrian bridges need to be placed after digging a hole for installing some plumbing pipes. All the safety procedures and protective measures need to be taken during the construction work.	47 people answered that there will be no violations, "We can park our cars in a different place".
6	Would you be having any construction causes some dust during digging and storing in the school premises?	Won't interrupt since they are working for well-being and future of our children.	No hindrance since the building of kindergarten is short and construction area is large. It won't seem tiresome for residents if construction work is performed fast.	48 participants replied that during construction, there will be increase in noise, but the construction is only for building school, so they will support it.	Noise caused by construction work will be a problem but even though there will be a lots noise and dust caused by this construction work, we understand that it's for	44 people answered that there will be no difficulties, because kindergarten extension will not be a big building.

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		16	**17**	**18**	**19**	**20**
					our children and improvement of their study environment. Also, construction works nowadays can be completed in short amount time.	
7	Will you have a problem if the construction company required to work during the night to bringing construction material?	Having probability to influence to some extent. However, it is not that serious, according to our consideration.	No hindrance since the main way to kindergarten and special fencing are available. We consider construction work will be completed within the time specified.	47 participants answered that they will be patient for construction work during night since it is a school.	There will be a disturbance if there is a lot of noise coming from the construction site during our sleeping times. Take this in the consideration and other than some rare instances, all the transportation of heavy machinery or vehicle need to be done during the day time.	49 people voted that there will be no difficulties, because there is an enough entrances and crossings.
8	Will you have a problem if the construction company required to work during the night to carry construction requiring extreme vibration and noise such as concreting, cutting, digging etc.?	Not happening. It has to be gift behind hindrance.	No hindrance since the building of kindergarten is short and construction area is large.	47 participants answered that they will be patient for construction work during night since it is a school.	Working hours should be short and need to finish before the night. Most of the residents reside at their summer camp house during that time, so there should be no problem there.	47 people said that there will be no problems, majority of the residents will be out of the city at their summer camp houses, and kindergarten for our children is in vital need for our community, so we respect that. 1 person agreed that he/she understands the situation. 1 person agreed that proper procedures need to be taken.
9	How would you react to construction company transporting waste and construction material through your apartment area or parking area?	If anyone throws rubbish, we will require that person remove it from time to time. It contaminates our environment.	No negative image since the kindergarten has concentrated dumpsite and it won't seem tiresome for residents if construction work is performed fast.	46 replied that there will not be any difficulty if the Construction Company have good organisation of waste management and disposal.	Heavy and large vehicle could cause some traffic issues, but since it's for our own good we can tolerate that.	There will be no negative comments, but proper transportation vehicles need to be used.

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10	Are you concerned about Health & Safety of residents and children during the construction?	This worries us. So many buildings are constructed in the eye of the public. They ensure safety on their own. Hopefully the construction company allowed to construct building for kindergarten will ensure occupational safety like them.	If the construction work is performed fast, our children will acquire pre-school education. For this reason, we have no worry.	48 participants felt that there will no negative impact if the Construction Company follows safety guideline correctly.	We are worried that people could fall into these holes cause by a construction work. Following all the safety guidelines is a must. Fencing should be around the construction site of all times, and there should be fewer heavy vehicles in our roads during the day time. All the drivers of these heavy vehicles transporting a building material must work cautiously with in the safety procedures, since it's close to the children.	There will be no problems since our children will be in their summer vacations.
11	Would you like to participate in safety monitoring and controlling activities?	Not interested in engaging.	Would like to collaborate to defend children's rights and secure them against any danger or accident.	41 participants answered that they are willingness to participate.	Since I go to this school and I live close by, I can do the monitoring every now and then. This includes me and all the children who live in this area, so placing warning signs is a must.	12 said that they will be involved, 2 said they are busy, 5 said they will be involved if they are available during that time, 31 said they will not be involved.
12	Would you be willing to form a committee to help to school during the construction period?	Since kindergarten manages activities on its own, it is not required to establish committee or board for assisting the kindergarten.	Would like to collaborate to defend children's rights and secure them against any danger or accident.	47 participants answered that they are not sure to form a committee, but they need some clarification regarding a council formation.	There is a Parent-Teacher Association already in the school, they should be involved on this matter.	29 people said that they want this to happen, 3 answered don't know, 19 said no.
13	Any other critical environment related issue and concern by the residents for the during construction and operation stage?	There are so many trees outside our kindergarten. How to deal with these trees? If trees are required to be carried or transplanted, only	It is advisable to commence construction work when spring comes, and climate becomes warm. Since August is heavily rainy, it may affect	100 % all participants replied that since the school building is constructed, so the road, landscaping and improving pathways	We need to prevent our children from going into this construction sites during the summer time, safety procedures and preventions must be	Waste disposal service needs to be carried out after the construction work; damaging children playground must be prevented. The green area

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		specialized people must do it.	construction work. Therefore, we would like you to perform construction work fast, overcoming any difficulty.	must be the first concern.	always followed. They should not cut down trees around the area, if necessary, trees must be transplanted.	needs to be restored after the construction work.
14	If you have any problem caused by this school / kindergarten construction, whom would you like to contact? (Construction company, school, urban department etc.	Will apply to the construction company and kindergarten administration if there is any problem arising from. In case of failure to solve problem to some extent, will request for further organizations/competent authorities.	Will apply to the construction company, municipal and district administrations, management of kindergarten and governor of the district, respectively.	All participants answered that they were prepared to cooperate wth Construction Company, school management and district government.	Contractor company, Client organization, School, Micro district, or the district administration	43 said Construction company, 8 said Kindergarten, 2 said District governor, 8 said District administration, 2 said City administration
15	What would you expect to improve at current school building (such as changing coal heating to electric heating etc.)	Nothing to say.	Requesting for arranging façade of kindergarten and extending building of kindergarten.	Improve the electricity supply system.	Hot water pipelines must be renewed and reinstalled, and sewage pipelines must be replaced. I think outside facade of the current building needs renovation.	Improvement of the surrounding areas, adding more playground for children
16	Any shops/commercial establishments and industrial activity disturbed by this construction?	Not happening. Service centers like store is located far from the construction site.	Kindergarten No. 72 in our *khoroo* has large and spacious outside area and fencing around kindergarten; hasn't store and service organization around fencing.	There is no shop or commerical organisation in the area.	There are only few industrial and shopping areas, so there should be no problem.	There will be no problems unless parking heavy machinery and other vehicles in front of the store.
17	What other organizations of environment & nature conservation (NGOs/CBOs/ Civil Society) active in the area? Name of these organizations	Unlikely to exist.	Nothing to say.	Eco-club of the school children	N/A	51 said there is none.
	Other issues	School building to be	Total number of children	It is important for the	Since there are lots of	Kindergarten playgrounds

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		satisfied in terms of appearance, chairs and desks, doors and entrances, and environmental improvement. Building to be used for only purpose of school activities. After completion of construction work, rubbish and debris must be removed from site.	who must attend in our kindergarten within the must-attend area is 734. Only 320 among them acquire pre-school education in our kindergarten. Upon extending building of kindergarten, all children within the must-attend can attend kindergarten.	community if the school is supported.	apartments around parking heavy vehicles and especially blocking roads and entrances are not tolerable. Pedestrian bridge must be built over any dug-out holes. There must be some spotlights at night times.	must be built with quality materials. There is not much space in the outer area, so the playground that can provide enough game or equipment in a small space is needed. There should be a playground for our children to play in the summertime, and there should be enough of it.

5. Details of Public Consultation (Environment) (21-25)

No	Participants' opinion, comments, and suggestions from consultation meetings with residents of surrounding area of sites					
	Issues	**21. Ireedui Primary school in Ulaanbaatar**	**22. KG # 17 in Ulaanbaatar**	**23. KG # 164 in Ulaanbaatar city**	**24.School # 110 in Ulaanbaatar city**	**25. KG # 6 in Khuvsgul, Murun *soum* /29 Aug,2023/**
		21	**22**	**23**	**24**	**25**
1	Do you support for the construction at school.	Those who voted fully supported.	We support this activity since it is important to engage pre-school children in kindergarten. Many children cannot attend kindergarten due to outdated technology and exceeded capacity. For this reason, we, the parents and custodians, are in favour of building extension for the kindergarten.	Since there is a poor availability of kindergartens in this micro district, majority of participants 100% agreed upon supporting the kindergarten building extension work more preferably new building constructed near the kindergarten.	The participants in the meeting showed 100% support for building kindergarten extension, and any work being done for their future generations. The participants also agreed that by building extension for the kindergarten, there will be a healthy and safe environment for children to grow up. It was also discussed that teachers and employees getting heavy workloads affecting negatively for their well-beings resulting with diseases	The consultation meeting was conducted in the "Citizen Hall" of the Governor's Office of Murun Sum by covering a total of 79 people from the local citizens of the 3rd and 8th *khoroo* and parents (guardians) on the extension of kindergarten#6 with 150 beds. The participants (a total of 79) in the consultation meeting showed 100% support for building kindergarten expansion.

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					such as neurosis, so building extension is vital for solving these problems.	
2	What is educational status of your community?	While 84% considered educational attainment is good, 16% said it is fair.	Those who are around kindergarten have various educational backgrounds. People who run private business constitute majority of the residents; people from target groups who are often poor and uneducated live there, too.	The government is very keen on its citizen's and children's education. Children's education is much dependent on how they enrolled in kindergarten, so it's necessary for us to socialize our children and enrol them in kindergarten. Children who did not enrolled in kindergarten, has more hard time to get further education and schooling.	The majority of residence here living in our micro district are middle class residents with educational level varying between mid to high. Representatives of residents participated in this survey unanimously supported the kindergarten extension proposal and have expressed their desire to work together.	The 51 or 64.5% were with bachelor and above, 28 or 35.5% were secondary education. The participants of the meeting are teachers, musicians, engineers, accountants, pharmacists, hairstylists, tailors, drivers, servants, herders, self-employed, pensioners, etc.
3	Will this construction at Schools / Kindergarten give any negative impact to your apartment complex?	While 119 citizens said it has no influence, 1 person considered it may influence.	Construction work for kindergarten building won't affect residents. Since it is quite far from the apartments, construction work won't impact us.	48 people answered that there will be no serious negative impacts or difficulties. "There will be some temporary negative impacts. Ulaanbaatar city already has its own problems with air pollution, so I don't think adding dust caused by constructing a kindergarten will give us any more difficulties. Although, before starting the construction work plan all the heating and	Couple of respondents participated in this survey stated that construction companies should use the modern methods of dust control on the construction site, but noise caused by construction process and other negative effects can be allowed at that time.	The project implementation unit and contractor shall take mitigation measures by reducing minor impact of noise and dust control. The expansion will be much closer to 2 apartments (Apartment No.05 and 47). The construction working hours should be adjusted to the area. The temporary access road and location of construction entrance and exit to be discussed with the residents of area.

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		21	**22**	**23**	**24**	**25**
				sewage pipelines going in and out from my house needs to be taken into to the consideration.		
4	What benefits do you perceive from this construction?	Environment for children's academic learning to be improved. Educational attainment and accessibility to be enhanced. Teacher to be enabled to work with every single child, thanks to reduction in number of pupils in a class. This will exert some positive influence in academic quality of children.	With giving their children to new and advanced kindergarten, employment circumstances will be enhanced. Residents will be satisfied with improvement in the environment of kindergarten and pre-school children will be provided with opportunity to learn.	41 people agreed that our children will enrol in kindergarten, 2 agreed that we are in dire need, 2 agreed that its beneficial for us to enrol our children in the kindergarten, 1 person agreed that there will be more study environment for our children, 1 agreed that we need it because will benefit our future work force, 1 agreed that children will have much more free classroom space, 1 agreed that there will be more jobs, 1 agreed that our children will grow up in a comfortable environment, 1 agreed that there will be more kindergarten availability for our children.	There will be favourable learning environment for young children. Positive changes will develop for educating young children. Healthy, comfortable, and safe learning environment for children will be provided. Teachers will develop their creativity, and they can work on young children individually.	The capacity of kindergartens to be increased by 150 beds and safety environment created for preschool education. More employment in the local area increased.
5	Would you have any problem with school if construction company makes access road in your parking area, dig any	While 97 citizens answered there is no conflict, 23 considered conflict is mild. 5 people expressed they are patient with any issue.	Since it is a building for kindergarten, nothing will stop this. We, the residents, will support for releasing areas, and installing and repairing	47 people agreed that there will be no violations, "We can park our cars in different area".	Participants stated that there should be a preliminary guideline on working area of the construction site and it should be provided for	The residents of apartment no.47 state that car parking area of kindergarten and apartment no.07 is fully equipped in working hours. Contractor should seek

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	pipeline etc. for repair for diversion?		pipelines. Parking lot to be emptied for free arrival and departure of construction machinery and equipment for construction work.		the residents so that it can prevent negative effects on parking cars around the construction site. There is so little space around this area so if larger machines parked on the construction site itself or the working area, there should be no problem for the residents around the area.	other temporary entrance and exit to the site. The heavy-duty machines drive through two-lane road near apartment, it causes damages to the road. So, the contractor shall have a duty to restore to normal condition of road. If construction mixers, pumps, and other heavy duty machines park on the first lane of road, it will block whole street and entrance of the car parking of apartment no.47. Construction company should inform residents that any scheduled works which may block car parking area and road and take actions prevent any accidents could occur.
6	Would you be having any construction causes some dust during digging and storing in the school premises?	While 74 citizens told there is no barrier, 12 considered there causes a problem. Others said they are prepared for the problems.	Since it is extension of kindergarten building, it will be appropriate for completing it within summertime. Temporary noise and dust won't affect us, and thereby construction of kindergarten is the most important issue among others.	44 agreed that there will be no difficulties, because new building will be small.	They also stated that construction noise and dust pollutions are the problems we cannot avoid so we have to allow it because it is all for our micro district development and creating comfortable environment for our children. Residents also agreed upon handling this type of issues with tolerance and will be	The citizens commented that excavation and removing dirt from construction site should be completed in June and July during summer holiday of students. The contractor shall irrigate construction road and site on daily basis preventing any dust.

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					taken in their part to reduce the negative impact of that time.	
7	Will you have a problem if the construction company required to work during the night to bringing construction material?	While 99 citizens said there is no occurrence of problem, 12 said there is occurrence.	Night-time operation will be allowed. This is not building for a mall. This is the building for kindergarten. For this reason, nothing can stop it. Any problem arising from construction work won't be problem indeed.	49 agreed that there are no difficulties, because there are lot of entrances and crossings. 1 person agreed to respect any proposals.	Offices and service establishment around the area works during the day time, so there should be no problem there, but there might be a slight problem for residents living near the area. Although, residents agreed upon working together for resolving problems if there are less night time transportation to the construction site. Residents also stated that if the construction company carry out their work with proper working schedules there should be no problem.	The participants replied that contractor shall inform that transportation and works are planned in nighttime with an accurate schedule. It prevents any problems may occur.
8	Will you have a problem if the construction company required to work during the night to carry construction requiring extreme vibration and noise such as concreting, cutting, digging etc.?	While 97 citizens answered no problem occurs, 23 stated they will be tolerant since it is temporary, underlining that the most important of all is to construct school building in a qualified manner within the time specified.	Since it is extension of kindergarten building, we will support even when it is noisy. We need to construct kindergarten by working even at nights. Everyone will support building of kindergarten at the present time where Mongolia is in lack of kindergarten and number of pre-school children is growing rapidly. There must not	47 agreed to there will be no difficulties, majority of the residents will be at their summer camp house, so we understand that there is a vital need of a kindergarten, so we respect that. 1 says that we understand the current situation. Also 1 person agreed that choosing proper procedures where it's	Residents also stated there will be no difficulties for residents if the proper transportion procedures are followed during this time, and all types of accidents caused by transporting building equipments and materials must be avoided such as things falling off or dragged on the road during transportion.	The residents answered that any construction work during the night may cause extreme noise and vibration, it should be planned in June to August.

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			be any hindrance to construction work.	possible.	Transportation of each hazardous materials to human health must be carried out carefully with caution. If all above requirements are met during the construction work residents stated that they will be happy to cooperate.	
9	How would you react to construction company transporting waste and construction material through your apartment area or parking area?	120 citizens answered they have no negative image/impression.	Debris to be transported during construction work. No negative influence to be exerted during the transportation of debris. Areas must be freed, and debris must be carried.	48 agreed that there will be no negative comments, but proper trucks must be used for the transportation.	The participants in the poll were expressing their concerns about the child's health and safety. Therefore, residents suggested that there should be fencing and security around the construction site at all times, also neighbourhood safety patrols including residents around the area and kindergarten teachers must be organized. Residents also stated that the safety of children going for kindergarten in the morning and the coming back time should be the focus.	58 people answered that there are no impressions and comments, but trucks with cover with other safety requirements shall be used for the transportation.
10	Are you concerned about Health & Safety of residents and children during the construction?	All the participants expressed their worry, warning the construction company to ensure safety to its fullest extent since the place is crowded.	No harm to be caused to safety and health of residents and children during construction. Safety harness, support and protection are required to be excellent	We have worries because our children will be on their summer vacation.	The public representatives participated in the poll had expressed their desire to work together for monitoring the construction work. And	The safety of construction work should be number 1 thing for civil works and residents of area. The construction company shall follow any regulations, guidelines and norms

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			and reliable during construction.		have expressed their readiness to cooperate in the safety of this construction work and its surrounding areas.	during the night and daytime. The warning board with pictures which could draw attention of children and increase harness should be placed near construction site.
11	Would you like to participate in safety monitoring and controlling activities?	While 8 people answered they are to engage, 89 said "no". 23 citizens have no idea.	It is a duty of professionals. The company, which is in charge of construction work, not the residents, will be responsible for securing safety and health of children.	12 agreed to be involved, 2 said they are busy, 5 said they will be involved if they available during that time, 31 said they will be not involved	The majority of the citizens participated in the poll had expressed their support for running a committee board to help in protecting the rights of residents and child safety. They also suggested that they can provide outside monitoring during the construction work.	23 of participants would like to participate in monitoring and controlling activities.
12	Would you be willing to form a committee to help to school during the construction period?	While 69 citizens answered, "they won't engage", 35 supported it is right choice, and 16 people answered the decision is up to school administration.	No committee or board to assist construction will be required. Professionals will be responsible for the construction work.	29 said they want it, 3 said don't know, 19 said no.	Residents stated there could be several issues during the building extension work including prevention of damaging green area and roads inside the kindergarten and its surrounding area, closing possible roads and crossings during the construction work, renovations of the surrounding area after the construction work, construction materials such as sand and gravel must be brought from the proper supplier, children	No need for establishing committee or board to assist construction. Since Project implementation unit, employer supervision, design supervision firm and other government organization are responsible for civil work.

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					playground area must not be degraded.	
13	Any other critical environment related issue and concern by the residents for the during construction and operation stage?	While 109 citizens are aware, but the remaining people have no idea.	Since building of kindergarten is the most significant activity, no negative impact relating to environment will be found.	Waste disposal service needs to be carried out after the construction work, damaging children playground must be prevented, and green area needs to be restored after the construction work.	Management of the current construction company. Kindergarten administration, General Agency for Specialized Investigation, Monitoring group consisting of representatives of residents	Since expansion of kindergarten is the most significant investment, no critical environment related issue and concern by residents except for dust and noise.
14	If you have any problem caused by this school / kindergarten construction, whom would you like to contact? (Construction company, school, urban department etc.	77 citizens answered they would apply to construction company, 9 to specialized inspection agency, 16 to the Ministry of Education, 1 to the Office of District and 17 to school administration, respectively.	No problems will be arising from since it is construction work of kindergarten building. We hope that the responsible company will be reliable and qualified. If problem arises, the company will be held responsible.	43 said Construction company, 8 said Kindergarten, 2 said District governor, 8 said District administration, 2 said City administration	Improvement of kindergarten's plumbing pipes and electrical wirings must be made.	The participants expressed that they would directly conduct to Construction company when problems caused by civil work.
15	What would you expect to improve at current school building (such as changing coal heating to electric heating etc.)	Add more green facilities and build sport courts, gyms, and laboratories. Electric heating has to be installed.	Current construction must be connected to central heating line. If it is connected to central heating line, comfort and learning environment will be excellent.	Improvement of the surrounding areas, adding more playground for children	There are no public service establishments near the area, so there should be no problems.	Establish more playground in the kindergarten and improve the existing heating, water supply, sewage, and electrical lines.
16	Any shops/commercial establishments and industrial activity disturbed by this construction?	Majority of the participants answered they won't face difficulties.	A hotel named Khaan is located at north of kindergarten. This hotel needs to be warned and informed with written statement. We hope it would understand which is more important:	There will be no problems unless parking heavy machinery and other vehicles in front of the store.	There are no public service establishments near the area, so there should be no problems.	There is no shops/commercial establishments and industrial activity near the kindergarten No.06.

No	Participants' opinion, comments, and suggestions from consultation meetings with residents of surrounding area of sites					
	Issues	**21. Ireedui Primary school in Ulaanbaatar**	**22. KG # 17 in Ulaanbaatar**	**23. KG # 164 in Ulaanbaatar city**	**24.School # 110 in Ulaanbaatar city**	**25. KG # 6 in Khuvsgul, Murun *soum* /29 Aug,2023/**
		21	**22**	**23**	**24**	**25**
			kindergarten or hotel.			
17	What other organizations of environment & nature conservation (NGOs/CBOs/ Civil Society) active in the area? Name of these organizations	120 citizens responded, "not available".	No organization to protect environment found. Teachers and employees from kindergarten make efforts on furnishing green environment.	51 said there is none.	There are no non-profit organizations and civil society organizations for protecting environment active near the kindergarten area or in the micro district territory. However, there are district and city environmental inspectors, and environmental inspectors of "General Agency for Specialized Investigation" active in this territory.	79 participants responded that no environment & nature conservation (NGOs/CBOs/ Civil Society) active in the area.
	Other issues	No prohibition over any activity for children, school, and kindergarten. Supporting extension for school building. Paying attention on building-up academic environment for our children – the light future of Mongolia is the foremost duties of government and parents. Since children are likely to get in traffic accident over parking lots near the school, this issue should be paid higher attention. Please secure path	10^{th} micro district of Sukhbaatar district has the highest number of apartment buildings among others. Along with it, there are thousands of pre-school children who have to be attended in kindergarten. Since number of groups at kindergarten No. 17 is insufficient, all children cannot be attended. Therefore, we are confident that a new kindergarten with 4-6 groups would be constructed, and our children would be	If warm, comfortable, and hygienic kindergarten built for us, our children will grow up in a healthy environment. If there is less workload for teachers, our children will learn much more. Kindergarten playgrounds must be built with quality materials. There are lot of children that needs to be enrolled in this September, so building a kindergarten is a must.	Considering views of the residents and user organization during the building extension work Restoration work of the surrounding areas of kindergarten and its green areas after the building extension work Keeping the safety of the residents and construction company staffs, following the labour protection guidelines during the construction work. Completing the construction work in the given timeline with quality materials.	The participants informed that the current condition of existing kindergarten may endanger children. There are many problems including leakage from the roof, broken wastewater lines cause odors, molds growing from foundation to floor. The civil work of expansion should be completed in a short time. The residents worried about façade of expansion building, any state budgeted kindergartens are designed with EPS insulation and plastering, painting which needs to be renovated in 3

No	Participants' opinion, comments, and suggestions from consultation meetings with residents of surrounding area of sites					
	Issues	**21. Ireedui Primary school in Ulaanbaatar**	**22. KG # 17 in Ulaanbaatar**	**23. KG # 164 in Ulaanbaatar city**	**24.School # 110 in Ulaanbaatar city**	**25. KG # 6 in Khuvsgul, Murun *soum* /29 Aug,2023/**
		21	**22**	**23**	**24**	**25**
		where children go to school or home against any possible danger as soon as construction work starts.	provided with pre-school education.			or 4 years after completion. The participants expressed their gratitude for organizing the consultation meeting for kindergarten expansion and receiving feedback from citizens.

List of People Met on Sites

No.	Name of the Participant	Occupation	
		Ministries and Departments	
1	Ms. Uranchimeg	Director, Department of Clean Technology, MNET	
2	Ms. Bunchinjav	Director of Division of EIA, MNET	
3	Mr. Tumurbaatar	Officer, Department of Clean Technology, MNET	
4	Mr. Batmagnai	Director of Department of Finance and Economy, MES.	
5	Mr. Ganbaatar	Senior officer, Department of Finance and Economy, MES	
6	Mr. Amartuvshin	Officer, Division of Investment, MES	
7	Mr. Enkhtur	Director of Finance and Investment Division of UBMED	
8	Mr. Bayrmagnai	Officer of Finance and Investment Division of UBMED	
9	Mr. Irmuun	Officer of Finance and Investment Division of UBMED	
10	Mr. Jargalsaikhan	Officer, Department of Nature, and Environment of UB.	
11	Ms. Zolzaya	Project officer, Department of Nature, and Environment of UB.	
12	Mr. O.Batkhishig	Researcher, Institute of Geography	
		***Aimag* or Provincial Governments**	
13	Mr. Batzaya	Officer of Nalaikh District Education Department	
14	Mr. Batjargal	Director of Darkhan Uul *Aimag*, Department of EC.	
15	Mr. Buyanbat	Officer of Darkhan Uul *Aimag*, Department of EC.	
16	Mr. Batmunkh	Director of Department of Education & Culture of Govi-Altai *Aimag*.	
17	Mr. Ankhbaatar	Officer of Department of Education & Culture of Govi-Altai *Aimag*.	
27	Mr. Bileggumberel	Vice Governor of Govisumber *Aimag*	
28	Mr. Munkhzul	Director of Department of Education & Culture of Govisumber *Aimag*.	
29	Ms. Battsetseg	Officer, of Department of Education & Culture of Govisumber *Aimag*	
30	Mr. Tamir	Officer of Land Management Agency of Govisumber *Aimag*.	
31	Mr. M. Khuyagbaatar	Deputy governor of Khuvsgul *aimag*	
32	Ms. B.Oyuntuya	Head of Investment, Development Policy department of Khuvsgul *aimag*	
33	Mr. Galsandorj	Senior specialist of Social Policy department of Khuvsgul *aimag*	
34	Mr. Ts. Idermunkh	Governor of Murun *soum*, Khuvsgul *aimag*	
35	Mr. P. Munkhjargal	Head of Environment and Tourism department of Khuvsgul *aimag*	
36	Mr. N. Dalaijargal	Budget specialist of Education, Science department of Khuvsgul *aimag*	
37	Mr. Ts. Batkhuu	Specialist of Education, Science department of Khuvsgul *aimag*	
38	Mr. U. Bayarsaikhan	Specialist in charge of development for the children, youth and elders in Murun *soum*	
39	Ms. L.Azzaya	Specialist of Land management, urban planning department of Khuvsgul *aimag*	
40	Mr. D.Sukhee	Chief engineer of Us suvag and utility company	
		Schools and Kindergartens	
41	Ms. Delgermaa	Kindergarten No.82	
42	Ms. Tsevmaa	Kindergarten No.22	
43	Ms. Naranjargal	Kindergarten No.17, UB, Sukhbaatar District, 10th *khoroo*.	
44	Mr. Sosorbaram	Kindergarten No.82	
45	Ms. Tsetsegsuren	School No. 122 UB, Songinokhairkhan District, 22nd	
46	Ms. Tsermaa	Director of School # 51, UB	
47	Ms. Odgerel	Director of KG # 160, UB	
48	Mr. Altangerel	Director of School # 6, UB	
49	Ms. Otgonsuren	Methodologist of KG # 68, UB	
51	Ms. Sarantuya	Teacher of KG # 68, UB	
52	Ms. Bayrmaa	Director of KG # 65, UB	
53	Ms. Erdeneundrakh	Director of KG # 72, UB	
54	Ms. Delgermaa	Director of KG # 100, UB	
55	Ms. Nergui	Director of KG # 164, UB	
56	Ms. Namjilmaa	Organizer of KG # 164, UB	

No.	Name of the Participant	Occupation	
57	Ms. Burenjargal	Director of KG # 88, UB	
58	Ms. Odgerel	Director of KG # 66, UB	
59	Ms. Tsagaantsooj	General Director of School Complex Ireedui, UB	
60	Ms. Norjmaa	Director of School Complex Ireedui, UB	
61	Ms. Tumur	Director of School # 2 of Complex Ireedui, UB	
62	Ms. Saranchimeg	Director of School #1 of Complex Ireedui, UB	
63	Ms. Dolgor	Director of High School #1 of Complex Ireedui, UB	
64	Ms. Munkhbayar	Director of Primary School #3 of Complex Ireedui, UB	
65	Mr. Batsukh	Director of Primary School # 2 of Complex Ireedui, UB	
66	Ms. Baigal	Director of KG # 104, UB	
67	Ms. Gankhuyag	Director of KG # 107, UB	
68	Ms. Enkh-Ariun	Director of KG # 110, UB	
69	Ms. Sarantuya	Director of KG # 156, UB	
70	Ms. Oyuntulkhuur	Organizer of KG # 158, UB	
71	Ms. Adyasuren	Director of KG # 158, UB	
72	Ms. Oyuntuya	Director of School “Erdmiin Orgil”, UB, Nalaikh	
73	Mr. Batzaya	Director of KG # 66, UB	
74	Ms. Marta	Director of Primary School in Terelj, UB	
75	Ms.Tserendolgor	Director of School # 109, UB, Nalaikh	
76	Ms. Khulan	Organizer of KG # 176, UB	
77	Mr. Sevjid	Director of Khantaishir school of Govi-Altai	
78	Ms. Khishigjargal	Manager of Khantaishir school of Govi-Altai	
79	Ms. Oyunbileg	Director of KG #6, Murun *soum*, Khuvsgul	

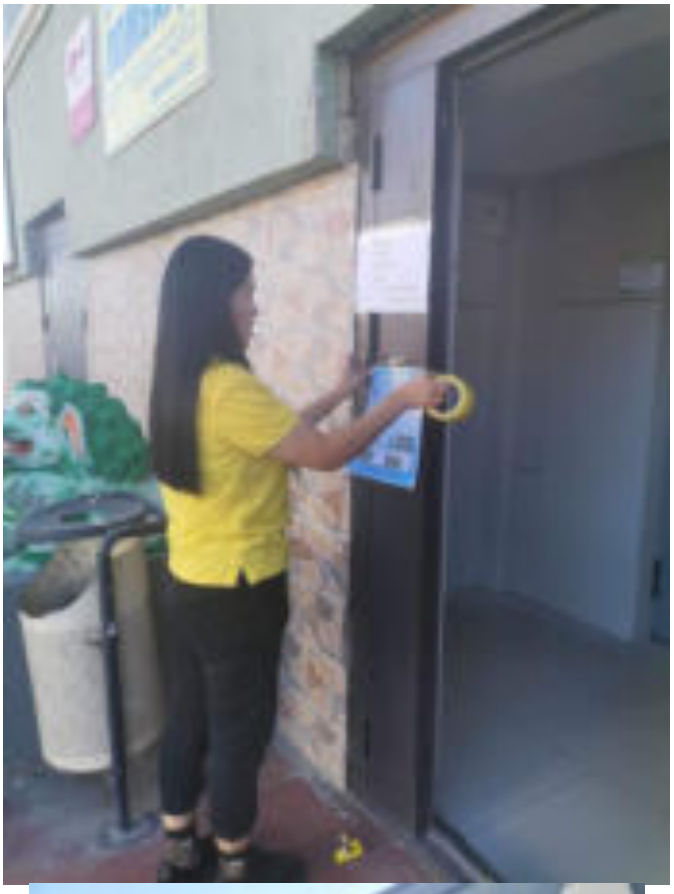
PHOTOGRAPHS OF CONSULTATIONS

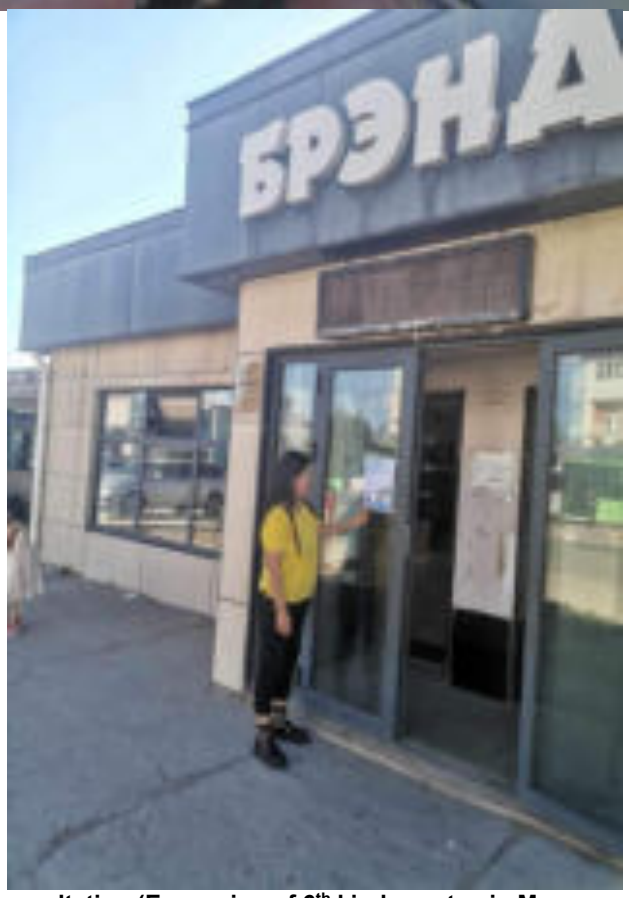
Consultation meeting in Ulaanbaatar’s school

Consultation meeting in Murun *soum*, Khuvsgul *aimag* (Aug 29, 2023)

Consultation meeting in Murun *soum*, Khuvsgul *aimag* (Aug 29, 2023)

PHOTOGRAPHS OF INFORMATION DISCLOSURE





Advertisement for Public consultation (Expansion of 6th kindergarten in Murun *soum*, Khuvsgul in Aug 2023)

SIGNED ATTENDANCE SHEETS OF PARTICIPANTS

Заан [illegible]

Оролцсон хүмүүсийн нэрсийн жагсаалт

Сургууль/Цэцэрлэгийн төрөл ба дугаар: [illegible]

Холбоо барих утас: 99703009

Уулзалт хийсэн он,сар, өдөр, цаг: 2017 - 02 - 16

Уулзалт зохион байгуулсан, хөтөлсөн хүний нэр: Н. [illegible]

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3	Д. Ганзориг	эр	[illegible]	99997899	Ганзориг
4	Б. [illegible]	эр	[illegible]	88447368	Б. [illegible]
5	Л. Зоригоо	эм	[illegible]	88030609	Л. Зоригоо
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15	Б. [illegible]	эм	[illegible]	99172592	[illegible]
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17	Н. [illegible]	эр	хувиараа	96662598	[illegible]
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	Оролцогчдын нэр	Хүйс	Нас	Үндэс угсаа	Боловсрол	Эрхэлдэг ажил	Утас	Гарын үсэг
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Annexure 7: Due diligence status of existing and associated facilities for the project proposed (additional financing) kindergarten and school buildings

“Ireedui” Secondary school. SHD, UB.

Communication/Information & Communication National Network: Permission No. THB665/2020

NETCOM

БАТЛАВ

ТЕХНИКИЙН НӨХЦӨЛ

Дугаар: ТН-БББ5/2020 2020/09/09

Захиалагч байгууллага:	МОНГОЛ УЛСЫН БОЛОВСРОЛ, ШИНЖЛЭХ УХААНЫ ЯАМ
Харилцагчийн нэр:	Ч.ЭНХ-АМГАЛАН
Харилцах утас:	262227
1. Байршил:	СХД-н 15-р хорооны нутаг дэвсгэрт
2. Зорилгыг:	Ирээдүй цэцэрлэгт 1-р ахлах сургуулийн ерөнхий барилга
3. Холбооны харагдах:	/урьдчилсан тооцоогоор/ Телефон тоо (ширхэгээр) 10 ш

4. Техникийн онцгой нөхцөл: Харилцаа Холбооны Зохицуулах хороноос олгогдсон үндсэн сулжээ байгуулан бүрэн эрхийнхээ дагуу холбоожуулах техникийн нөхцөлийг зөвхөн МХС ХХК олгох бөгөөд техникийн нөхцөлүүдээр холбооны бүх төрлийн үйлчилгээний зорилгоогоор кабель татах болон шилжүүлсэн тоноглолд үг барилга объектыг техникийн болон улсын комиссоор хүлээн авахгүй болно.

5. Техникийн үндсэн нөхцөл

5.1. ХЦЗ 6804-ний 7-р зүүтын 4-р эрвэгт одоо байгаа сувагчлал болон шинээр хийсэн сувагчлалаар татан барилгад оруулж тогтвөрлөлийн тохиромжтой холбоно.

5.2. Үг техникийн нөхцөлд зорилгоо гр-5/6-н 94,95,96-р хэсэг зөвлөмж нөхцлөв.

5.3. Харилцаа Холбооны Зохицуулах Хороноос олгосон холбооны кабель шугамын үгсэлт хийх тусгай зөвшөөрөлтэй ак ахуйн нэгжээр гүйцэтгүүлэн шаардлагатай.

6. Зураг төсөөг зайлшгүй тусгах шаардлагатай технологийн онцгой нөхцлүүд:

6.1. Шинээр хийгдэх кабель, шугамын үгсэлтын ажлын зураг төсөвийг зохиохдоо Монгол Улсын стандарт MNS 5276:2003, MNS 6279:2003, MNS 5280:2003, MNS 5277:2003 тоот ерөнхий шаардлагууд болон ДЗХ-нийн сайдын 1995 оны 127-р тушаалаар батлагдсан заавруг баримтлан гүйцэтгэх.

6.2. Харилцагчийн шугамын үгсэлтын ажил барилгын зураг төсөөг байнгүй болон хийдэгүй бол захиалагчид мэдэгдэж тусөө зураг оруулах.

6.3. Кабелийн хуваарилах хайрцагны байрлалыг харилцагчийн шугамын нягтралын цэгт болон техник ашиглалтын шаардлага хангахуйц байдлаар сонгон суурилуулахаар технологийн нөхцөл хэмжээг заан оруулах.

7. Үгсэлтын ажлын үед тавигдах нөхцөл:

7.1. Үгсэлтын ажил эхлэхээс өмнө зураг төсөв техникийн нөхцлийг дагуу хийгдсэн эсэхийг Мэдээлэл холбооны сулжээ ТӨК-ны УБ Хотын сулжээний газрын Бүртгэл төлөвлөлтийн төгөөр (Утас: 70112399) хянуулан батлагаар авсан байх.

7.2. Газар шорооны ажил гүйцэтгэхэд харьяалагдах түхайн тасгийн ахлах инженер болон инженерээр шалгуулан дагд ажлын акт үйлдэж хүлээн авах ажлын актанд нэмэлтлэх.

7.3. Кабель шугамын үгсэлт болон газар шорооны ажлыг эхлэхдээ УБ Хотын сулжээний газрын ерөнхий инженерээс албан бичиг мэдэгдлийг авч түхайн харьяалагдах тасгийн ахлах инженерийн мэдэлтан дор гүйцэтгэх.

7.4. Шинээр татсан кабель болон кробванд тэмдэглэгээг бүрэн хийсэн байх.

7.5. Үгсэлтын ажлын явцад захиалагч ашиглалтын байгууллагатай хамтарч хянаат тавих үгсэлтын технологийн шаардлагыг бүрэн хангуулсан байх.

“Ireedui” 1st Secondary school. SHD, UB.

Communication/ Information & Communication National Network: Permission No. THB665/2020

БАТЛАВ
МЭДЭЭЛЭЛ ХОЛБООНЫ СҮЛЖЭЭ
ХХК-ИЙН ГҮЙЦЭТГЭХ ЗАХИРАЛ
Ч.ЗОЛБАЯР
2020 оны 09 сарын 10

ТЕХНИКИЙН НӨХЦӨЛ

Дугаар: ТН-Б665/2020 2020/09/09

Захиалагч байгууллага:	МОНГОЛ УЛСЫН БОЛОВСРОЛ, ШИНЖЛЭХ УХААНЫ ЯАМ
Хэрэглэгчийн нэр:	Ч.ЭНХ-АМГАЛАН
Харилцах утас:	262227
1. Байршил:	СХД-н 15-р хорооны нутаг дэвсгэрт
2. Зориулалт:	Ирээдүй цогцолбор 1-р ахлах сургуулийн өргөтгөлийн барилга
3. Холбооны хэрэгцээ:	/урьдчилсан тооцоогоор/ Телефон тоо (шилэн) 10 ш

4. Техникийн ерөнхий нөхцөл: Харилцаа Холбооны Зохицуулах хорооноос олгогдсон үндсэн сүлжээ байгуулах бүрэн эрхийн дагуу холбоожуулах техникийн нөхцлийг зөвхөн МХС ХХК олгох бөгөөд техникийн нөхцөлгүйгээр холбооны бүх төрлийн үйлчилгээний зориулалттайгаар кабель татах болон шилжүүлсэн тохиолдолд уг барилга объектыг техникийн болон улсын комиссоор хүлээн авахгүй болно.

5. Техникийн үндсэн нөхцөл

5.1. ХШ 6824-ний 7-р зуутын 4-р өрөөтэй одоо байгаа сувагчлал болон шинээр хийсэн сувагчлалаар татан барилгад оруулж тэгэлгийн [illegible] холбоно.

5.2. Уг техникийн нөхцөлд зориулж гр [illegible] 94,95,96-р хосыг [illegible] нөөцлөв.

5.3. Харилцаа Холбооны Зохицуулах Хорооноос олгосон холбооны кабель шугамын угсралт хийх тусгай зөвшөөрөлтэй аж ахуйн нэгжээр гүйцэтгүүлэх шаардлагатай.

6. Зураг төсөвт зайлшгүй тусгах шаардлагатай технологийн ерөнхий нөхцлүүд:

6.1. Шинээр хийгдэх кабель, шугамын угсралтын ажлын зураг төслийг боловсруулахдаа Монгол улсын стандарт MNS 5276:2003, MNS 5279:2003, MNS 5280:2003, MNS 5277:2003 тоот ерөнхий шаардлагууд болон ДБХ-ийн сайдын 1999 оны 127-р тушаалаар батлагдсан заавар [illegible] баримтлан гүйцэтгэх.

6.2. Хэрэглэгчийн шугамын угсралтын ажил барилгын зураг төсөвт байхгүй болон хийгдээгүй бол захиалагчид мэдэгдэж төсөв зураг оруулах.

6.3. Кабелийн хуваарилах хайрцагны байрлалыг хэрэглэгчийн шугамын нэгтгэлын цэг болон техник ашиглалтын шаардлага хангахуйц байдлаар сонгон суурилуулахаар технологийн норм хэмжээг заан оруулах.

7. Угсралтын ажлын үед тавигдах нөхцөл:

7.1. Угсралтын ажил эхлэхээс өмнө зураг төсөв техникийн нөхцлийн дагуу хийгдсэн эсэхийг Мэдээлэл холбооны сүлжээ ТӨК-ны УБ Хотын сүлжээний газрын Бүртгэл төлөвлөлтийн тасгаар (Утас: 70112399) хянуулан баталгаа авсан байх.

7.2. Газар шорооны ажил гүйцэтгэхдээ харьяалагдах тухайн тасгийн ахлах инженер болон инженерээр шалгуулан дагалдах ажлын акт үйлдэж хүлээн авах ажлын актанд хавсаргах.

7.3. Кабель шугамын угсралт болон газар шорооны ажлыг эхлэхдээ УБ Хотын сүлжээний газрын ерөнхий инженерээс албан ёсны мэдэгдлийг авч тухайн харьяалагдах тасгийн ахлах инженерийн хяналтан доор гүйцэтгэнэ.

7.4. Шинээр татсан кабель болон кросбоксыг тэмдэглэгээг бүрэн хийсэн байх.

7.5. Угсралтын ажлын явцад захиалагч ашиглалтын байгууллагатай хамтарч хяналт тавьж угсралтын технологийн шаардлагыг бүрэн хангуулсан байх.

"Ireedui" 1st Secondary school. SHD, UB.
Electricity supply/UB Electricity Distribution Network: Permission No. 15/03715/20

БАТЛАВ
УЛААНБААТАР ЦАХИЛГААН ТҮГЭЭХ СҮЛЖЭЭ ТӨРИЙН ӨМЧИТ ХУВЬЦААТ КОМПАНИЙН ГҮЙЦЭТГЭХ ЗАХИРАЛ Д.БАЯРСАЙХАН

ТЕХНИКИЙН НӨХЦӨЛ

Дугаар 15/03715/20

[illegible] оны [illegible] сарын [illegible] өдөр — Улаанбаатар хот

Нэг. Ерөнхий мэдээлэл

1.1	Хүсэлтийн дугаар:	20-52-001492
1.2	Хэрэглэгчийн нэр, регистр:	БОЛОВСРОЛ, ШИНЖЛЭХ УХААНЫ ЯАМ Төрийн байгууллага - РД: 9116527,
1.3	Хэрэглэгчийн байршил:	Улаанбаатар Сонгинохайрхан 15-р хороо, -
1.4	Ажил үйлчилгээний зориулалт:	Сургууль
1.5	Техникийн нөхцөл олгох үндэслэл:	1) Газар эзэмших эрхийн 2009-07-14-ны 0177751 тоот гэрчилгээ. 2) БОЛОВСРОЛ, ШИНЖЛЭХ УХААНЫ ЯАМ 2020 оны 08-р сарын 11-ны №2/297 тоот албан хүсэлт 3) Архитектур төлөвлөлтийн 2019-оны МЗК2019/08-067 дугаартай даалгавар, батлагдсан эскиз зураг
1.6	Техникийн нөхцөлийн ангилал:	Нэмж авах
1.7	Тооцооны бүрэн чадал:	113 кВА (тоогоор) /Нэг зуун арван гурав/ (үсгээр)

Хоёр. Холболтын цэг:

2.1	110/10/6 кВ-ын Үйлдвэр дэд станцаас 10 кВ-ын ХБ-50 вас 1хТП-12 А фидерийн ХТП-693 дэд өртөөний 0.4 кВ талаас одоо холбогдсон холболтоор тэжээх.

Гурав. Тоолуур, хэмжих хэрэгсэл:

3.1	Өөрийн байрны 0.4 кВ-ын щитэнд ачаалалд тохирсон дифференциал автомат, хамгаалан таслах төхөөрөмж, / УЗО/, DLMS протоколыг дэмждэг 3 фазын баталгаат, бүрэн электрон 5 А тоолуур, гүйдлийн трансформатор суурилуулах.

Дөрөв. Тусгай заалтууд:

4.1	Щитний газардуулга болон шугам тоноглолын хамжилт, туршилтыг норм, дүрмийн дагуу хийлгэн холбогдох газраар шалгуулж протокол авсан байх.
4.2	ХТП-693 дэд өртөөний 0.4 кВ талын тоноглолуудыг сүүлийн үеийн овор багтай тоноглолуудаар шинэчилж солих, Хаалттай дэд өртөөний 0.4 кВ талыг шинэчлэлт хийж байгаатай холбогдуулан 0,4 кВ талуудад зохих өөрчлөлтүүдийг батлагдсан зургийн дагуу хийх.
4.3	Хаалттай дэд өртөөг өргөтгөж байгаатай холбогдуулан өргөтгөл хийсэн, бусад хүчин тоног төхөөрөмжийг Монгол улсын засгийн газрын 2020 оны 94-р тогтоолын 2.7.2-т заасны дагуу УБЦТС ТӨХК-ийн үндсэн хөрөнгөнд шилжүүлэн

“Ireedui” 1st Secondary school. SHD, UB.

Heating supply /UB Heating Network: Permission No.291/2020

БАТЛАВ УБДС ТӨХХ-ийн ГҮЙЦЭТГЭХ ЗАХИРАЛ

Г.БАЯРСАЙХАН

УБДС ТӨХХ-ийн Техникийн нөхцөл олгох комиссын 2020 оны 9-р сарын 3-ний өдрийн ээлжит хурлын шийдвэрээр зөвшөөрөв.

ТЕХНИКИЙН НӨХЦӨЛ № 291/2020

1. **Хэрэглэгчийн нэр:** Баловсрол, шинэлэг уламжлал /СХД-ийн Ирээдүй цогцолбор 1-р ахлах сургуулийн ерөнхий/
2. **Барилгын мэдээлэл:** Хуучин барилга дээр 1 давхар нэмэх
3. **Хэрэглэгчийн байршил:** Сонгинохайрхан дүүрэг, 15-р хороо, 12-р байрны баруун талд
4. **Дулааны хэрэглээ:** **Нийт :** **0.21 Гкал\цаг**

А.Халаалт	0.17 Гкал\цаг
Б.Хэрэглээний халуун ус	0.04 Гкал\цаг
В.Салхитуулга	0.00 Гкал\цаг

5. **Холболтын цэг:** 8в магистраль, ОСНААУТ-ын харьяа УДДТ-122 хүчин чадлын тооцоон 2-р халаалтаас холбогдох

Шугамын даралт, температурын утга:

А. Холболтын цэг дээр байх түвшин	5	м
Б. Шугамын статик даралт	38	м.у.б
В. Буцах шугамын даралт	5.0	ата
Г. Гадна агаарын тооцоот температур	-39	° С
Д.Температурын график	95/65	° С

6. **Мердеж хэрэгжүүлэх хууль, дүрэм журам**

6.1 Эрчим хүчний тухай хууль

6.2 Засгийн газрын 2020 оны 3-р сарын 18-ны өдрийн 97 тоот тогтоолоор батлагдсан “Дулааны эрчим хүч хэрэглэх дүрэм”

6.3 Эрчим Хүчний Зохицуулах Хорооны 2018 оны 10 дугаар сарын 11-ний өдрийн 290 дугаар тогтоолоор батлагдсан Дулаан дамжуулах, түгээх сүлжээний “Холболтын журам”

6.4 Эрчим хүчний тухай хуулийн 14-р зүйлийн 14.4-т заасны дагуу Эрчим хүч дамжуулах шугам, дэд станц нь төрийн өмчлөлд байна.

6.5 “Эрчим хүчний тухай хууль”-ийн 30 дугаар зүйлийн 30.1.10; 29 дүгээр зүйлийн 29.1.9 дэх заалтыг мердеж өөрийн эзэмшлийн шугам, тоног төхөөрөмжөөс бусад хэрэглэгчийг холбуулах.

7. **Зураг төсөл, төсөв боловсруулахад тавигдах шаардлага :**

7.1 **Зураг төслийн үндсэн шаардлага**

7.1.1 “Эрчим хүчний тухай хууль”-ийн 33 дугаар зүйл, “Эрчим хүчний шугам сүлжээг хамгаалах дүрэм”-ийн 1.3 дах заалтыг мердеж дулааны төв шугам, салаа болон салбар шугамаас хамгаалалтын зурвасын зайг хангаж барилга төлөвлөх. Шугамын хамгаалалтын зурваст тохижилт, зам талбай, зогсоол, бусад байгууламж төлөвлөхгүй байх.

“Ireedui” 1st Secondary school. SHD, UB.

Water supply/water supply and wastewater service (USUG), Wastewater collection/ (USUG): Permission No. 729/20

БАТЛАВ
УС СУВГИЙН УДИРДАХ ГАЗРЫН ЕРӨНХИЙ ИНЖЕНЕР БӨГӨӨД ДАРГЫН ҮҮРГИЙГ ХАВСРАН ГҮЙЦЭТГЭГЧ
Ж.ДАГВАСҮРЭН

УСУГ– ын Техникийн нөхцөл олгох комиссын 2020 оны 08-р сарын 19-ний өдрийн хурлын 729 тоот протоколыг үндэслэн зөвшөөрөв.

ТЕХНИКИЙН НӨХЦӨЛ № 729 \ 20

1	**Барилга байгууламжийн нэр, зориулалт, байршил**	**БШУЯам, ЗЗХУБЧХСТесел,** 320 хүүхдийн сургуулийн өргөтгөл, одоо байгаа барилга дээр 1 давхар нэмж 3 давхар болгох өргөтгөл, СХД 15-р хороо, 1-р хороолол, "Ирээдүй цогцолбор-1" ахлах сургууль
2	**Нийт усны хэрэглээ:**	Цэвэр усны – **14,72 м³/хон** Галын усны – **5,0 л/с** Бохир усны – **14,72 м3/хон**
3	**Цэвэр усны холболт хийх цэгийн байршил, шугамын диаметр**	ОСНААУГ-ын 50/2020 тоот техникийн тодруулгын дагуу Баруун түгээх тэв, ХҮТ-15-ын УДДТ-122-ын дараахь Ф80 мм-ийн шугамнаас холбох, ажлын зургийн явцад зөвшилцөх.
4	**Бохир усны холболт хийх цэгийн байршил, шугамын диаметр**	ОСНААУГ-ын 50/2020 тоот техникийн тодруулгын дагуу Баруун түгээх тэв, ХҮТ-15-ын Ф200 мм-ийн бохир шугамын худагт холбох, ажлын зургийн явцад зөвшилцөх
5	**Нэмэлт нөхцөл**	**Бусад шаардлага:** ➢ Ус хангамж, ариутгах татуургын системийн угаалга, шахалт, туршилт тохируулгын ажлын зардлыг зураг төсөвт тусгах. ➢ Барилгын гадна цэвэр, бохир усны шугам сүлжээний холбох цэгийг өөрчлөх тохиолдолд хүсэлт тавьж зөвшүүлж, хангагч байгууллагын зөвшөөрлөөр гүйцэтгэнэ. ➢ **Холбогдох Хууль, БНбД, стандартыг мөрдөх** ➢ **Гадна шугамын ажлын зургийг ХБХГ-тай зөвшилцөх**
6	**Тавигдах шаардлага**	1. Барилгыг "Хот суурины ус хангамж, ариутгах татуургын ашиглалтын тухай" хуулийн дагуу **цэвэр усны шугамын хамгаалалтаас 5 метр, бохир усны шугамын хамгаалалтаас 6 метр зайд барих** 2. Хот, суурины ус хангамж, ариутгах татуургын ашиглалтын тухай" хуулийн 15.1.10 –ын дагуу хангагч нь хэрэглэгчийн шугамнаас дамжуулан шинээр хэрэглэгч холбох техникийн нөхцөл олгосон тохиолдолд батлагдсан ажлын зураг, төслийн дагуу дараагийн хэрэглэгчийг холбуулах. 3. Борооны ус зайлуулах шугам сүлжээг тусад нь төлөвлөх, борооны усыг бохир усны шугамд нийлүүлэхгүй байх. 4. Цэвэр, бохир усны шугамын угсралт, шахалт, туршилт, холболтын ажлын явцад ашиглалтын байгууллагын хяналтын инженерийг байлцуулж ил, далд ажлын акт үйлдэнэ. 5. **Тэвшийн** болон хэрэглэгчийн цэвэр, бохир усны худаг, шугам сүлжээн дээр болон хамгаалалтын бүсэд зам талбай, авто зогсоол, барилгын довжоо, хүүхдийн тоглоомын талбай зэргийг төлөвлөсөн тохиолдолд засвар үйлчилгээ хийх боломжийг бүрдүүлэх, засварын дараах нөхөн сэргээлтийн ажлыг өөрсдөө хариуцах. 6. Техникийн нөхцлийн хүчинтэй хугацаа **2 жил.**
7	**Объект барих дээд газрын шийдвэр:**	➢ Газар эзэмших эрхийн 0177751 дугаартай гэрчилгээ ➢ МЗХ2019/08-067 тоот архитектур төлөвлөлтийн даалгавар
8	**Хэрэглэгчийн нэр, утас:**	БШУЯам, Утас: 77660888, 262227, 312993

“Ireedui” 3rd Primary school. SHD, UB.

Communication/ Information & Communication National Network: Permission No. THB664/2020

БАТЛАВ
МЭДЭЭЛЭЛ ХОЛБООНЫ СҮЛЖЭЭ
ХХК-ИЙН ГҮЙЦЭТГЭХ ЗАХИРАЛ
Ч.ЭРДЭНЭ
2020 оны 09 сарын 10

ТЕХНИКИЙН НӨХЦӨЛ

Дугаар: ТН-0664/2020 2020/09/09

Захиалагч байгууллага:	МОНГОЛ УЛСЫН БОЛОВСРОЛ, ШИНЖЛЭХ УХААНЫ ЯАМ
Харилцагчийн нэр:	Ч.ЭНХ-АМГАЛАН
Харилцах утас:	362227
1. Байршил:	СХД-н 17-р хорооны нутаг дэвсгэрт
2. Зорилгыг:	Ирээдүй цогцолбор 3-р бага сургуулийн ерөнхий боловсрол
3. Холбооны хэрэгцээ:	Гуравчлагсан төсөөлөгөөр/ Телефон тоо (ширхэгээр) 10 ш

4. Техникийн онцгой нөхцөл: Харилцах Холбооны Зөөвөрлөлт хороонооос өлгөгдөх индэр сүлжээ байгуулах бүрэн эрхийнхээ дагуу холбоовуулах техникийн нөхцлийг авахын МХС ХХК олгох бичвэд техникийн нөхцөлүүйгээр холбооны бүх төрлийн үйлчилгээний зорилгатайгаар кабель тавих болон шилжүүлэн томилдогд үг бариллга объектыг техникийн болон улсын комиссоор хүлээн авахгүй болно.

5. Техникийн үндсэн нөхцөл:

5.1. ХШ 6820-ний 2-р зүйлын 9-р заалтыг одоо байгаа суваргалал болон шинээр шийсн суваргалалаар татан барилгад орууллт тогтоолийн техверемкиид холбоно.
5.2. Үг техникийн нөхцөлд зорилт гр 9/6-н 16,17,18-р хэсыг энний эзлэхиид нөхцлөв.
5.3. Харилцах Холбооны Зөөвөрлөлт Хороонооос олгосон холбооны кабель шугамын утралт хийх түстай зөвшөөрөгтэй ак ахуйн нэгээр гүйцэтгүүлэн шаардлагатай.

6. Зураг төсөөт зайлшгүй тустэх шаардлагатай технологийн онцгой нөхцлүүд:

6.1. Шинээр хийдэх кабель, шугамын утралтын ажлын зураг төсөөнг зохиохдоо Монгол улсын стандарт MNS 5276:2003, MNS 5279:2003, MNS 5280:2003, MNS 5277:2003 тоот ерөнхий шаардлагууд болон ДБХ-ийн сайдын 1995 оны 127-р тушаалаар батлагдсан заавруг баримтлан гүйцэтгэх.
6.2. Харилцагчийн шугамын утралтын ажил барилтын зураг төсөөт байгүй болон хийдэгүй бол захиалагчид мэдэгдэж төсөө зөвлөт орууллах.
6.3. Кабелийн хуваарилах хайрцагны байрлалыг харилцагчийн шугамын нэгтрэлын цэг болон техник ашиглалтын шаардлага хангахуйц байдлаар сонгон суурилуулахаар технологийн норм хэмжээг заажж орууллах.

7. Утралтын ажлын үед тавигдах нөхцөл:

7.1. Утралтын ажил эхлэхээс өмнө зураг төсөө техникийн нөхцлийн дагуу хийгдсэн эсэхийг Мэдээлэл холбооны сүлжээ ТӨК-ны УБ Хотын сүлжээний газрын Бэлтгэл тэлэвлэлтийн тестэвр (Утас: 70112999) ямуулан батлагаа авсан байх.
7.2. Газар шороонд ажил гүйцэтгэхдэх харьяалагдах түшин тасгийн эхлэх инженер болон инженерээр шалгуулан дагд ажлын акт үйлдэж зүгээн авах ажлын актанд квесорэх.
7.3. Кабель шугамын утралт болон газар шороонд ажлыг эхлэхдэх УБ Хотын сүлжээний газрын ерөнхий инженерээс албан ёсны мэдэгдлийг авч түшин харьяалагдах тасгийн дагах инженерийн хяналтан дор гүйцэтгэх.
7.4. Шинээр татсан кабель болон кробанд тэмдэглэгээг бүрэн хийсэн байх.
7.5. Утралтын ажлын явцад захиалагч ашиглалтын байгууллагатай хамтарч ялалт тавьж утралтын технологийн шаардлагыг бүрэн хангуулсан байх.

“Ireedui” 1st Primary school. SHD, UB.

Electricity supply/UB Electricity Distribution Network: Permission No. 15/03714/20

БАТЛАВ
УЛААНБААТАР ЦАХИЛГААН ТҮГЭЭХ СҮЛЖЭЭ ТӨРИЙН ӨМЧИТ ХУВЬЦААТ КОМПАНИЙН ГҮЙЦЭТГЭХ ЗАХИРАЛ Д.БАЯРСАЙХАН

ТЕХНИКИЙН НӨХЦӨЛ

Дугаар [illegible]/20

[illegible] оны [illegible] сарын [illegible] өдөр Улаанбаатар хот

Нэг. Ерөнхий мэдээлэл:

1.1	Хүсэлтийн дугаар:	20-52-001493
1.2	Хэрэглэгчийн нэр, регистр:	БОЛОВСРОЛ, ШИНЖЛЭХ УХААНЫ ЯАМ Төрийн байгууллага - РД: 9116521,
1.3	Хэрэглэгчийн байршил:	Улаанбаатар Сонгинохайрхан 17-р хороо, -
1.4	Ажил үйлчилгээний зориулалт:	Сургууль
1.5	Техникийн нөхцөл олгох үндэслэл:	1) Газар эзэмших эрхийн 2009-07-14-ны 0177745 тоот гэрчилгээ. 2) БОЛОВСРОЛ, ШИНЖЛЭХ УХААНЫ ЯАМ 2020 оны 08-р сарын 11-ны №2/297 тоот албан хүсэлт 3) Архитектур төлөвлөлтийн 2019-оны МЗХ2019/08-068 дугаартай даалгавар, батлагдсан эскиз зураг
1.6	Техникийн нөхцлийн ангилал:	Нэмж авах
1.7	Тооцооны бүрэн чадал:	113 кВА (тоогоор) /Нэг зуун арван гурав/ (үсгээр)

Хоёр. Холболтын цэг:

2.1	110/10/6 кВ-ын Үйлдвэр дэд станцаас 10 кВ-ын ХБ-50 аас 1хТП-5 А, Б фидерийн ХТП-738 дэд өртөөний 0.4 кВ талаас одоо холбогдсон холболтоор тэжээх.

Гурав. Тоолуур, хэмжих хэрэгсэл:

3.1	Өөрийн байрны 0.4 кВ-ын щитэнд ачааллаа тохирсон дифференциал автомат, хамгаалан таслах төхөөрөмж, / УЗО/, DLMS протоколыг дэмждэг 3 фазын баталгаат, бүрэн электрон 5 А тоолуур, гүйдлийн трансформатор суурилуулах.

Дөрөв. Тусгай заалтууд:

4.1	Щитний газардуулга болон шугам тоноглолын хэмжилт, туршилтыг норм, дүрмийн дагуу хийлгэн холбогдох газраар шалгуулж протокол авсан байх.
4.2	ХТП-738 дэд өртөөний 0.4 кВ талын тоноглолуудыг сүүлийн үеийн овор багтай тоноглолуудаар шинэчилж солих, Хаалттай дэд өртөөний 0.4 кВ талыг шинэчлэлт хийж байгаатай холбогдуулан 0,4 кВ талуудад хийх өөрчлөлтүүдийг батлагдсан зургийн дагуу хийх.
4.3	Хаалттай дэд өртөөг өргөтгөж байгаатай холбогдуулан өргөтгөл хийсэн, бусад хүчин тоног төхөөрөмжийг Монгол улсын засгийн газрын 2020 оны 97- р тогтоолын 2.7.2-т заасны дагуу УБЦТС ТӨХК-ийн үндсэн хөрөнгөнд шилжүүлэх

“Ireedui” 3rd Primary school. SHD, UB.

Heating supply /UB Heating Network: Permission No.291/2020

БАТЛАВ УБДС ТӨХК-ИЙН ГҮЙЦЭТГЭХ ЗАХИРАЛ

Г.БАЯРСАЙХАН

УБДС ТӨХК-ийн Техникийн нөхцөл олгох комиссын 2020 оны 9-р сарын 3-ний өдрийн ээлжит хурлын шийдвэрээр зөвшөөрөв.

ТЕХНИКИЙН НӨХЦӨЛ № 328/2020

1. **Хэрэглэгчийн нэр:**	Боловсрол, шинжлэх ухааны яам /СХД-ийн Ирээдүй цэцэлбэр 3-р багa сургуулийн ерөнхий/	
2. **Барилгын мэдээлэл:**	Хүүчин барилга дээр 1 давхар нэмэх	
3. **Хэрэглэгчийн байршил:**	Сонгинохайрхан дүүрэг, 17-р хороо, 34-р байрны зүүн талд	
4. **Дулааны хэрэглээ:**	**Нийт :**	**0.21 Гкал\цаг**
	А.Халаалт	0.17 Гкал\цаг
	Б.Хэрэгцээний халуун ус	0.04 Гкал\цаг
	В.Салхитуулга	0.00 Гкал\цаг
5. **Холболтын цэг:**	11н магистраль, ДДТ-124-ийн 2-р халаалтад өөрийн салаа шугам, холигч насосны узелийг ерөнхий холбогдох.	
	Шугамын даралт, температурын утга:	
	А. Холболтын цэг дээр байх түвшин	6 м
	Б. Шугамын статик даралт	17 м.у.б
	В. Буцах шугамын даралт	2.5 ати
	Г. Гадна агаарын тооцоот температур	-39 ° С
	Д.Температурын график	95/65 ° С

6. **Мөрдөх хэрэгжүүлэх хууль, дүрэм журам**

6.1 Эрчим хүчний тухай хууль

6.2 Засгийн газрын 2020 оны 3-р сарын 18-ны өдрийн 97 тоот тогтоолоор батлагдсан "Дулааны эрчим хүч хэрэглэх дүрэм"

6.3 Эрчим Хүчний Зохицуулах Хорооны 2018 оны 10 дугаар сарын 11-ний өдрийн 290 дугаар тогтоолоор батлагдсан Дулаан дамжуулах, түгээх сүлжээний "Холболтын журам"

6.4 Эрчим хүчний тухай хуулийн 14-р зүйлийн 14.4-т заасны дагуу Эрчим хүч дамжуулах шугам, дэд станц нь төрийн өмчлөлд байна.

6.5 "Эрчим хүчний тухай хууль"-ийн 30 дугаар зүйлийн 30.1.10, 29 дүгээр зүйлийн 29.1.9 дэх заалтыг мөрдөж өөрийн зохицлийн шугам, тоног төхөөрөмжөөс бусад хэрэглэгчийг холбуулах.

7. **Зураг төсөл, төсөө боловсруулахад тавигдах шаардлага :**

7.1 Зураг төслийн үндсэн шаардлага

7.1.1 "Эрчим хүчний тухай хууль"-ийн 33 дугаар зүйл, "Эрчим хүчний шугам сүлжээг хамгаалах дүрэм"-ийн 1.3 дах заалтыг мөрдөж дулааны төв шугам, салаа болон салбар шугамаас хамгаалалтын зурвасын зайг хангаж барилгыг төлөвлөх. Шугамын хамгаалалтын зурвастай төхөөрөлт, зам талбай, зогсоол, бусад байгууламж төлөвлөхгүй байх.

“Ireedui” 3rd Primary school. SHD, UB.

Water supply/water supply and wastewater service (USUG), Wastewater collection/ (USUG): Permission No. 728/20

БАТЛАВ
УС СУВГИЙН УДИРДАХ ГАЗРЫН ЕРӨНХИЙ
ИНЖЕНЕР БӨГӨӨД ДАРГЫН ҮҮРГИЙГ
ХАВСРАН ГҮЙЦЭТГЭГЧ
Ж.ДАГВАСҮРЭН

УСУГ-ын Техникийн нөхцөл олгох комиссын 2020 оны 08-р сарын 19-ний өдрийн хурлын 728 тоот протоколыг үндэслэн зөвшөөрөв.

ТЕХНИКИЙН НӨХЦӨЛ № 728 \ 20

1	**Барилга байгууламжийн нэр, зориулалт, байршил**	**БШУЯам, ЗЗХУБЧХСТөсөл**, 320 хүүхдийн сургуулийн өргөтгөл, одоо байгаа барилга дээр 1 давхар нэмж 3 давхар болгон өргөтгөх, СХД 17-р хороо, 1-р хороолол, "Ирээдүй цогцолбор-3" сургууль
2	**Нийт усны хэрэглээ:**	Цэвэр усны – **14,72 $м^3$/хон** Галын усны – **5,0 л/с** Бохир усны – **14,72 м3/хон**
3	**Цэвэр усны холболт хийх цэгийн байршил, шугамын диаметр**	ОСНААУГ-ын 49/2020 тоот техникийн тодруулгын дагуу Баруун тугаасх тээ, ХУТ-15-ын УДДТ-124-ийн дараахь Ф100 мм-ийн шугамнаас холбох, ажлын зургийн нөхцөл зөвшилцөх
4	**Бохир усны холболт хийх цэгийн байршил, шугамын диаметр**	ОСНААУГ-ын 49/2020 тоот техникийн тодруулгын дагуу Баруун тугаасх тээ, ХУТ-15-ын Ф200 мм-ийн бохир шугамын худагт холбох, ажлын зургийн нөхцөл зөвшилцөх
5	Нэмэлт нөхцөл	**Бусад шаардлага:** ➢ Ус хангамж, ариутгах татуургын системийн угсралт, шалгалт, туршилт тохируулгын ажлын зардлыг зураг төсөвт тусгах. ➢ Барилгын гадна цэвэр, бохир усны шугам сүлжээний холбох цэгийг өөрчлөх тохиолдолд хүсэлт тавьж хянуулан, хангагч байгууллагын зөвшөөрлөөр гүйцэтгэнэ. ➢ **Холбогдох Хууль, БНбД, стандартыг мөрдөх** ➢ **Гадна шугамын ажлын зургийг ХБХГ-тай зөвшилцөх**
6	**Тавигдах шаардлага**	1.Барилгыг "Хот суурины ус хангамж, ариутгах татуургын ашиглалтын тухай" хуулийн дагуу **цэвэр усны шугамын тэнхлэгээс 5 метр, бохир усны шугамын тэнхлэгээс 6 метр зайд барих** 2.Хот, суурины ус хангамж, ариутгах татуургын ашиглалтын тухай" хуулийн 15.1.10 –ын дагуу хангагч нь хэрэглэгчийн шугамнаас дамжуулан шинээр хэрэглэгч холбох техникийн нөхцөл олгосон тохиолдолд батлагдсан ажлын зураг, төслийн дагуу дараагийн хэрэглэгчийг холбуулах. 3.Борооны ус зайлуулах шугам сүлжээг тусад нь төлөвлөж, борооны усыг бохир усны шугаманд нийлүүлэхгүй байх. 4.Цэвэр, бохир усны шугамын угсралт, шалгалт, туршилт, холболтын ажлын нөхцөл ашиглалтын байгууллагын хяналтын инженерийг байлцуулж ил, далд ажлын акт үйлдэнэ. 5.Тэвшийн болон хэрэглэгчийн цэвэр, бохир усны худаг, шугам сүлжээн дээр болон хамгаалалтын бүсэд зам талбай, авто зогсоол, барилгын довжоо, хүүхдийн тоглоомын талбай зэргийг төлөвлөсөн тохиолдолд засвар үйлчилгээ хийх боломжийг бүрдүүлэх, засварын дараахь нөхөн сэргээлтийн ажлыг өөрсдөө хариуцах 6.Техникийн нөхцлийн хүчинтэй хугацаа **2 жил**
7	**Объект барих дээд газрын шийдвэр:**	➢ Газар эзэмших эрхийн 0177745 дугаартай гэрчилгээ ➢ МЗХ2019/08-068 тоот архитектур төл-гийн даалгавар
8	**Хэрэглэгчийн нэр, утас:**	БШУЯам. Утас: 77060888, 262227, 312993

School No. 6. SBD, UB.

Communication/ Information & Communication National Network: Permission No. THB666/2020

БАТЛАВ
МЭДЭЭЛЭЛ ХОЛБООНЫ СҮЛЖЭЭ
ХХК-ИЙН ГҮЙЦЭТГЭХ ЗАХИРАЛ
Ч.ЗОЛБАЯР
2020 оны 05 сарын 10

ТЕХНИКИЙН НӨХЦӨЛ

Дугаар: ТН-Б666/2020 2020/05/09

Захиалагч байгууллага: МОНГОЛ УЛСЫН БОЛОВСРОЛ, ШИНЖЛЭХ УХААНЫ ЯАМ

Хэрэглэгчийн нэр: Ч.ЭНХ-АМГАЛАН

Харилцах утас: 262227

1. **Байршил:** СБД-н 6-р хорооны нутаг дэвсгэрт
2. **Зориулалт:** 6 дугаар сургуулийн өргөтгөлийн барилга
3. **Холбооны хэрэгцээ:** /урьдчилсан тооцоогоор/
   Телефон тоо (ширхэгээр) **10 ш**
4. **Техникийн ерөнхий нөхцөл:** Харилцаа Холбооны Зохицуулах хорооноос олгогдсон үндсэн сүлжээ байгуулах бүрэн эрхийнхээ дагуу холбоожуулах техникийн нөхцлийг зөвхөн МХС ХХК олгох бөгөөд техникийн нөхцөлгүйгээр холбооны бүх төрлийн үйлчилгээний зориулалттайгаар кабель татах болон шилжүүлсэн тохиолдолд уг барилга объектыг техникийн болон улсын комиссоор хүлээн авахгүй болно.

5. **Техникийн үндсэн нөхцөл**
   - 5.1. ХШ 3220-ний 7-р хутгын 6-р араатыг одоо байгаа сувагчлал болон шинээр хийсэн сувагчлалаар татан барилгад оруулж төгсгөлийн тоноглолд холбоно.
   - 5.2. Уг техникийн нөхцөлд зориулж гр 4/1-н 93,94-р хосыг [illegible] нөөцлөв.
   - 5.3. Харилцаа Холбооны Зохицуулах Хорооноос олгосон холбооны кабель шугамын угсралт хийх тусгай зөвшөөрөлтэй аж ахуйн нэгжээр гүйцэтгүүлэх шаардлагатай.

6. **Зураг төсөлд зайлшгүй тусгах шаардлагатай технологийн ерөнхий нөхцлүүд:**
   - 6.1. Шинээр хийгдэх кабель, шугамын угсралтын ажлын зураг төслийг зохиохдоо Монгол улсын стандарт MNS 5276:2003, MNS 5279:2003, MNS 5280:2003, MNS 5277:2003 тоот ерөнхий шаардлагууд болон ДБХ-ийн сайдын 1995 оны 127-р тушаалаар батлагдсан зааврыг баримтлан гүйцэтгэх.
   - 6.2. Хэрэглэгчийн шугамын угсралтын ажил барилгын зураг төсөлд байхгүй болон хийгдээгүй бол захиалагчид мэдэгдэж төсөв зураг оруулах.
   - 6.3. Кабелийн хуваарилах хайрцагны байрлалыг хэрэглэгчийн шугамын нягтралын цэг болон техник ашиглалтын шаардлага хангахуйц байдлаар сонгон суурилуулахаар технологийн норм хэмжээг заавал оруулах.

7. **Угсралтын ажлын үед тавигдах нөхцөл:**
   - 7.1. Угсралтын ажил эхлэхээс өмнө зураг төсөв техникийн нөхцлийн дагуу хийгдсэн эсэхийг Мэдээлэл холбооны сүлжээ ТӨК-ны УБ Хотын сүлжээний газрын Бүртгэл төлөвлөлтийн тасгаар (Утас: 70112399) хянуулан баталгаа авсан байх.
   - 7.2. Газар шорооны ажил гүйцэтгэхдээ хариуцлагатай тухайн тасгийн ахлах инженер болон инженерээр шалгуулан далд ажлын акт үйлдэж хүлээн авах ажлын актанд хавсаргах.
   - 7.3. Кабель шугамын угсралт болон газар шорооны ажлыг эхлэхдээ УБ Хотын сүлжээний газрын ерөнхий инженерээс албан ёсны мэдэгдлийг авч тухайн хариуцлагатай тасгийн ахлах инженерийн хяналтан дор гүйцэтгэнэ.
   - 7.4. Шинээр татсан кабель болон кроссканд тэмдэглэгээг бүрэн хийсэн байх.
   - 7.5. Угсралтын ажлын явцад захиалагч ашиглалтын байгууллагатай хамтарч хяналт тавьж угсралтын технологийн шаардлагыг бүрэн хангуулсан байх.

School No. 6. SBD, UB.

Electricity supply/UB Electricity Distribution Network: Permission No. 15/03730/20

БАТЛАВ

УЛААНБААТАР ЦАХИЛГААН ТҮГЭЭХ СҮЛЖЭЭ ТӨРИЙН ӨМЧИТ ХУВЬЦААТ КОМПАНИЙН ГҮЙЦЭТГЭХ

ЗАХИРАЛ Д.БАЯРСАЙХАН

ТЕХНИКИЙН НӨХЦӨЛ

Дугаар 15/03730/20

2020 оны 04 сарын 28 өдөр Улаанбаатар хот

Нэг. Ерөнхий мэдээлэл:

1.1	Хүсэлтийн дугаар:	20-52-001491
1.2	Хэрэглэгчийн нэр, регистр:	БОЛОВСРОЛ, ШИНЖЛЭХ УХААНЫ ЯАМ Төрийн байгууллага - РД: 9116521,
1.3	Хэрэглэгчийн байршил:	Улаанбаатар Сүхбаатар 5-р хороо, -
1.4	Ажил үйлчилгээний зориулалт:	Сургууль
1.5	Техникийн нөхцөл олгох үндэслэл:	*1) Газар эзэмших эрхийн 2008-08-27-ны 0177719 тоот гэрчилгээ.* *2) Архитектур төлөвлөлтийн 2019 оны МЗХ2019/08-019 дугаартай даалгавар, батлагдсан эскиз зураг*
1.6	Техникийн нөхцлийн ангилал:	*Нэмэж авах*
1.7	Тооцооны бүрэн чадал:	*113 кВА (тоогоор)* */Нэг зуун арван гурав/ (үсгээр)*

Хоёр. Холболтын цэг:

2.1	35/6 кВ-ын Дөрвөн зам дэд станц, ХБ-5-с 6 кВ-ын Бя-1 фидерийн ХТП-375 дэд өртөөний 0.4 кВ талын I ба II секцэнд шинээр рубильник бүхий групп тоноглож кабель шугам татаж тэжээх.

Гурав. Тоолуур, хэмжих хэрэгсэл:

3.1	Өөрийн байрны 0.4 кВ-ын щитэнд ачааллал тохирсон дифференциал автомат, хамгаалан таслах төхөөрөмж, / УЗО/, DLMS протоколыг дэмждэг 3 фазын баталгаат, бүрэн электрон 5 А тоолуур, гүйдлийн трансформатор суурилуулах.

Дөрөв. Тусгай заалтууд:

4.1	Щитний газардуулга болон шугам тоноглолын хэмжилт, туршилтыг норм, дүрмийн дагуу хийлгэн холбогдох газраар шалгуулж протокол авсан байх.

Тав. Дор дурдсан техникийн даалгавар, хууль дүрмийг мөрдөх:

5.1	Шугамын "Ажлын зураг төсөл"-ийг тухайн нутаг дэвсгэрийн ерөнхий төлөвлөгөө хариуцсан нэгж болон бусад шаардлагатай байгууллагуудтай зөвшилцөн, мэдээллийн санд оруулсан байх, схем холболт, хүчин чадлыг тус компаниар хянуулах.
5.2	Энэхүү техникийн нөхцлийн дагуу тавигдах шугам, тоноглолууд нь Улаанбаатар цахилгаан түгээх сүлжээ төрийн өмчит хувьцаат компанийн баталсан "Техникийн шаардлагын тодорхойлолт"- ыг хангасан байх шаардлагатай. Техникийн шаардлагын тодорхойлолтыг www.tog.mn хаягаар

https://www.tog.mn/#/admin/request/20-52-001491 1 / 2

School No. 6. SBD, UB.

Heating supply /UB Heating Network: Permission No.285/2020

БАТЛАВ УБДС ТӨХК-ИЙН ГҮЙЦЭТГЭХ ЗАХИРАЛ

Г.БАЯРСАЙХАН

УБДС ТӨХК-ийн Техникийн нөхцөл олгох комиссын 2020 оны 9-р сарын 3-ний өдрийн цахим хурлын шийдвэрээр зөвшөөрөв.

ТЕХНИКИЙН НӨХЦӨЛ № 285/2020

1. **Хэрэглэгчийн нэр:**	Боловсрол, шинжлэх ухааны яам /СБД-ийн 6-р сургуулийн ерөнхий/	
2. **Барилгын мэдээлэл:**	Хүүхэн барилга дээр 1 давхар нэмэх	
3. **Хэрэглэгчийн байршил:**	Сүхбаатар дүүрэг, 5-р хороо, 68-р цэцэрлэгийн урд	
4. **Дулааны хэрэглээ:**	**Нийт :**	**0.21 Гкал/цаг**
	А.Халаалт	0.17 Гкал/цаг
	Б.Хэрэглээний халуун ус	0.04 Гкал/цаг
	В.Сэлхэлүүлэгч	0.00 Гкал/цаг
5. **Холболтын цэг:**	Зэ магистраль, ОСНААУГ-ын харьяа УДДТ-63 хүчин чадлын тооцоон 2-р камерээс холбогдох **Шугамын даралт, температурын утга:**	
	А. Холболтын цэг дээр байх түвшин	6 м
	Б. Шугамын статик даралт	20 м.у.б
	В. Буцах шугамын даралт	5.2 ат
	Г. Гадна агаарын тооцоот температур	-39 °C
	Д.Температурын график	95/65 °C

6. **Мердеж хэрэгжүүлэх хууль, дүрэм журам**

6.1 Эрчим хүчний тухай хууль

6.2 Засгийн газрын 2020 оны 3-р сарын 18-ны өдрийн 87 тоот тогтоолоор батлагдсан "Дулааны эрчим хүч хэрэглэх дүрэм"

6.3 Эрчим Хүчний Зохицуулах Хорооны 2018 оны 10 дугаар сарын 11-ний өдрийн 290 дугаар тогтоолоор батлагдсан Дулаан дамжуулах, түгээх сүлжээний "Холболтын журам"

6.4 Эрчим хүчний тухай хуулийн 14-р зүйлийн 14.4-т заасны дагуу Эрчим хүч дамжуулах шугам, дэд станц нь төрийн өмчлөлд байна.

6.5 "Эрчим хүчний тухай хууль"-ийн 30 дугаар зүйлийн 30.1.10; 29 дүгээр зүйлийн 29.1.9 дэх заалтыг мөрдөж өөрийн эзэмшлийн шугам, тоног төхөөрөмжөөс бусад хэрэглэгчийг холбуулах.

7. **Зураг төсөл, төсөв боловсруулахад тавигдах шаардлага :**

7.1 **Зураг төслийн үндсэн шаардлага**

7.1.1 "Эрчим хүчний тухай хууль"-ийн 33 дугаар зүйл, "Эрчим хүчний шугам сүлжээг хамгаалах дүрэм"-ийн 1.3 дах заалтыг мөрдөж дулааны төв шугам, салаа болон салбар шугамаас хамгаалалтын зурвасын зайг хангаж барилгыг төлөвлөх. Шугамын хамгаалалтын зурвастай төхөөлт, зам талбай, эргэсэл, бусад байгууламж төлөвлөхгүй байх.

7.1.2 Шугамын трасс сонголт, холболтыг хийхдээ салаа шугам эзэмшигч, шугамын трасс дагуух газар эзэмшигчтэй урьдчилан зөвшөөрөлцөх, бусдын эзэмшил газар шугамын трассыг сонгохгүй байх.

7.1.3 Монгол улсын барилгын норм ба дүрмийн /БНбД 41-02-05/ 10.7-д зааснаар Дулаан хангамжийн хаалттай системийн үед халуун ус ба халаалтын хэмжээ их дулааны өчлөлтийн харьцаанаас хамаарууллан ус халаагчийн холболтын схемийг сонгох.

School No. 6. SBD, UB.

Water supply/water supply and wastewater service (USUG), Wastewater collection/ (USUG): Permission No. 587/20

БАТЛАВ
УС СУВГИЙН УДИРДАХ ГАЗРЫН ЕРӨНХИЙ ИНЖЕНЕР БӨГӨӨД ДАРГЫН ҮҮРГИЙГ ХАВСРАН ГҮЙЦЭТГЭГЧ Ж.ДАГВАСҮРЭН

УСУГ-ын Техникийн нөхцөл олгох комиссын 2020 оны 08-р сарын 19-ний өдрийн хурлын 587 тоот протоколыг үндэслэн зөвшөөрөв.

ТЕХНИКИЙН НӨХЦӨЛ № 587 \ 20

1	**Барилга байгууламжийн нэр, зориулалт, байршил**	**БШУЯам, ЭЗХҮБЧХСТөсөл,** 320 хүүхдийн сургуулийн өргөтгөл, одоо байгаа барилга дээр 1 давхар нэмж 3 давхар болгон өргөтгөх. СБД 5-р хороо, Нарны зам гудамж
2	**Нийт усны хэрэглээ:**	Цэвэр усны – **14,72 м³/хон** Галын усны – **5,0 л/с** Бохир усны – **14,72 м3/хон**
3	**Цэвэр усны холболт хийх цэгийн байршил, шугамын диаметр**	ОСНААУГ-ын 55/2020 тоот техникийн тодруулгын дагуу Төв түгээх төв, ХҮТ-8-ын УДДТ-63-ын дараах Ф100 мм-ийн шугамнаас холбох, ажлын зургийн нөхцөл зөвшилцөх
4	**Бохир усны холболт хийх цэгийн байршил, шугамын диаметр**	ОСНААУГ-ын 55/2020 тоот техникийн тодруулгын дагуу Төв түгээх төв, ХҮТ-8-ын Ф200 мм-ийн бохир шугамын худагт холбох, ажлын зургийн нөхцөл зөвшилцөх
5	**Нэмэлт нөхцөл**	**Бусад шаардлага:** ➢ Ус хангамж, ариутгах татуургын системийн угаалга, шавхалт, туршилт тохируулгын ажлын зардлыг зураг төсөвт тусгах. ➢ Барилгын гадна цэвэр, бохир усны шугам сүлжээний холбох цэгийг өөрчлөх тохиолдолд хүсэлт тавьж хянуулан, хангагч байгууллагын зөвшөөрлөөр гүйцэтгэнэ. ➢ **Холбогдох Хууль, БНбД, стандартыг мөрдөх** ➢ **Гадна шугамын ажлын зургийг ХБХГ-тай зөвшилцөх**
6	**Тавигдах шаардлага**	1. **Барилгыг "Хот суурины ус хангамж, ариутгах татуургын ашиглалтын тухай" хуулийн дагуу цэвэр усны шугамын тэнхлэгээс 5 метр, бохир усны шугамын тэнхлэгээс 6 метр зайд барих** 2. Хот, суурины ус хангамж, ариутгах татуургын ашиглалтын тухай" хуулийн 15.1.10 –ын дагуу хангагч нь хэрэглэгчийн шугамнаас дамжуулан шинээр хэрэглэгч холбох техникийн нөхцөл олгосон тохиолдолд батлагдсан ажлын зураг, төслийн дагуу дараагийн хэрэглэгчийг холбуулах. 3. Борооны ус зайлуулах шугам сүлжээг тусад нь төлөвлөх, борооны усыг бохир усны шугамд нийлүүлэхгүй байх. 4. Цэвэр, бохир усны шугамын угсралт, шавхалт туршилт, холболтын ажлын нөхцөл ашиглалтын байгууллагын хяналтын инженерийг байлцуулж хийж, далд ажлын акт үйлдэнэ. 5. Төвийн болон хэрэглэгчийн цэвэр, бохир усны худаг, шугам сүлжээн дээр болон хамгаалалтын бүсэд зам талбай, авто зогсоол, барилгын довжоо, хүүхдийн тоглоомын талбай зэргийг төлөвлөсөн тохиолдолд засвар үйлчилгээ хийх боломжийг бүрдүүлэх, засварын дараах нөхөн сэргээлтийн ажлыг өөрсдөө хариуцах 6. Техникийн нөхцлийн хүчинтэй хугацаа **2 жил**
7	**Объект барих дээд газрын шийдвэр:**	➢ Газар эзэмших эрхийн 0177719 дугаартай гэрчилгээ ➢ МЗХ2019/06-019 тоот архитектур төл-тийн даалгавар
8	**Хэрэглэгчийн нэр, утас:**	БШУЯам. Утас: 77560888, 262227, 312993

Kindergarten No.82. BZD, UB.

Communication/ Information & Communication National Network: Permission No. THB614/2020

NETCOM

өндөр хурдны мэдээллийн сүлжээ

БАТЛАВ
МЭДЭЭЛЭЛ ХОЛБООНЫ СҮЛЖЭЭ
ХХК-ИЙН ГҮЙЦЭТГЭХ ЗАХИРАЛ
Ч.ЗОЛБАЯР
2020 оны 08 сарын 31

ТЕХНИКИЙН НӨХЦӨЛ

Дугаар: **ТН-В614/2020** **2020/08/27**

Захиалагч байгууллага:	МОНГОЛ УЛСЫН БОЛОВСРОЛ ШИНЖЛЭХ УХААНЫ ЯАМ
Хариуцагчийн нэр:	Д.БАТБААТАР
Харилцах утас:	262227
1. Байршил:	БЗД-н 16-р хорооны нутаг дэвсгэрт.
2. Зориулалт:	82 дугаар цэцэрлэгийн өргөтгөлийн барилга
3. Холбооны хэрэгцээ:	/урьдчилсан тооцоогоор/ Телефон тоо (ширхэгээр) **10 ш**

4. **Техникийн онцгой нөхцөл:** Харилцаа Холбооны Зохицуулах хорооноос олгогдсон үндсэн сүлжээ байгуулах бүрэн эрхийнхээ дагуу холбогжуулах техникийн нөхцлийг зөвхөн МХС ХХК олгох бөгөөд техникийн нөхцөлгүйгээр холбооны бүх төрлийн үйлчилгээний зориулалттайгаар кабель татах болон шилжүүлсэн тохиолдолд уг барилга объектыг техникийн болон улсын комиссоор хүлээн авахгүй болно.

5. **Техникийн үндсэн нөхцөл**
   - 5.1. ХШ 4509-н худгийн S-D 09-1-1 худгаас барилга хүртэл **110 мм-н 2 нүхтэй сувагчлал** хийх ба шонгоор хийх сувагчлалыг 1.0-1.2 метрийн гүнд суурилуулна.
   - 5.2. Сувагчлал хооронд худаг суурилуулах зай хэмжээг 120 метрээс хэтрэхгүй байхаар тооцох ба эргэлт болон барилгын оролтонд зайлшгүй стандартын худаг суурилуулна.
   - 5.3. ХШ 4509-н 1-р эгнээний 9-р араатыг одоо байгаа сувагчлал болон шонгоор хийсэн сувагчлалаар татан барилгад оруулж телефоны тоноглолд холбоно.
   - 5.4. Уг техникийн нөхцөлд зориулж гр 4/4-н 2,3,4-р хосыг зөвхөн залгахад нөөцлөв.
   - 5.5. Харилцаа Холбооны Зохицуулах Хорооноос олгосон холбооны кабель шугамын угсралт хийх тусгай зөвшөөрөлтэй аж ахуйн нэгжээр гүйцэтгүүлэх шаардлагатай.

6. **Зураг төсөл зайлшгүй хийлгэх шаардлагатай технологийн онцгой нөхцлүүд:**
   - 6.1. Шонгоор хийгдэх кабель, шугамын угсралтын ажлын зураг төсөлд холбогдох Монгол улсын стандарт MNS 5278:2003, MNS 5279:2003, MNS 5280:2003, MNS 5277:2003 тоот ерөнхий шаардлагууд болон ДБХ-ийн сайдын 1995 оны 127-р тушаалаар батлагдсан заавар баримтлан гүйцэтгэх.
   - 6.2. Хэрэглэгчийн шугамын угсралтын ажил барилгын зураг төсөлд байхгүй болон хийгдээгүй бол захиалагчид мэдэгдэж төсөв зураг оруулна.
   - 6.3. Кабелийн хуваарилах хайрцагны байрлалыг хэрэглэгчийн шугамын нэгтгэлийн цэг болон техник ашиглалтын шаардлага хангахуйц байдлаар сонгон суурилуулахаар технологийн норм хэмжээг заавал оруулах.

7. **Угсралтын ажлын үед тавигдах нөхцөл:**
   - 7.1. Угсралтын ажил эхлэхээс өмнө зураг төсөв техникийн нөхцлийн дагуу хийгдсэн эсэхийг Мэдээлэл холбооны сүлжээ ТӨК-ны УБ Хотын сүлжээний газрын Бүртгэл төлөвлөлтийн тасгаар (Утас: 70112399) хянуулан баталгаа авсан байх.
   - 7.2. Газар шорооны ажил гүйцэтгэхдээ харьяалагдах тухайн тасгийн ахлах инженер болон инженерээр шалгуулан далд ажлын акт үйлдэж хүлээн авах ажлын актанд хавсаргах.
   - 7.3. Кабель шугамын угсралт болон газар шорооны ажлыг эхлэхдээ УБ Хотын сүлжээний газрын ерөнхий инженерээс албан ёсны мэдэгдлийг авч тухайн харьяалагдах тасгийн

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Electricity supply/UB Electricity Distribution Network: Permission No. 15/05066/20

БАТЛАВ
УЛААНБААТАР ЦАХИЛГААН ТҮГЭЭХ СҮЛЖЭЭ ТӨРИЙН ӨМЧИТ ХУВЬЦААТ КОМПАНИЙН ГҮЙЦЭТГЭХ ЗАХИРЛЫН ҮҮРГИЙГ ТҮР ОРЛОН ГҮЙЦЭТГЭГЧ Р.ДАГДАН

ТЕХНИКИЙН НӨХЦӨЛ

Дугаар 15/05066/20

2020 оны 10 сарын 23 өдөр Улаанбаатар хот

Нэг. Ерөнхий мэдээлэл

1.1	Хүсэлтийн дугаар:	20-99-001141
1.2	Хэрэглэгчийн нэр, регистр:	БОЛОВСРОЛ, ШИНЖЛЭХ УХААНЫ ЯАМ, /82-Р ЦЭЦЭРЛЭГ/ Төрийн байгууллага - РД: 9116621,
1.3	Хэрэглэгчийн байршил:	Улаанбаатар Баянзүрх 16-р хороо, Улаанбаатар хот, Баянзүрх дүүрэг, 16-р хороо, 82-р цэцэрлэг
1.4	Ажил үйлчилгээний зориулалт:	Цэцэрлэг
1.5	Техникийн нөхцөл олгох үндэслэл:	1) Газар эзэмших эрхийн 2004-07-02-ны 0043871 тоот гэрчилгээ. 2) Архитектур төлөвлөлтийн 2019 оны МЗК2019/08-07 дугаартай даалгавар, батлагдсан эскиз зураг 3) Нийслэлийн ерөнхий архитектор бөгөөд хот байгуулалт, хөгжлийн газрын баталсан ерөнхий төлөвлөгөө 4) Боловсрол шинжлэх ухааны яамны 2020 оны 2/300 дугаартай албан бичиг
1.6	Техникийн нөхцөлийн ангилал:	Шинэ холболт
1.7	Тооцооны бүрэн чадал:	130 кВА (тоогоор) /Нэг зуун гуч/ (үсгээр)

Хоёр. Холболтын цэг:

2.1	110/35/10 кВ-ын Түүл дэд станц, ХБ-16-гийн 10 кВ-ын ТП-518 А, Б фидерийн ХТП-289 дэд өртөөний барилга болон бусад бүх тоноглолыг буулгаж, 2*800 кВА чадалтай 2 трансформатортай, 2 секцтэй дэд өртөө болгон шинэчилж, одоо ашиглагдаж байгаа оруулга кабель шугамуудыг тус дэд өртөөний 10 кВ талын I ба II секцэнд холбон тавиах
2.2	Цэцэрлэгийн өргөтгөлийг: 110/35/10 кВ-ын Түүл дэд станц, ХБ-16-н 10 кВ-ын ТП-518 А, ХБ-47-гийн 28-р автобааз фидерээс тэжээгддэг ХТП-289 дэд өртөөний 0.4 кВ талын I ба II секцээс кабель шугам татаж 2 тусдаа секцтэй [illegible] залгагч рубильник бүхий [illegible] суурины байрны 0.4 кВ-ын щитэнд тавиах

Гурав. Тоолуур, хамгаалах хэрэгсэл:

3.1	Дэд өртөөний 0.4 кВ талын ерөнхий оруулгуудад DLMS протоколыг дэмждэг 3 фазын баталгаат, бүрэн электрон тоолуур, ачааллд тохирсон гүйдлийн трансформаторыг тусгай хайрцагт суурилуулах
3.2	Цэцэрлэгийн 0.4 кВ-ын щитний ерөнхий оруулгуудад DLMS протоколыг дэмждэг 3 фазын баталгаат, бүрэн электрон тоолуур, ачааллд тохирсон дифференциал автомат, хамгаалан таслах төхөөрөмж / УЗО/, ачааллд тохирсон гүйдлийн

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Heating supply /UB Heating Network: Permission No.402/2020

БАТЛАВ УБДС Техникийн газрыг эзэгтэх захирал

Г.БАЯРСАЙХАН

УБДС ТӨХК-ийн Техникийн нөхцөл олгох комиссын 2020 оны 10-р сарын 30-ны өдрийн ээлжит хурлын шийдвэрээр зөвшөөрөв.

ТЕХНИКИЙН НӨХЦӨЛ № 402/2020

1. **Хэрэглэгчийн нэр:** Боловорсрол, шинэчлэх үеийн яам /БЗД-ийн 82-р цэцэрлэгийн ерөнхий/
2. **Барилгын мэдээлэл:** Цэцэрлэгийн барилга
3. **Хэрэглэгчийн байршил:** Баянгөрх дүүрэг, 16-р хороо, 53-р сургуулийн зүүн талд
4. **Дулааны хэрэглээ:** **Нийт :** **0.22 Гкал/цаг**

А.Халаалт	0.11 Гкал/цаг
Б.Хэрэгцээний халуун ус	0.11 Гкал/цаг
В.Сагсмлуулга	0.00 Гкал/цаг

5. **Холболтын цэг:** 12е магистраль, ОСНААУгазраас тодруулга авч, УДДТ-1 хүчин чадлыг тооцон 2-р халаалтаас холбогдох

Шугамын даралт, температурын утга:

А. Холболтын цэг дээр байх түрэлт	8	м
Б. Шугамын статик даралт	30	м.у.б
В. Буцах шугамын даралт	3.1	атм
Г. Гадна агаарын тооцоот температур	-39	° С
Д.Температурын график	95/65	° С

6. **Мөрдөж хэрэгжүүлэх хууль, дүрэм журам**
   - 6.1 Эрчим хүчний тухай хууль
   - 6.2 Засгийн газрын 2020 оны 3-р сарын 18-ны өдрийн 97 тоот тогтоолоор батлагдсан "Дулааны эрчим хүч хэрэглэх дүрэм"
   - 6.3 Эрчим Хүчний Зохицуулах Хорооны 2018 оны 10 дугаар сарын 11-ний өдрийн 290 дугаар тогтоолоор батлагдсан Дулаан дамжуулах, түгээх сүлжээний "Холболтын журам"
   - 6.4 Эрчим хүчний тухай хуулийн 14-р зүйлийн 14.4-т заасны дагуу Эрчим хүч дамжуулах шугам, дэд станц нь төрийн өмчлөлд байна
   - 6.5 "Эрчим хүчний тухай хууль"-ийн 30 дугаар зүйлийн 30.1.10; 29 дүгээр зүйлийн 29.1.9 дэх заалтыг мөрдөж өөрийн эзэмшлийн шугам, тоног төхөөрөмжөөс бусад хэрэглэгчийг холбуулах.
7. **Зураг төсөл, төсөв боловсруулахад тавигдах шаардлага :**
   - **7.1 Зураг төслийн үндсэн шаардлага**
   - 7.1.1 "Эрчим хүчний тухай хууль"-ийн 33 дугаар зүйл, "Эрчим хүчний шугам сүлжээг хамгаалах дүрэм"-ийн 1.3 дахь заалтыг мөрдөж дулааны тав шугам, салаа болон салбар шугамаас хамгаалалтын зурвасын зайг хангаж барилгыг төлөвлөх. Шугамын хамгаалалтын зурваст тохижилт, зам талбай, зогсоол, бусад байгууламж төлөвлөхгүй байх.
   - 7.1.2 Шугамын трасс сонгогт, холболтыг хийхдээ салаа шугам эзэмшигч, шугамын трасс дагуух газар эзэмшигчтэй урьдчилан зөвшөөрөлцөх, бусдын эзэмшил газар шугамын трассыг сонгохгүй байх.
   - 7.1.3 Монгол улсын барилгын норм ба дүрмийн /БНбД 41-02-05/ 10.7-д зааснаар Дулаан хангамжийн хаалттай системийн үед халуун ус ба халаалтын хэмгийн их дулааны ачаалалын харьцаанаас хамаарууллан ус халаагчийн холболтын схемийг сонгох.

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Water supply/water supply and wastewater service (USUG), Wastewater collection/ (USUG): Permission No. 859/20

БАТЛАВ
УС СУВГИЙН УДИРДАХ ГАЗРЫН
ДАРГА Ц.ТӨРХҮҮ

УСУГ-ын Техникийн нөхцөл олгох комиссын 2020 оны 10-р сарын 28-ны өдрийн хурлын 859 тоот протоколыг үндэслэн зөвшөөрөв.

ТЕХНИКИЙН НӨХЦӨЛ № 859 / 20

1	Барилга байгууламжийн нэр, зориулалт, байршил	БШУЯам, 82-р цэцэрлэг, 150 хүүхдийн цэцэрлэгийн 2 давхар барилга. БЗД 16-р хороо, одоо байгаа 82-р цэцэрлэгийн урд талд.
2	Нийт усны хэрэглээ:	Цэвэр усны – 15,75 $м^3$/хон Галын усны – 2,5 л/с Бохир усны – 15,75 м3/хон
3	Цэвэр усны холболт хийх цэгийн байршил, шугамын диаметр	ОСНААУГ-ын 72/2020 тоот техникийн тодруулгын дагуу Зүүн тусгаа талийн зарьная УДДТ-ээс ДК-1 худгаас хүйтэн усны Ф125 мм-ийн шугамыг өргөтгөж, салаа шугам татаж холбох, ажлын зургийн нэг.дэд зөвшилцөх.
4	Бохир усны холболт хийх цэгийн байршил, шугамын диаметр	ОСНААУГ-ын 72/2020 тоот техникийн тодруулгын дагуу Зүүн тусгаа тал, ХУТ-1-ийн зарьная 82-р цэцэрлэгийн бохир усны Ф150 мм-ийн шугамын худагт холбох, ажлын зургийн нэгдэд зөвшилцөх.
5	Нэмэлт нөхцөл	**Бусад шаардлага:** ➢ Ус хангамж, ариутгах татуургын системийн угаалга, шахалт, туршилт тохируулгын ажлын зардлыг зураг төсөвт тусгах. ➢ Барилгын гадна цэвэр, бохир усны шугам сүлжээний холбох цэгийг өөрчлөх тохиолдолд хүсэлт гаргаж хянуулан, хангагч байгууллагын зөвшөөрлөөр гүйцэтгэнэ. ➢ **Холбогдох Хууль, БНбД, стандартыг мөрдөх** ➢ **Гадна шугамын ажлын зургийг ХБХГ-тай зөвшилцөх** ➢ **Стандартын дагуу [illegible] барилга суурилуулах**
6	Тавигдах шаардлага	1. Барилгыг "Хот суурины ус хангамж, ариутгах татуургын ашиглалтын тухай" хуулийн дагуу **цэвэр усны шугамын тэнхлэгээс 5 метр, бохир усны шугамын тэнхлэгээс 6 метр** зайд барих 2. Хот, суурины ус хангамж, ариутгах татуургын ашиглалтын тухай" хуулийн 15.1.10 -ын дагуу хангагч нь хэрэглэгчийн шугамаас дамжуулан шинээр хэрэглэгч холбох техникийн нөхцөл олгосон тохиолдолд батлагдсан ажлын зураг, төслийн дагуу дараагийн хэрэглэгчийг холбуулах. 3. Борооны ус зайлуулах шугам сүлжээг тусад нь төлөвлөх, борооны усыг бохир усны шугамд нийлүүлэхгүй байх. 4. Цэвэр, бохир усны шугамын угаалт, шахалт туршилт, холболтын ажлын нэгдэд ашиглалтын байгууллагын хяналтын инженерийг байлцуулж ил, далд ажлын акт хөтлөнө. 5. Төвийн болон хэрэглэгчийн цэвэр, бохир усны худаг, шугам сүлжээн дээр болон хамгаалалтын бүсэд зам талбай, авто зогсоол, барилгын довжоо, хүүхдийн тоглоомын талбай зэргийг төлөвлөсөн тохиолдолд засвар үйлчилгээ хийх боломжийг бүрдүүлэх, засварын дараанх нөхөн сэргээлтийн ажлыг өөрсдөө хариуцах. 6. Техникийн нөхцлийн хүчинтэй хугацаа **2 жил**
7	Объект барих дээд газрын шийдвэр:	➢ Газар эзэмших эрхийн 000012839 дугаартай гэрчилгээ ➢ МЗХ2019/08-01 тоот архитектур төлөв-тэй даалгавар
8	Хэрэглэгчийн нэр, утас:	БШУЯам, Утас: 99181846, 99191846, 262227

Kindergarten No.88. BGD, UB.

Communication/Information & Communication National Network: Permission No. THB613/2020

NETCOM

БАТЛАВ
МЭДЭЭЛЭЛ ХОЛБООНЫ СҮЛЖЭЭ
ХХК-ИЙН ГҮЙЦЭТГЭХ ЗАХИРАЛ
Ч.ЗОЛБАЯР
2020 оны [illegible] сарын [illegible]

ТЕХНИКИЙН НӨХЦӨЛ

Дугаар: ТН-В613/2020 — 2020/08/27

Захиалагч Байгууллага:	МОНГОЛ УЛСЫН БОЛОВСРОЛ ШИНЖЛЭХ УХААНЫ ЯАМ
Хэрэглэгчийн нэр:	Д.БАТБААТАР
Харилцах утас:	262227
1. Байршил:	БГД-ын 18-р хорооны нутаг дэвсгэрт
2. Зориулалт:	88 дугаар цэцэрлэгийн өргөтгөлийн барилга
3. Холбооны хэрэгцээ:	/уралдчилсан тооцоогоор/ Телефон тоо (цэгээгээр) 16 ш

4. Техникийн ерөнхий нөхцөл: [illegible]

5. Техникийн үндсэн нөхцөл

5.1. ХЦШ 610-ын [illegible] **118 мм-н 2 нүхтэй сувагчлал** [illegible]

5.2. Сувагчлал хооронд худаг суурилуулах зай [illegible] 120 метрээс [illegible]

5.3. ХЦШ 610-н [illegible]

5.4. [illegible]

5.5. Харилцаа Холбооны Зохицуулах Хорооноос [illegible]

6. [illegible]

6.1. [illegible] MNS 5276:2003, MNS 5279:2003, MNS 5280:2003, MNS 5277:2003 [illegible] 1995 оны 127-р [illegible]

6.2. [illegible]

6.3. [illegible]

7. [illegible]

7.1. [illegible] (Утас: 70112309) [illegible]

7.2. [illegible]

7.3. [illegible]

Kindergarten No.88. BGD, UB.
Electricity supply/UB Electricity Distribution Network: Permission No. 15/04331/20

БАТЛАВ
УЛААНБААТАР ЦАХИЛГААН ТҮГЭЭХ СҮЛЖЭЭ ТӨРИЙН ӨМЧИТ ХУВЬЦААТ КОМПАНИЙН ГҮЙЦЭТГЭХ ЗАХИРАЛ Д.БАЯРСАЙХАН

ТЕХНИКИЙН НӨХЦӨЛ

Дугаар 15/04331/20

2020 оны 09 сарын 25 өдөр

Улаанбаатар хот

Нэг. Ерөнхий мэдээлэл:

1.1	Хүсэлтийн дугаар:	20-99-001140
1.2	Хэрэглэгчийн нэр, регистр:	БОЛОВСРОЛ ШИНЖЛЭХ УХААНЫ ЯАМ /SUSTAINING ACCESS TO AND QUALITY OF EDUCATION DURING ECONOMIC DIFFICULTIES PROJECT/ Төрийн байгууллага - РД: 9116621,
1.3	Хэрэглэгчийн байршил:	Улаанбаатар Баянгол 18-р хороо, Улаанбаатар хот, Баянгол дүүрэг, 18-р хороо
1.4	Ажил үйлчилгээний зориулалт:	Цэцэрлэг
1.5	Техникийн нөхцөл олгох үндэслэл:	1) Газар эзэмших эрхийн 2005-05-24-ны 052270 тоот гэрчилгээ. 2) Архитектур төлөвлөлтийн МЗХ 2017/07-21 дугаартай даалгавар, батлагдсан эскиз зураг
1.6	Техникийн нөхцлийн ангилал:	Шинэ холболт
1.7	Тооцооны бүрэн чадал:	113 кВА (тоогоор) /Нэг зуун арван гурав/ (үсгээр)

Хоёр. Холболтын цэг:

2.1	110/10/6 кВ-ын Үйлдвэр станц, ХБ-13-с 10 кВ-ын 4 хор ТП-8 А фидерийн ХТП-592 дэд өртөөний 0.4 кВ талд 88-р цэцэрлэгийн одоо холбогдсон холболтоор

Гурав. Тоолуур, хэмжих хэрэгсэл:

3.1	Өөрийн байрны 0.4 кВ-ын щитэнд ачааллд тохирсон дифференциал автомат, хамгаалан таслах төхөөрөмж, / УЗО/, DLMS протоколыг дэмждэг 3 фазын баталгаат, бүрэн электрон 5 А тоолуур, гүйдлийн трансформатор суурилуулах.
3.2	Дэд өртөөний 0.4 кВ талын ерөнхий оруулгуудад DLMS протоколыг дэмждэг 3 фазын баталгаат, бүрэн электрон тоолуур, ачааллд тохирсон гүйдлийн трансформаторыг тусгай хайрцагт суурилуулах.

Дөрөв. Тусгай заалтууд:

4.1	Щитний газардуулга болон шугам тоноглолын хэмжилт, туршилтыг норм, дүрмийн дагуу хийлгэн холбогдох газраар шалгуулж протокол авсан байх.
4.2	ХТП-592-н 0.4 кВ талд одоо холбогдсон байгаа 88-р цэцэрлэгийн рубильник болон кабель шугамыг ачааллд тохируулан шинэчлэн солих
4.3	88-р цэцэрлэгийн ерөнхий самбарыг шинэчлэн солиж шинээр баригдах цэцэрлэгийн өргөтгөлийн барилгыг тэжээх

Kindergarten No.88. BGD, UB.
Heating supply /UB Heating Network: Permission No.003/2021

БАТЛАВ.УБДС ТӨХХ-ИЙН ГҮЙЦЭТГЭХ ЗАХИРАЛ

Г.БАЯРСАЙХАН

УБДС ТӨХХ-ийн Техникийн нөхцөл шугх комиссын 2021 оны 3-р сарын 9-ний өдрийн цахим хурлын шийдвэрээр зөвшөөрөв.

ТЕХНИКИЙН НӨХЦӨЛ № 003/2021

1. **Хэрэглэгчийн нэр:** МҮ-ын БШУЯам /88-р цэцэрлэг/
2. **Барилгын мэдээлэл:** цэцэрлэгийн ерөнхий барилга
3. **Хэрэглэгчийн байршил:** Баянгол дүүрэг, 18-р хороо, 96 дугаар сургуулийн хойно
4. **Дулааны хэрэглээ:** **Нийт :** **0.20 Гкал/цаг**

А.Халаалт	0.07 Гкал/цаг
Б.Халаалтын халуун ус	0.13 Гкал/цаг
В.Салхижуулга	0.00 Гкал/цаг

5. **Холболтын цэг:** 7д магистраль, ОСНААУГ-ын тодруулгын дагуу УДДТ-102-ын сагаа шугам ба хүчин чадлыг тооцон, 2 дугаар хэлхээнд холбох

Шугамын даралт, температурын утга:

А. Холболтын цэг дээр байх түвшин	8	м
Б. Шугамын статик даралт	42	м.у.б
В. Буцах шугамын даралт	5.0	атм
Г. Гадна агаарын тооцоот температур	-39	° С
Д.Температурын график	95/65	° С

6. **Мердек хэрэгжүүлэх хууль, дүрэм журам**
   - 6.1 Эрчим хүчний тухай хууль
   - 6.2 Засгийн газрын 2020 оны 3-р сарын 18-ны өдрийн 97 тоот тогтоолоор батлагдсан "Дулааны эрчим хүч хэрэглэх дүрэм"
   - 6.3 Эрчим Хүчний Зохицуулах Хорооны 2018 оны 10 дугаар сарын 11-ний өдрийн 290 дугаар тогтоолоор батлагдсан Дулаан дамжуулах, түгээх сүлжээний "Холболтын журам"
   - 6.4 Эрчим хүчний тухай хуулийн 14-р зүйлийн 14.4-т заасны дагуу Эрчим хүч дамжуулах шугам, дэд станц нь төрийн өмчлөлд байна.
   - 6.5 "Эрчим хүчний тухай хууль"-ийн 30 дугаар зүйлийн 30.1.10, 29 дүгээр зүйлийн 29.1.9 дэх заалтыг мердек өөрийн зохицлийн шугам, тоног техникемжээс бусад хэрэглэгчийг холбуулах.

7. **Зураг төсөл, төсөв боловсруулахад тавигдах шаардлага :**

   7.1 Зураг төслийн үндсэн шаардлага

   7.1.1 "Эрчим хүчний тухай хууль"-ийн 33 дугаар зүйл, "Эрчим хүчний шугам сүлжээг хамгаалах дүрэм"-ийн 1.3 дах заалтыг мердек дулааны төв шугам, сагаа болон сагбар шугамаас хамгаалалтын зурвасын зайг хангаж барилгыг төлөвлөх. Шугамын хамгаалалтын зурваст тохижилт, зам талбай, зогсоол, бусад байгууламж төлөвлөхгүй байх.

Kindergarten No.88. BGD, UB.

Water supply/water supply and wastewater service (USUG), Wastewater collection/ (USUG): Permission No. 842/20

БАТЛАВ
УС СУВГИЙН УДИРДАХ ГАЗРЫН
ДАРГА Ц.ТӨРХҮҮ

УСУГ-ын Техникийн нөхцөл олгох комиссын 2020 оны 11-р сарын 30-ны өдрийн хурлын 842 тоот протоколыг үндэслэн зөвшөөрөв.

ТЕХНИКИЙН НӨХЦӨЛ № 842\20

1	**Барилга байгууламжийн нэр, зориулалт, байршил**	**БШУЯам, 88-р цэцэрлэг,** 150 хүүхдийн цэцэрлэгийн 2 давхар барилга, БГД 18-р хороо, одоо байгаа цэцэрлэгийн зүүн талд
2	**Нийт усны хэрэглээ:**	Цэвэр усны **– 15,7 м³/хон** Галын усны **– 2,5 л/с** Бохир усны **– 15,7 м3/хон**
3	**Цэвэр усны холболт хийх цэгийн байршил, шугамын диаметр**	ОСНААУГ-ын 34/2020 тоот техникийн тодруулгын дагуу Баруун тулгах төв, ХҮТ-12-ын харъяа шугамнаас холболттой 88-р цэцэрлэгийн цэвэр усны шугамыг зөөж шилжүүлэн, уг шугамнаас холбох, ажлын зургийн нөхцөл зөвшилцөх
4	**Бохир усны холболт хийх цэгийн байршил, шугамын диаметр**	ОСНААУГ-ын 34/2020 тоот техникийн тодруулгын дагуу Баруун тулгах төв, ХҮТ-12-ын харъяа 88-р цэцэрлэгийн бохир усны Ф150 мм-ийн шугамын худагт холбох, ажлын зургийн нөхцөл зөвшилцөх
5	**Нэмэлт нөхцөл**	**Бусад шаардлага:** ➢ Ус хангамж, ариутгах татуургын системийн угаалга, шалгалт, туршилт тохируулгын ажлын зардлыг зураг төсөвт тусгах ➢ Барилгын гадна цэвэр, бохир усны шугам сүлжээний холбох цэгийг өөрчлөх тохиолдолд хүсэлт гаргаж хянуулан, хангагч байгууллагын зөвшөөрлөөр гүйцэтгэнэ. ➢ **Холбогдох Хууль, БНбД, стандартыг мөрдөх** ➢ **Гадна шугамын ажлын зургийг ХБХГ-тай зөвшилцөх** ➢ **Стандартын дагуу тос баригч суурилуулах**
6	**Тавигдах шаардлага**	1.Барилгыг "Хот суурины ус хангамж, ариутгах татуургын ашиглалтын тухай" хуулийн дагуу **цэвэр усны шугамын тэнхлэгээс 5 метр, бохир усны шугамын тэнхлэгээс 6 метр** зайд барих 2.Хот, суурины ус хангамж, ариутгах татуургын ашиглалтын тухай" хуулийн 15.1.10 -ын дагуу хангагч нь хэрэглэгчийн шугамнаас дамжуулан шинээр хэрэглэгч холбох техникийн нөхцөл олгосон тохиолдолд батлагдсан ажлын зураг, төслийн дагуу дараагийн хэрэглэгчийг холбуулна. 3.Борооны ус зайлуулах шугам сүлжээг тусад нь төлөвлөх, борооны усыг бохир усны шугамд нийлүүлэхгүй байх. 4.Цэвэр, бохир усны шугамын угсралт, шалгалт туршилт, холболтын ажлын нөхцөл ашиглалтын байгууллагын хяналтын инженерийг байлцуулж хийх, далд ажлын акт хэтэлнэ. 5.Төвийн болон хэрэглэгчийн цэвэр, бохир усны худаг, шугам сүлжээн дээр болон хамгаалалтын бүсэд зам талбай, авто зогсоол, барилгын довжоо, хүүхдийн тоглоомын талбай зэргийг төлөвлөсөн тохиолдолд засвар үйлчилгээ хийх боломжийг бүрдүүлэх, засварын дараагаар нөхөн сэргээлтийн ажлыг өөрсдөө хариуцах 6.Техникийн нөхцлийн хүчинтэй хугацаа **2 жил**
7	**Объект барих газрын шийдвэр:**	➢ Газар эзэмших эрхийн 000012697 дугаартай гэрчилгээ ➢ ГБМЗХ2020/28-013 тоот архитектур төлөвлөлтийн даалгавар
8	**Хэрэглэгчийн нэр, утас:**	БШУЯам, Утас: 99181846, 99191846, 262227

Kindergarten No.104. SHD, UB.

Communication/ Information & Communication National Network: Permission No. THB502/2020

NETCOM

БАТЛАВ
МЭДЭЭЛЭЛ ХОЛБООНЫ СҮЛЖЭЭ
ХХК-ИЙН ГҮЙЦЭТГЭХ ЗАХИРАЛ
Ч.ЗОЛБАЯР
2020 оны 07 сарын 22

ТЕХНИКИЙН НӨХЦӨЛ

Дугаар: **ТН-0502/2020** **2020/07/21**

Захиалагч байгууллага:	МОНГОЛ УЛСЫН БОЛОВСРОЛ, СОЁЛ, ШИНЖЛЭХ УХААН, СПОРТЫН ЯАМ
Хэрэглэгчийн нэр:	Ч.ЭНХ-АМГАЛАН
Харилцах утас:	262227
1. Байршил:	СХД-н 12-р хорооны нутаг дэвсгэрт
2. Зориулалт:	104-р цэцэрлэгийн өргөтгөлийн барилга
3. Холбооны хэрэгцээ:	/урьдчилсан тооцоогоор/ Телефон тоо (ширхэгээр) **8 ш**

4. **Техникийн ерөнхий нөхцөл:** Харилцаа Холбооны Зохицуулах Хорооноос олгогдсон үндсэн сүлжээ байгуулах бүрэн эрхийн дагуу холбоожуулах техникийн нөхцлийг зөвхөн МХС ХХК олгох бөгөөд техникийн нөхцөлгүйгээр холбооны бүх төрлийн үйлчилгээний зориулалттайгаар кабель татах болон шилжүүлсэн тохиолдолд уг барилга объектыг техникийн болон улсын комиссоор хүлээн авахгүй болно.

5. **Техникийн үндсэн нөхцөл**

5.1. ХШ 6813-н [illegible] **110 мм-н 2 нүхтэй сувагчлал** хийх ба шонгоор хийх сувагчлалыг 1,0-1,2 метрийн гүнд суурилуулна.

5.2. Сувагчлал хооронд худаг суурилуулах зай хэмжээг 120 метрээс хэтрэхгүй байхаар [illegible] ба эргэлт болон барилгын оролтонд зайлшгүй стандартын худаг суурилуулна.

5.3. ХШ 6813-н [illegible] 1,2,3-р [illegible] сувагчлал болон [illegible] холбоно.

5.4. Уг техникийн нөхцөлд зориулж [illegible] 4/4-н 3,4,5-р хосыг [illegible] нөөцлөв.

5.5. Харилцаа Холбооны Зохицуулах Хорооноос олгосон холбооны кабель шугамын угсралт хийх тусгай зөвшөөрөлтэй [illegible] гүйцэтгүүлэх шаардлагатай.

6. **Журам тогтоол зайлшгүй тусгах шаардлагатай технологийн ерөнхий нөхцлүүд:**

6.1. [illegible] кабель, шугамын угсралтын ажлын журам [illegible] Монгол улсын стандарт MNS 5276:2003, MNS 5279:2003, MNS 5280:2003, MNS 5277:2003 тоот ерөнхий шаардлагууд болон ДЕХ-ийн сайдын 1996 оны 127-р тушаалаар баталгаажсан [illegible] гүйцэтгэх.

6.2. [illegible]

6.3. [illegible]

7. **Угсралтын ажлын үед тавигдах нөхцөл:**

7.1. Угсралтын ажил эхлэхээс өмнө [illegible] Мэдээлэл холбооны сүлжээ ТӨХК-ны УБ. Хотын сүлжээний газрын [illegible] тасгаар (Утас: 70112399) [illegible] баталгаа авсан байх.

7.2. [illegible]

7.3. Кабель шугамын угсралт болон газар шорооны ажлыг эхлэхдээ УБ Хотын сүлжээний газрын [illegible]

Kindergarten No.104. SHD, UB.

Electricity supply/UB Electricity Distribution Network: Permission No. 15/04462/20

БАТЛАВ
УЛААНБААТАР ЦАХИЛГААН ТҮГЭЭХ СҮЛЖЭЭ ТӨРИЙН ӨМЧИТ ХУВЬЦААТ КОМПАНИЙН ГҮЙЦЭТГЭХ ЗАХИРАЛ Д.БАЯРСАЙХАН

ТЕХНИКИЙН НӨХЦӨЛ

Дугаар 15/04462/20

20 оны 09 сарын 21 өдөр — Улаанбаатар хот

Нэг. Ерөнхий мэдээлэл:

1.1	Хүсэлтийн дугаар:	20-99-001248
1.2	Хэрэглэгчийн нэр, регистр:	БОЛОВСРОЛ ШИНЖЛЭХ УХААНЫ ЯАМ Төрийн байгууллага - РД: 9116621,
1.3	Хэрэглэгчийн байршил:	Улаанбаатар Сонгинохайрхан 12-р хороо, Сонгинохайрхан дүүргийн 12 дугаар хорооны 104 дугаар цэцэрлэгийн өргөтгөл
1.4	Ажил үйлчилгээний зориулалт:	Цэцэрлэг
1.5	Техникийн нөхцөл олгох үндэслэл:	1) Газар эзэмших эрхийн 2020-09-08-ны 0066202 тоот гэрчилгээ. 2) Архитектур төлөвлөлтийн 2020 оны 06 сарын 18 ны ГБМЗХ2020/27-026 дугаартай даалгавар, батлагдсан эскиз зураг
1.6	Техникийн нөхцөлийн ангилал:	Шинэ холболт
1.7	Тооцооны бүрэн чадал:	194 кВА (тоогоор) /Нэг зуун ерэн дөрөв/ (үсгээр)

Хоёр. Холболтын цэг:

2.1	110/10 кВ-ын Баруун дэд станцаас 10 кВ-ын 1хТП-1 А, Б фидерийн ХТП-696 дэд өртөөний 0.4 кВ талын I ба II секцэнд шинээр рубильник бүхий групп тоноглож кабель шугам татаж тэжээх.

Гурав. Тоолуур, хэмжих хэрэгсэл:

3.1	Өөрийн байрны 0.4 кВ-ын щитэнд ачааллад тохирсон дифференциал автомат, хамгаалан таслах төхөөрөмж, / УЗО/, DLMS протоколыг дэмждэг 3 фазын баталгаат, бүрэн электрон 5 А тоолуур, гүйдлийн трансформатор суурилуулах.

Дөрөв. Тусгай заалтууд:

4.1	Щитний газардуулга болон шугам тоноглолын хамгаалалт, тураамтыг норм, дүрмийн дагуу хийлгэн холбогдох газраар шалгуулж протокол авсан байх.
4.2	ХТП-696 дэд өртөөний 0.4 кВ талын тоноглолуудыг сүүлийн үеийн овор багтай тоноглолуудаар шинэчилнэ солих, Хаалттай дэд өртөөний 0.4 кВ талыг шинэчлэлт хийж байгаатай холбогдуулан 0,4 кВ талуудад эскиз өөрчлөлтүүдийг батлагдсан зургийн дагуу хийх.
4.3	Хаалттай дэд өртөөг өргөтгөж байгаатай холбогдуулан өргөтгөл хийсэн, буусан хүчин тоног төхөөрөмжийг Монгол улсын засгийн газрын 2020 оны 97- р

Kindergarten No.104. SHD, UB.

Heating supply /UB Heating Network: Permission No.356/2020

БАТЛАВ УБДС ТӨХХЙЙН ГҮЙЦЭТГЭХ ЗАХИРАЛ

Г.БАЯРСАЙХАН

УБДС ТӨХХ-ийн Техникийн нөхцөл олгох комиссын 2020 оны 10-р сарын 1-ний өдрийн ээлжит хурлын шийдвэрээр зөвшөөрөв.

ТЕХНИКИЙН НӨХЦӨЛ № 356/2020

1. **Хэрэглэгчийн нэр:** Боловсрол шинэлэх үндэсний хөгжлийн /СХД-ийн 104-р цэцэрлэг/
2. **Барилгын мэдээлэл:** Цэцэрлэгийн ерөнхий
3. **Хэрэглэгчийн байршил:** Сонгинохайрхан дүүрэг, 12-р хороо, 1-р байрны үед
4. **Дулааны хэрэглээ:** **Нийт : 0.19 Гкал\цаг**

А.Халаалт	0.11 Гкал\цаг
Б.Хэрэглээний халуун ус	0.08 Гкал\цаг
В.Салхивуулга	0.00 Гкал\цаг

5. **Холболтын цэг:** 86 магистраль, ДХ-824 дулаартай хүрэлцэх холболттой ДДТ-119-ийн 2-р хэлхээнд өөрийн салаа шугамын эрчетлэх холбогдох.

Шугамын даралт, температурын утга:

А. Холболтын цэг дээр байх тураалт	6	м
Б. Шугамын статик даралт	35	м.у.б
В. Буцах шугамын даралт	3.5	атм
Г. Гадна агаарын тооцоот температур	-39	° С
Д.Температурын график	95/65	° С

6. **Мөрдөж хэрэгжүүлэх хууль, дүрэм журам**

6.1 Эрчим хүчний тухай хууль

6.2 Засгийн газрын 2020 оны 3-р сарын 18-ны өдрийн 97 тоот тогтоолоор батлагдсан "Дулааны эрчим хүч хэрэглэх дүрэм"

6.3 Эрчим Хүчний Зохицуулах Хорооны 2018 оны 10 дугаар сарын 11-ний өдрийн 290 дугаар тогтоолоор батлагдсан Дулаан дамжуулах, түгээх сүлжээний "Холболтын журам"

6.4 Эрчим хүчний тухай хуулийн 14-р зүйлийн 14.4-т заасны дагуу Эрчим хүч дамжуулах шугам, дэд станц нь төрийн өмчлөлд байна.

6.5 "Эрчим хүчний тухай хууль"-ийн 30 дугаар зүйлийн 30.1.10; 29 дүгээр зүйлийн 29.1.9 дэх заалтыг мөрдөж өөрийн эзэмшлийн шугам, тоног төхөөрөмжөөс бусад хэрэглэгчийг холбуулах.

7. **Зураг төсөл, төсөв боловсруулахад тавигдах шаардлага :**

7.1 Зураг төслийн үндсэн шаардлага

7.1.1 "Эрчим хүчний тухай хууль"-ийн 33 дугаар зүйл, "Эрчим хүчний шугам сүлжээг хамгаалах дүрэм"-ийн 1.3 дах заалтыг мөрдөж дулааны тив шугам, салаа болон салбар шугамаас хамгаалалтын зурвасын зайг хангаж барилгыг төлөвлөх. Шугамын хамгаалалтын зурваст төхөөлт, зам талбай, зогсоол, бусад байгууламж төлөвлөхгүй байх.

Kindergarten No.104. SHD, UB.

Water supply/water supply and wastewater service (USUG), Wastewater collection/ (USUG): Permission No. 605/20

БАТЛАВ
УС СУВГИЙН УДИРДАХ ГАЗРЫН ЕРӨНХИЙ ИНЖЕНЕР БӨГӨӨД ДАРГЫН ҮҮРГИЙГ ХАВСРАН ГҮЙЦЭТГЭГЧ
Ж.ДАГВАСҮРЭН

УСУГ-ын Техникийн нөхцөл олгох комиссын 2020 оны 07-р сарын 17-ны өдрийн хурлын 605 тоот протоколыг үндэслэн зөвшөөрөв.

ТЕХНИКИЙН НӨХЦӨЛ № 605 \ 20

1	Барилга байгууламжийн нэр, зориулалт, байршил	БШУЯам, 104-р цэцэрлэг, 150 хүүхдийн цэцэрлэгийн [illegible] 2 давхар барилга, СХД 12-р хороо, 1-р [illegible], одоо байгаа цэцэрлэгийн зүүн талд
2	Нийт усны хэрэгцээ:	Цэвэр усны – 5,1 м³/хон Галын усны – 2,5 л/с Бохир усны – 5,1 м³/хон
3	Цэвэр усны холболт хийх цэгийн байршил, шугамын диаметр	ОСНААУГ-ын 2020-08-25-ны өдрийн 42/2020 тоот техникийн тодорхойлолтын дагуу Баруун тугээх төв, ХУТ-15-ын УДДТ-119-ийн дараах одоо байгаа цэцэрлэгийн шугамаас [illegible] [illegible] холбох, [illegible]
4	Бохир усны холболт хийх цэгийн байршил, шугамын диаметр	ОСНААУГ-ын 42/2020 тоот техникийн тодорхойлолтын дагуу Баруун тугээх төв, ХУТ-15-ын [illegible] бохир усны Ф150 [illegible] шугамын худагт холбох, [illegible]
5	Нэмэлт нөхцөл	**Бусад шаардлага:** ➢ Ус хангамж, ариутгах татуургын системийн [illegible], шахалт, туршилт тохируулгын [illegible] [illegible] ➢ Барилгын гадна цэвэр, бохир усны шугам сүлжээний холбох цэгийг өөрчлөх тохиолдолд [illegible] [illegible], хангагч байгууллагын зөвшөөрлөөр гүйцэтгэнэ. ➢ **Холбогдох Хууль, БНбД, стандартыг мөрдөх** ➢ **Гадна шугамын ажлын зургийг ХБХГ-тай зөвшилцөх** ➢ **Стандартын дагуу зох барилга суурилуулах**
6	Тавигдах шаардлага	1. **Барилгыг "Хот суурины ус хангамж, ариутгах татуургын ашиглалтын тухай" хуулийн дагуу цэвэр усны шугамын [illegible] 5 метр, бохир усны шугамын [illegible] 6 метр зайд барих** 2. Хот, суурины ус хангамж, ариутгах татуургын ашиглалтын тухай хуулийн 15.1.10 –ын дагуу хангагч нь хэрэглэгчийн шугамаас [illegible] хэрэглэгч холбох техникийн нөхцөл олгосон тохиолдолд [illegible] ажлын зураг, төслийн дагуу [illegible] холбуулах. 3. Борооны ус зайлуулах шугам сүлжээг тусад нь төлөвлөх, борооны усыг бохир усны шугамд нийлүүлэхгүй байх. 4. Цэвэр, бохир усны шугамын угаалт, шахалт, туршилт, холболтын ажлын явцад ашиглалтын байгууллагын [illegible] инженерийг байлцуулж хийх, [illegible] 5. Төвийн болон хэрэглэгчийн цэвэр, бохир усны худаг, шугам сүлжээн дээр болон хамгаалалтын бусад зам талбай, авто зогсоол, барилгын довжоо, хүүхдийн тоглоомын талбай зэргийг төлөвлөсөн тохиолдолд засвар үйлчилгээ хийх боломжгүй болгох, засварын дараах [illegible] зардлыг [illegible] хариуцах 6. **Техникийн нөхцлийн хүчинтэй хугацаа 2 жил.**
7	Объект барих доход газрын шийдвэр:	➢ Газар эзэмших эрхийн 0066202 дугаартай гэрчилгээ ➢ ГБМЗХ2020/27-026 тоот архитектур төлөвлөлтийн даалгавар
8	Хэрэглэгчийн нэр, утас:	БШУЯам, Утас: 262227, 99655696

Kindergarten No.160. SBD, UB.

Communication/ Information & Communication National Network: Permission No. THB508/2020

NETCOM

БАТЛАВ
МЭДЭЭЛЛИЙН ХОЛБООНЫ СҮЛЖЭЭ
ХХК-ИЙН ГҮЙЦЭТГЭХ ЗАХИРАЛ
Ч.ЭОЛБААР
2020 оны [illegible] сарын [illegible]

ТЕХНИКИЙН НӨХЦӨЛ

Дугаар: ТН-Б508/2020 — 2020/[illegible]/21

Захиалагч байгууллага: МОНГОЛ УЛСЫН БОЛОВСРОЛ, СОЁЛ, ШИНЖЛЭХ УХААН, СПОРТЫН ЯАМ

Хэрэглэгчийн нэр: Ч.ЭНХ-АМГАЛАН

Харилцах утас: 252227

1. **Байршил:** СБД-н 3-р хорооны нутаг дэвсгэрт.
2. **Зориулалт:** 160-р цэцэрлэгийн өргөтгөлийн барилга
3. **Холбооны хэрэгцээ:** /урьдчилсан тооцоогоор/ Телефон тоо (шилэн кабель) [illegible]
4. **Техникийн ерөнхий нөхцөл:** [illegible]

5. **Техникийн үндсэн нөхцөл**

5.1. [illegible]
5.2. [illegible]
5.3. [illegible]
5.4. [illegible]

6. **Зураг төсөвт зайлшгүй тусгах шаардлагатай технологийн ерөнхий нөхцлүүд:**

6.1. [illegible]
6.2. [illegible]
6.3. [illegible]

7. **Угсралтын ажлын үед тавигдах нөхцөл:**

7.1. [illegible]
7.2. [illegible]
7.3. [illegible]

Kindergarten No.160. SBD, UB.

Electricity supply/UB Electricity Distribution Network: Permission No. 15/03207/20

БАТЛАВ
УЛААНБААТАР ЦАХИЛГААН ТҮГЭЭХ СУЛЖЭЭ ТӨРИЙН ӨМЧИТ ХУВЬЦААТ КОМПАНИЙН ГҮЙЦЭТГЭХ ЗАХИРАЛ Д.БАЯРСАЙХАН

ТЕХНИКИЙН НӨХЦӨЛ

Дугаар 15/03207/20

2020 оны 04 сарын 06 өдөр Улаанбаатар хот

Нэг. Ерөнхий мэдээлэл:

1.1	Хүсэлтийн дугаар:	20-99-000982
1.2	Хэрэглэгчийн нэр, регистр:	БОЛОВСРОЛ СОЁЛ ШИНЖЛЭХ УХААН СПОРТЫН ЯАМ Төрийн байгууллага - РД: 9116621,
1.3	Хэрэглэгчийн байршил:	Улаанбаатар Сүхбаатар 3-р хороо, УБ, СБД, 3-Р ХОРОО 160-Р ЦЭЦЭРЛЭГ
1.4	Ажил үйлчилгээний зорилгын:	Цэцэрлэг
1.5	Техникийн нөхцөл олгох үндэслэл:	1) Газар зохион эрхийн 2017 оны 0004091771 тоот гэрчилгээ. 2) Архитектур төлөвлөлтийн 2019 оны МЗХ2019/08-18 тоот дөвлгөвөр, барилгажих талбайн схем зураг
1.6	Техникийн нөхцөлийн ангилал:	Шинэ холболт
1.7	Тооцсоны бүрэн чадал:	267 кВА (тоогоор) /Гурван зуун жаран долоо/ (үсгээр)

Хоёр. Холболтын цэг:

2.1	35/6 кВ-ын Дарвин зам дэд станц, ХБ-5-с 6 кВ-ын 5хТП-3 АД фидерийн КТП-355 дэд өрөөний 0.4 кВ талын I ба II секцэнд шинээр рубильник бүхий групп тэжээгч кабель шугам татаж тэжээх.

Гурав. Тоолуур, хэмжих хэрэгсэл:

3.1	Өөрийн байрны 0.4 кВ-ын щитэнд суулгах залгагч бүхий рубильник, анхалалд тохирсон дифференциал автомат, камгаалан таслах төхөөрөмж / УЗО/, DLMS протоколыг дэмждэг 3 фазын батлагаат, бүрэн электрон 5 А тоолуур, гүйдлийн трансформатор суурилуулах.

Дөрөв. Тусгай заалтууд:

4.1	Щитний газардуулга болон шугам тэжээлийн хэмжилт, туршилтыг норм, дүрмийн дагуу хийгээд холбогдох газраар шалгуулж протокол авсан байх.

Тав. Дор дурдсан техникийн даалгавар, хууль дүрмийг мөрдөх:

5.1	Шугамын "Ажлын зураг төсөл"-ийг тухайн нутаг дэвсгэрийн ерөнхий төлөвлөгөө хариуцсан нэгж болон бусад шаардлагатай байгууллагуудтай зөвшилцөн, мэдээллийн санд оруулсан байх, схем холболт, хучин чадлыг тус компаниар хянуулах.
5.2	Энэхүү техникийн нөхцөлийн дагуу төвлөгдөх шугам, тэжээгүүд нь Улаанбаатар цахилгаан түгээх сүлжээ төрийн өмчит хувьцаат компанийн батлагдсан "Техникийн шаардлагын тодорхойлолт"-ыг хангасан байх

https://new.bg.mn/#/admin/request/20-99-000982 1 / 2

Kindergarten No.160. SBD, UB.

Heating supply /UB Heating Network: Permission No.219/2020

БАТЛАВ УБДС ТӨХК-ийн ГҮЙЦЭТГЭХ ЗАХИРАЛ

Г.БАЯРСАЙХАН

УБДС ТӨХК-ийн Техникийн нөхцөл олгох комиссын 2020 оны 8-р сарын 5-ний өдрийн ээлжит хурлын шийдвэрээр зөвшөөрөв.

ТЕХНИКИЙН НӨХЦӨЛ № 219/2020

1. Хэрэглэгчийн нэр:	Боловсрол соёл шинжлэх ухаан спортын яам /160-р цэцэрлэгийн ерөнхий/	
2. Барилгын мэдээлэл:	34.0x33.0м хэмжээтэй цэцэрлэгийн ерөнхий	
3. Хэрэглэгчийн байршил:	Сүхбаатар дүүрэг, 3-р хороо, 160-р цэцэрлэгийн урд	
4. Дулааны хэрэглээ:	**Нийт :**	**0.24 Гкал\цаг**
	А.Халаалт	0.16 Гкал\цаг
	Б.Хэрэгцээний халуун ус	0.08 Гкал\цаг
	В.Салхилуулга	0.00 Гкал\цаг
5. Холболтын цэг:	3в магистраль,ОСНАА)Газраас техникийн тодруулга авч, ДХ335-16А20 хүдэлвэр холболттой УДДТ-64 хучин чадлын тооцоон 2-р халхээнээс холбогдох.	
	Шугамын даралт, температурын утга:	
	А. Холболтын цэг дээр байх түвшин	8 м
	Б. Шугамын статик даралт	20 м.у.б
	В. Буцах шугамын даралт	4.0 атм
	Г. Гадна агаарын тооцоот температур	-39 ° С
	Д.Температурын график	95/65 ° С

6. Мөрдөж хэрэгжүүлэх хууль, дүрэм журам

6.1 Эрчим хүчний тухай хууль

6.2 Засгийн газрын 2020 оны 3-р сарын 18-ны өдрийн 87 тоот тогтоолоор батлагдсан "Дулааны эрчим хүч хэрэглэх дүрэм"

6.3 Эрчим Хүчний Зохицуулах Хорооны 2018 оны 10 дугаар сарын 11-ний өдрийн 290 дугаар тогтоолоор батлагдсан Дулаан дамжуулах, түгээх сүлжээний "Холболтын журам"

6.4 Эрчим хүчний тухай хуулийн 14-р зүйлийн 14.4-т заасны дагуу Эрчим хүч дамжуулах шугам, дэд станц нь төрийн өмчлөлд байна.

6.5 "Эрчим хүчний тухай хууль"-ийн 30 дугаар зүйлийн 30.1.10; 29 дүгээр зүйлийн 29.1.9 дэх заалтыг мөрдөж өөрийн эзэмшлийн шугам, тоног төхөөрөмжөөс бусад хэрэглэгчийг холбууулах.

7. Зураг төсөл, төсөө боловсруулахад тавигдах шаардлага :

7.1 Зураг төслийн үндсэн шаардлага

7.1.1 "Эрчим хүчний тухай хууль"-ийн 33 дугаар зүйл, "Эрчим хүчний шугам сүлжээг хамгаалах дүрэм"-ийн 1.3 дах заалтыг мөрдөж дулааны тав шугам, салаа болон салбар шугамаас хамгаалалтын зурвасын зайг хангаж барилгыг төлөвлөх. Шугамын хамгаалалтын зурваст тохиижилт, зам талбай, эргэсол, бусад байгууламж төлөвлөхгүй байх.

Kindergarten No.160. SBD, UB.

Water supply/water supply and wastewater service (USUG), Wastewater collection/ (USUG): Permission No. 608/20

БАТЛАВ
УС СУВГИЙН УДИРДАХ ГАЗРЫН ЕРӨНХИЙ ИНЖЕНЕР БӨГӨӨД ДАРГЫН ҮҮРГИЙГ ХАВСРАН ГҮЙЦЭТГЭГЧ
Ж.ДАГВАСҮРЭН

УСУГ-ын Техникийн нөхцөл олгох комиссын 2020 оны 07-р сарын 17-ны өдрийн хурлын 608 тоот протоколыг үндэслэн зөвшөөрөв

ТЕХНИКИЙН НӨХЦӨЛ № 608 \ 20

1	**Барилга байгууламжийн нэр, зориулалт, байршил**	**БШУЯам**, 160-р цэцэрлэг, 240 хүүхдийн цэцэрлэгийн /өргөтгөл/ 2 давхар барилга. СБД 3-р хороо, одоо байгаа 160-р цэцэрлэгийн урд талд
2	**Нийт усны хэрэглээ:**	Цэвэр усны **– 7,8 м³/хон** Галын усны **– 2,5 л/с** Бохир усны **– 7,8 м3/хон**
3	**Цэвэр усны холболт хийх цэгийн байршил, шугамын диаметр**	ОСНААУГ-ын 2020-08-03-ны өдрийн 46/2020 тоот техникийн тодруулгын дагуу Тээ тугзах тээ, ХҮТ-6-ын харъяа ДХ-1-ээс одоо байгаа цэцэрлэг хүргэгдэх шугамыг өргөтгөх, шинээр ДХ худаг хийж холбох, ажлын зургийн шатанд зөвшилцөх
4	**Бохир усны холболт хийх цэгийн байршил, шугамын диаметр**	ОСНААУГ-ын 46/2020 тоот техникийн тодруулгын дагуу Тээ тугзах тээ, ХҮТ-6-ын харъяа бохир усны Ф150 мм-ийн шугамын худагт холбох, ажлын зургийн шатанд зөвшилцөх
5	**Нэмэлт нөхцөл**	**Бусад шаардлага:** ➢ Ус хангамж, ариутгах татуургын системийн угаалга, шахалт туршилт тохируулгын ажлын зардлыг зураг төсөвт тусгах. ➢ Барилгын гадна цэвэр, бохир усны шугам сүлжээний холбох цэгийг өөрчлөх тохиолдолд хүсэлт тавьж өөрчлүүлэн, хангагч байгууллагын зөвшөөрлөөр гүйцэтгэнэ. ➢ **Холбогдох Хууль, БНбД, стандартыг мөрдөх** ➢ **Гадна шугамын ажлын зургийг ХБХГ-тай зөвшилцөх** ➢ **Стандартын дагуу тоос баригч суурилуулах**
6	**Тавигдах шаардлага**	1. **Барилгыг "Хот суурины ус хангамж, ариутгах татуургын ашиглалтын тухай" хуулийн дагуу цэвэр усны шугамын тэнхлэгээс 5 метр, бохир усны шугамын тэнхлэгээс 6 метр зайд барих** 2. Хот, суурины ус хангамж, ариутгах татуургын ашиглалтын тухай" хуулийн 15.1.10 -ын дагуу хангагч нь хэрэглэгчийн шугамнаас дамжуулан шинээр хэрэглэгч холбох техникийн нөхцөл олгосон тохиолдолд баталгаажсан ажлын зураг, төслийн дагуу дараалийн хэрэглэгчийг холбуулах. 3. Борооны ус зайлуулах шугам сүлжээг тусад нь төлөвлөх, борооны усыг бохир усны шугамд нийлүүлэхгүй байх. 4. Цэвэр, бохир усны шугамын угсралт, шахалт туршилт, холболтын ажлын нөхцөл ашиглалтын байгууллагын хяналтын инженерийг байлцуулж ил, далд ажлын акт хийлгэнэ. 5. Таны болон хэрэглэгчийн цэвэр, бохир усны худаг, шугам сүлжээн дээр болон хамгаалалтын бүсэд зам талбай, авто зогсоол, барилгын довжоо, хүүхдийн тоглоомын талбай зэргийг төлөвлөсөн тохиолдолд засвар үйлчилгээ хийх боломжгүй болгосон, засварын дараах нөхөн сэргээлтийн ажлыг өөрсдөө хариуцах 6. Техникийн нөхцлийн хүчинтэй хугацаа **2 жил**.
7	**Объект барих дээд газрын шийдвэр:**	➢ Газар эзэмших эрхийн 000439171 дугаартай гэрчилгээ ➢ МЗХ2019/08-018 тоот архитектур төлөвлөлтийн даалгавар
8	**Хэрэглэгчийн нэр, утас:**	**БШУЯам**, Утас: 262227, 99655896

A new kindergarten. BZD, UB.

Communication/ Information & Communication National Network: Permission No. THB726/2020

NETCOM

[illegible]

БАТЛАВ
МЭДЭЭЛЭЛ ХОЛБООНЫ СҮЛЖЭЭ
ХХК-ИЙН ГҮЙЦЭТГЭХ ЗАХИРАЛ
Ч.ЗОЛБАЯР
2021 оны 10 сарын 20

ТЕХНИКИЙН НӨХЦӨЛ

Дугаар: ТН-В726/2021 **2021/10/20**

Захиалагч байгууллага:	ЭДИЙН ЗАСГИЙН ХҮНДРЭЛИЙН ҮЕД БОЛОВСРОЛЫН ЧАНАР, ХҮРТЭЭМЖИЙГ САЙЖРУУЛАХ ТӨСӨЛ
Хариуцагчийн нэр:	Г.ӨЛЗИЙБАЯР
Харилцах утас:	77060688
1. Байршил:	БЗД-н 24-р хорооны нутаг дэвсгэрт
2. Зориулалт:	155-р цэцэрлэгийн өргөтгөлийн барилга
3. Холбооны хэрэгцээ:	/урьдчилсан тооцоогоор/ Телефон тоо (ширхэгээр) **10 ш**

4. **Техникийн ерөнхий нөхцөл:** [illegible]

5. Техникийн үндсэн нөхцөл

5.1. [illegible]

5.2. [illegible]

5.3. [illegible]

5.4. [illegible]

6. Зураг төсөл зайлшгүй тусгах шаардлагатай технологийн ерөнхий нөхцөлүүд:

6.1. [illegible] MNS 5276:2003, MNS 5279:2003, MNS 5280:2003, MNS 5277:2003 [illegible]

6.2. [illegible]

6.3. [illegible]

7. Угсралтын ажлын үед тавигдах нөхцөл

7.1. [illegible]

7.2. [illegible]

7.3. [illegible]

7.4. [illegible]

7.5. [illegible]

7.6. [illegible]

A new kindergarten. BZD, UB.

Electricity supply/UB Electricity Distribution Network: Permission No. 15/05361/21

БАТЛАВ
УЛААНБААТАР ЦАХИЛГААН ТҮГЭЭХ СҮЛЖЭЭ ТӨРИЙН ӨМЧИТ ХУВЬЦААТ КОМПАНИЙН ГҮЙЦЭТГЭХ ЗАХИРАЛ ... РДАГДАН

ТЕХНИКИЙН НӨХЦӨЛ

Дугаар 15/05361/21

2021 оны 10 сарын 28 өдөр Улаанбаатар хот

Нэг. Ерөнхий мэдээлэл:

1.1	Хүсэлтийн дугаар:	21-01-007923
1.2	Хэрэглэгчийн нэр, регистр:	БОЛОВСРОЛ ШИНЖЛЭХ УХААНЫ ЯАМ Төрийн байгууллага - РД: 9116621,
1.3	Хэрэглэгчийн байршил:	Улаанбаатар Баянзүрх 24-р хороо, 168-р цэцэрлэг
1.4	Ажил үйлчилгээний зориулалт:	Цэцэрлэг
1.5	Техникийн нөхцөл олгох үндэслэл:	1) Газар эзэмших эрхийн 2020-04-01-ны 000010829 тоот гэрчилгээ. 2) Архитектур төлөвлөлтийн 2021 оны МЗХ2021/16-001 дугаартай даалгавар, батлагдсан эскиз зураг
1.6	Техникийн нөхцөлийн ангилал:	Шинэ холболт
1.7	Тооцооны бүрэн чадал:	350 кВА (тоогоор) /Гурван зуун тавь/ (үсгээр)

Хоёр. Холболтын цэг:

2.1	110/10 кВ-ын Улаанхуаран дэд станцаас 10 кВ-ын Монель фидерийн тулгуур №106- д хуурай салгуур, ОПН суурилуулан бүрээстэй агаарын шугам татаж шинээр баригдах дэд өртөөг тэжээнэ.

Гурав. Тоолуур, хэмжих хэрэгсэл:

3.1	Дэд өртөөний 0,4 кВ талын ерөнхий оруулганд СХЗҮТ-ийн загварын туршилтанд орсон DLMS протоколыг дэмждэг 3 фазын баталгаат, бүрэн электрон тоолуур, ачааллад тохирсон гүйдлийн трансформаторыг тусгай хайрцагт суурилуулах.

Дөрөв. Тусгай заалтууд:

4.1	Олон улсын стандартын шаардлага хангасан, алдагдал багатай 400 кВА чадалтай, 10/0.4 кВ- ын хүчдэлийн, хүчдэл тохируулгын 5 шатлалтай трансформатор бүхий кабелийн оруулгатай дэд өртөө / КТПН/ өөрийн эзэмшлийн газарт шинээр барих.
4.2	Богино залгааны гэмтэл заагч датчикийг суурилуулах. Техникийн тодорхойлолтыг Техникийн бодлого зохицуулалтын хэлтсээс авах.
4.3	УБЦТС ТӨХК- ийн эзэмшлийн дэд станц, шугам тоноглолд хийгдэх өргөтгөл, шинэчлэлийн ажлыг хариуцан тусгай төвөөр гүйцэтгүүлэх.
4.4	Цахилгаан хангамжийн III зэрэглэлийн шугамаас холбогдож байгаа тул цахилгаан эрчим хүч тасарсан үед тэжээх нөөц эх үүсгүүр / дизель генератор/ суурилуулах.

https://www.bzg.mn/#/admin/request/21-01-007923 1 / 3

A new kindergarten. BZD, UB.

Heating supply /UB Heating Network: Advised other source due to remote location

УЛААНБААТАР ДУЛААНЫ СҮЛЖЭЭ
ТӨРИЙН ӨМЧИТ ХУВЬЦААТ КОМПАНИ
16030 Улаанбаатар хот, Баянгол дүүрэг,
Ф.Энгельсийн гудамж, Утас/Факс: (976-11) 34 23 07,
И-мейл: dhsub@udds.energy.mn

2021.10.26 № 60/1063

танай 2021.10.19-ны № 180/2021 -т

ЭДИЙН ЗАСГИЙН ХҮНДРЭЛИЙН ҮЕД
БОЛОВСРОЛЫН ЧАНАР,
ХҮРТЭЭМЖИЙГ САЙЖРУУЛАХ ТӨСӨЛД

Нийслэлийн Баянзүрх дүүргийн 24 дүгээр хороонд, байрлах 168 дугаар цэцэрлэгийн 100 ортой ерөнхий барилгыг төлөрсөн дулаан хангамжид холбох хүсэлтийг судалж, тодруулаад дараах хариуг хүргүүлж байна.

Тус сургуулийн барилгын байршил нь "УБДС" ТӨХК-ийн эзэмшлийн дулааны шугамаас хэт алслагдсан, төлөрсөн дулаан хангамжийн системд холбох техникийн боломжгүй тул дулааны хэрэглээг өөр эх үүсвэрээр хангахыг зөвлөж байна.

ГҮЙЦЭТГЭХ ЗАХИРАЛ Б.БАЯРСАЙХАН

3160603476

A new kindergarten. BZD, UB.

Water supply/water supply and wastewater service (USUG), Wastewater collection/ (USUG): Advised autonomous source of water supply or delivery of water due to remote location

ЭДИЙН ЗАСГИЙН ХЭЛТСИЙН УЕД
БОЛОВСРОЛЫН ЧАНАР,
ХҮРТЭЭМЖИЙГ САЙЖРУУЛАХ ТӨСӨЛ

УЛААНБААТАР ХОТЫН
УС СУВГИЙН УДИРДАХ ГАЗАР
ОНӨААТҮГ

Техникийн нөхцөлийн тухай

Баянзүрх дүүргийн 24 дүгээр хороо, гэр хорооллол дунд одоо байгаа 168 дугаар гэр цэцэрлэгийн зүүн талд Нийслэлийн боловсролын газрын захиалгаар баригдах 100 хүүхдийн цэцэрлэгийн 2 давхар барилгад техникийн нөхцөл хүссэн тэнэй хүсэлтийг 2021 оны 10 дугаар сарын 27-ны өдрийн Техникийн нөхцөл олгох комиссын хуралдаар хэлэлцлээ.

Тухайн байршилд ойр төвийн цэвэр, бохир усны шугам сүлжээ байхгүй тул техникийн нөхцөл олгох боломжгүй байна.

Иймээс цэвэр усыг өөрийн эх үүсвэрээр, эсвэл зөөврөөр шийдэх, мөн бохир усны бага оврын цэвэрлэх байгууламжийг холбогдох хууль, норм дүрмийн дагуу төлөвлөхийг мэдэгдье.

Ус Суврийн Удирдах Газар
Инженерийн Бодлогын Хэлтэс
Дарга
Нацаг Одхуу
2021.10.29 08:46

Kindergarten No. 6. Murun, Khuvsgul Province

Communication/ Information & Communication National Network: Permission No. 2022/08/15 by Khuvsgul Branch of CICNN

МЭДЭЭЛЛИЙН ХОЛБООНЫ СҮЛЖЭЭ ХХК ХӨВСГӨЛ АЙМГИЙН ГАЗАР

БАТЛАВ
МЭДЭЭЛЛИЙН ХОЛБООНЫ СҮЛЖЭЭ ХХК
ХӨВСГӨЛ АЙМГИЙН ГАЗРЫН ДАРГА

Ж.ДАВААХҮҮ

2022/08/15

ТЕХНИКИЙН НӨХЦӨЛ

1. **ЗАХИАЛАГЧ БАЙГУУЛЛАГА:** ХӨВСГӨЛ АЙМАГ ГХБХБГ
2. **ХЭРЭГЛЭГЧИЙН НЭР:** VI-р ЦЭЦЭРЛЭГ
3. **ХАРИЛЦАХ УТАС:** 99009768 99010813.
4. **БАЙРШИЛ:** ХӨВСГӨЛ АЙМАГ МӨРӨН СУМ 8-Р БАГ
5. **ХЭРЭГЦЭЭ:** ХОЛБООЖУУЛАХ /ШИЛЭН КАБЕЛЬД ХОЛБОХ/
6. **Техникийн онцгой нөхцөл:** Харилцаа Холбооны Зохицуулах хорооноос олгогдсон үндсэн сүлжээ байгуулах бүрэн эрхийнхээ дагуу холбоожуулах техникийн нөхцлийг зөвхөн Мэдээлэл Холбооны Сүлжээ ТӨХХК /цаашид МХСТӨХХК гэх/ олгох бөгөөд техникийн нөхцөлгүйгээр холбооны бүх төрлийн үйлчилгээний зориулалттайгаар кабель татах болон шилжүүлсэн тохиолдолд уг барилга объектыг техникийн болон улсын комиссоор хүлээн авахгүй болно.
7. **Техникийн нөхцөлд тавигдах шаардлага:**
   a. Кабель татагдах агаарын багана, худагт нөөц үлдээхгүй бөгөөд төгсгөлийн тоноглол байрлуулах байрлалд нөөцийг авах шаардлагатай.
   b. Техникийн нөхцлийн дагуу угсралтын ажлыг гүйцэтгэж техникийн актыг хүлээлгэж өгөөгүй тохиолдолд тухайн чиглэлийн кабелийг шилжүүлах, гадны гэмтэл саатал гарсан тохиолдолд гарах зардал болон хариуцлагыг МХС ТӨХХК хариуцахгүй болно.
   c. Харилцаа Холбооны Зохицуулах Хорооноос олгосон холбооны кабель шугамын угсралт хийх тусгай зөвшөөрөлтэй аж ахуйн нэгжээр гүйцэтгүүлэх шаардлагатай.

8. **Шаардагдах тоног төхөөрөмж, техникийн үндсэн нөхцөл**
   a. 14-р байрны дээвэрт байрлах МХС-ийн шилэн кабелийн FDF-с эх авч 350м шилэн кабелийг 8 баганаар татаж, барилгын шугам сүлжээний оруулгаар оруулж, шугам сүлжээний төгсгөлийн төхөөрөмжинд /FDF/ холболт хийнэ. Кабелийн нөөц орсон. Зургийг хавсаргав.
   - Шилэн кабель – 350м / 12кор агаарын /
   - Медиа конвертор-2ш /2 хос/
   - Төгсгөлийн төхөөрөмж /FDF/ - 2ш
   - Рак /4unit/ - 1 ш
   - Шилэн кабелийн корын залгаа – 4ш
   - Жампер кабель 5м-4ш /SC-SC/
   - Уртасгуур- 2ш
   - Муфел-1ш

9. **Зураг төсөвт зайлшгүй тусгах шаардлагатай технологийн онцгой нөхцлүүд:**
   a. Шилээр хийгдэх кабель, шугам болон худаг сувагчлалын төслийг зохиохдоо Монгол улсын стандарт MNS 5276:2003, MNS 5279:2003, MNS 5280:2003, MNS 5277:2003 тоот ерөнхий шаардлагууд болон ДБХ-ийн сайдын 1995 оны 127-р тушаалаар баталсан зааврыг баримтлан гүйцэтгэх

2022 он

Kindergarten No. 6. Murun, Khuvsgul Province

Electricity supply/UB Electricity Distribution Network: Permission No. 215/2022 by Khuvsgul Erchim khuch LLC

Батлав.

Ерөнхий инженер .... /Г.Дашдорж/

Цахилгаан эрчим хүчээр хангах техникийн нөхцөл Дугаар № 215/2022

2022 оны 08- р сарын 19-ны өдөр Мөрөн сум

1. Техникийн нөхцөл хүссэн хэрэглэгчийн нэр: Хөвсгөл аймгийн Газрын Харилцаа, Барилга хот байгуулалтын газрын дарга Б.Ганзориг, Хөвсгөл аймаг, Мөрөн сум, 7-р баг, Утас: 70382929
2. Хэрэглэгчийн байршил: Хөвсгөл аймаг, Мөрөн сум, 8-р баг, Дамдинбазарын гудамж, 483 тоот, 6-р цэцэрлэг
3. Ажил үйлчилгээний зориулалт: 150 хүүхдийн цэцэрлэгийн барилга шинээр барих
4. **Техникийн нөхцөл олгох үндэслэл:** Хөвсгөл аймгийн Газрын Харилцаа, Барилга хот байгуулалтын газрын дарга Б.Ганзориг-н 2022-08-15-ны өдрийн 4/535 албан тоотын дагуу
5. Суурилагдсан чадал: 110 кВт
6. **Холбогдох цэг: 6кВ-ын ХХБ-наас тэжээгдэж буй Гандан-2 гаргалгааны 32-33-р тулгуурын дунд төмөрбетонон тулгуур босгож, хуурай салгуур суурилуулан эрчим хүчний [illegible], 8 [illegible] 160кВа хүчин чадалтай трансформатор бүхий КТПН угсарч хэрэглэгч тэжээх.**
7. Тоолуур: / DTZY-88 / маркын 3 фазын ухаалаг тоолуур
8. Гүйдлийн трансформатор – байхгүй
9. **Тусгай шаардлага: Хүчдэл унасан тохиолдолд цахилгаан эрчим хүчээр хангах боломжгүй.**
10. **Техникийн нөхцлийн хүчинтэй хугацаа:** 1 жил

Щит тоноглолын болон газардуулгын норм дүрэм стандартын дагуу хийх. / Зайлшгүй газардуулга болон [illegible] хийж хангагч байгууллагын эрх бүхий [illegible] хүлээн авч гэрээ [illegible] шаардлагатай/

Дор дурьдсан техникийн шаардлага, хууль, дүрмийг мөрдөх:

Дотор өгөгдөөн холболт хийх цэгээс холбогдох дүрэм [illegible] дагуу шугам татаж авч, тоног төхөөрөмжийн газардуулгыг норм стандартын дагуу хийж эрх бүхий байгууллагаар хүлээлгэн авч гэрээ [illegible] авах.

Кабель шугамын трасс, хамгаалалтын зурвас барилга барих, зам талбай засах, бетондохыг хориглоно.

Цахилгаан угсралтын ажлыг тусгай зөвшөөрөлтэй мэргэжлийн байгууллагаар цахилгаан техникийн байгууламжийн дүрэм, аюулгүй ажиллагааны дүрэм, техник ашиглалтын дүрмийн дагуу гүйцэтгүүлэх.

Хүчдэлийн тувшинийн ± 5%-ийн хэлбэлзэлд зохицсон тоноглол суурилуулах.

Засгийн газрын 2001 оны өдрийн 263 тоот тогтоолоор батлагдсан "Цахилгаан эрчим хүч хэрэглэх дүрэм"-ийн заалтыг мөрдлөг болгох.

Хэрэглэгч нь өөрийн эзэмшлийн цахилгаан тоног төхөөрөмжийн ашиглалт үйлчилгээний заг доторх цахилгаан тоног төхөөрөмжийн ашиглалт, аюулгүй ажиллагаа хариуцах ажилтныг томилох бөгөөд

шугам сүлжээний хамгаалалтын зурвас дотор гэр, орон сууц, барилга байгууламж барих, шугам сүлжээ өнгөлөгч, төхөөрөмжийн зөвшөөрөлгүй будах үйл ажиллагаа явуулахыг хориглоно. (Хөвсгөл бүс үйл ажиллагааны үед [illegible] хяналт үйлчилгээ хийлгэх)

Энэхүү техникийн нөхцлийн дагуу холболтыг 1 жилийн хугацаанд хийж гүйцэтгэх бөгөөд энэ хугацаанд цахилгаан сүлжээнд холбогдоогүй тохиолдолд шинээр техникийн нөхцөл авна.

Цахилгаан эрчим хүчний тооцоог сар бүрийн 20 -ны дотор хийх. Хэрэглэгч нь "Эрчим хүчний тухай хууль"-ийн 30.1.11-д заасны дагуу хүчин чадлын хүртээл тус компанийн зөвшөөрөлгүй шинээр хэрэглэгч холбох [illegible] авч холбуулах үүрэгтэй.

Техникийн нөхцөл гаргасан:

ТББХ-ийн дарга........ Л.Отгонбаяр

Борлуулалтын хэлтсийн ахлах........ Л.Дарийма

ГТХ хэлтсийн инженер........ Ч.Баасанбаяр

Kindergarten No. 6. Murun, Khuvsgul Province

Heating supply /UB Heating Network: Permission No. 2022/11 by “Khuvsgul Heating Station” Shareholding

БАТЛАВ: "ХӨВСГӨЛ ДУЛААНЫ СТАНЦ" ТӨХК-ИЙН

ГҮЙЦЭТГЭХ ЗАХИРАЛ .... Д.ШАНЛИГРЭНЧИН

Техникийн нөхцөл олгох комиссын 2022 оны 08-р сарын 26-ний өдрийн хурлаар хэлэлцэж зөвшөөрөв.

2022 оны 08 сарын 26

ТЕХНИКИЙН НӨХЦӨЛ № 2022/11

1. **Хэрэглэгчийн нэр:** "6-Р ЦЭЦЭРЛЭГ"
2. **Барилгын зориулалт:** Шинээр баригдах цэцэрлэгийн барилга
3. **Хэрэглэгчийн байршил:** "6-р цэцэрлэг"-ийн хашаанд
4. **Дулааны хэрэглээ:**

A. Халаалт	0.071 Гкал/ц
B. Хэрэглээний халуун ус	0.150 Гкал/ц
C. Салхилуулга	0.00 Гкал/ц
Нийт	0.221 Гкал/ц
Барилгын эзлэхүүн	...... м³

5. **Холболтын цэг:** ДХЗ-2 дулааны худгаас ДХЗ-70 дулааны худаг хүртэлх шугамын голоос [illegible]

Шугамын даралт, температурын утга

A. Холболтын цэг дээр байх түрэлт	50 м.у.б
B. Шугамын статик даралт	40 м.у.б
C. Буцах шугамын даралт	30 м.у.б
D. Гадна агаарын тооцоот температур	-36.9°C
E. Температурын график	95/65°C

6. **Мөрдөж хэрэгжүүлэх хууль, дүрэм**
   - 6.1 Эрчим хүчний тухай хууль
   - 6.2 Дулааны эрчим хүч хэрэглэх дүрэм
   - 6.3 Эрчим хүчний шугам сүлжээг хамгаалах дүрэм
   - 6.4 Дулаан дамжуулах, түгээх сүлжээний холболтын журам
   - 6.5 [illegible] дүрэм [illegible]
7. **Зураг, төсөл, төсөв боловсруулахад тавигдах шаардлага:**
   - 7.1 **Зураг төслийн үндсэн шаардлага**
   - 7.1.1 Хэрэглэгч нь мэргэжлийн эрх бүхий байгууллага, хуулийн этгээдээр зураг төслийг хийлгэнэ.
   - 7.1.2 Зураг төслийн ажлын гүйцэтгэгч нь [illegible] шугам сүлжээний трассын [illegible] байна.
   - 7.1.3 "Эрчим хүчний тухай хууль"-ийн 33-р зүйл, "Эрчим хүчний шугам сүлжээг хамгаалах"-ийн 1.3 дах заалтыг мөрдөж дулааны [illegible] шугам, салаа болон салбар шугамыг хамгаалалтын бүсэд [illegible] барилгыг төлөвлөх.
   - 7.1.4 Дулааны ачааллыг тооцож [illegible] байх. Барилгын дулааны алдагдлыг тооцож барилгын нормын шаардлагыг хангахгүй тохиолдолд нэмж дулаалах.

Хуудас 1-н 3

Kindergarten No. 6. Murun, Khuvsgul Province

Water supply/water supply and wastewater service (USUG), Wastewater collection/ (USUG): Permission No. 11 by “Khuvsgul water service” company

БАТЛАВ: ХАНГАГЧ БАЙГУУЛЛАГЫН ДАРГА П.ЛХАГВАЖАВ

Техникийн нөхцөл олгох комиссын 2022 оны 09 сарын 02-ний өдрийн хурлын 11 тоот протоколыг үндэслэн зөвшөөрөв.

ТЕХНИКИЙН НӨХЦӨЛ № 11

1	Барилга байгууламжийн нэр, зориулалт, байршил	Мөрөн сумын 8 дугаар багт баригдах 150 хүүхдийн цэцэрлэгийн барилга
2	Нийт усны хэрэглээ:	Цэвэр ус: м3/хөн Бохир ус: м3/хөн
3	Цэвэр усны холболт хийх цэгийн байршил, шугамын диаметр, даралт:	Дэлхий ТӨХК-ийн өгсөн техникийн нөхцөлийн дагуу цэвэр усны салбар шугам сүлжээний Ф100 цэвэр усны шугам сүлжээнээс холбохоор техникийн нөхцөл олгов.
4	Бохир усны холболт хийх цэгийн байршил, шугамын диаметр:	Бохир усны цэгтүүлэх шугам сүлжээний БУХ-80 цэнхэр баригдах хүүхдийн цэцэрлэгийн барилгын бохир усны шугам сүлжээг холбох нийлүүлэхээр техникийн нөхцөл олгов. Бохир усны шугам сүлжээний хурлийн H=2.8 Ф150
5	Нэмэлт нөхцөл:	Барилга байгууламжийн зураг төсөл боловсруулах, зөвшөөрөх дүрмийн 5.2 дугаар заалтын дагуу бариулын шугам сүлжээний ажлын зургыг ашиглалт байгууллагатай зөвшөөрөх.
6	Тавигдах шаардлага	1.Барилын Хот, суурины ус хангамж, ариутгах татуурлын ашиглалтын тухай хуулийн дагуу цэвэр усны шугамын техлогээс бм, бохир усны шугамын техлогээс 8м зайд барих. 2.Хот, суурины ус хангамж, ариутгах татуурлын ашиглалтын тухай хуулийн 16.1.10 дагуу хангагч нь хэрэглэгчийн шугамаас дамжуулан цэнэгээр хэрэглэгч холбох техникийн нөхцөл олгож, батлагдсан ажлын зураг төслийн дагуу даралтийн хэрэглэгчийг холбуулах. 3.Цэвэр, бохир усны шугамын угсралт, шахалт туршилтыг мэд ашиглалтын байгууллагын мэргэжлийн инженерийг байлцуулж нэг, дагд ажлын акт үйлдэнэ. 4.Техникийн нөхцлийн хүчинтэй хугацаа 2 жил.
7	Хэрэглэгчийн нэр, утас :	99020813
8	Техникийн нөхцөлтэй холбогдсон сэвм	Сэвм зургийг хавсаргав.

Комиссын нарийн бичиг Д.Сүхээ (Ерөнхий инженер)

Комиссын гишүүн Д.Сарангэрэл (УХАТ ашиглалтын инженер)