4. SCOPING AND PRIORITIZATION OF IMPACTS/RISKS

4.1 Methodology

An Environmental Impact Assessment of a project pursue the general methodology, which described below:

- Scoping and prioritization of Impacts must be conducted within the limits of project scope. (see 4.1.2)
- Environmental parameters will be measured to wide ranges of expected changes due to a project proposed activities: change in biodiversity species and natural resources; environmental changes, social impacts, impacts to natural beautiful places, historical and cultural items, archeological and paleontological findings and impacts to economics and environment and examine their impacts.
- Impacts can be divided as direct or indirect through its type, long-term and short-term through its duration and strong, medium and lower by its intensity.
- Both negative and positive factors that lead to impact are estimated.
- To assess impacts, justification must be based on results of data analysis and conclusions of experts of assessment team, as well as comparatively study findings of assessment report on feasibility study of JICA team and a system approach method.
- Project expected impacts as well as prioritization of impacts will be done in two steps: during construction of flyover bridge and during flyover exploitation and maintenance through assessing scope of impact, duration and intensity.
- To estimate assessment, will use average normative method for system selection. (See details of specific method in chapter 4.3)

To evaluate impacts by using system approaches, checklist and matrix methods are used. Checklist method is based on principle that if a certain impact “exist” or “does not exist” and mark any negative impact as “x” and positive impact as “+”.

4.2 Environmental Impacts

Environmental and socio-economic impacts have been identified based on general methodology and checklist methods. Project location is a part of City's central district, where density of human population is high and many production and services are concentrated. Table 46 shows results of assessed impacts.

Table 46. Forms, duration and intensity of environmental impacts

№	Environmental parameters	Form			Duration		Intensity		
		Direct	Indirect	Self-regulated	Short	long	Strong	Medium	Low
1	2	3	4	5	6	7	8	9	10
Changes in ecological components									
1.	Changes in surface water flows								
2.	Changes in surface water quality		x		x				x
3.	Changes in vegetation cover								
4.	Soil deterioration and erosion	x			x				x
5.	Changes in geological formation								
6.	Changes in wildlife								
7.	Climatic changes								
Natural resource use									
8.	Earth surface resources								x
9.	Pasture and forage								
10.	Minerals and raw materials resources								
Environmental changes									
11.	Quality and resources of drinking water								
12.	Quality and resources of surface water								x
13.	Air pollution	x			x			x	
14.	Soil pollution	x			x				x
15.	Impacts of contaminating substance to population through water								
16.	Noise and vibration impacts		x						x
Social impacts									
17.	Impacts to infrastructure development	+				+	+		
18.	Impacts to service sectors		x/+		x	+			x
19.	Increase in population's income	+							+
Natural beautiful places, historical & cultural memorials and archeological and paleontological findings									
20.	Changes in natural view								
21.	Changes in landscape contour and color		x						x
22.	Impacts to protected areas								
23.	Impacts to historical and cultural memorials								
24.	*Archeological and paleontological findings*								
Economics and environment									
25.	Increase in local income	+			+				+
26.	Increase in job places	+			+				+

Expected negative and positive impacts, its duration and intensity have been identified and described:

Direct impact:

- During the installation of equipment and machinery as well as civil engineering and construction works of flyover project, soil will be slightly disturbed and dust pollution will be created because of released soil and dirt.
- Earthworks during construction will change geological formation slightly.
- Civil engineering, construction works and heavy machinery will cause air and soil pollution in short term.
- After construction, the flyover bridge and its access roads will positively impact infrastructure and economic development for long period.
- Civil engineering and construction works during construction of the flyover will positively affect in increasing local work places and income

Indirect impact:

- Waste of civil engineering works will affect quality of soil and surface water
- Noise and vibration from machinery and mechanisms during construction stage, will slightly impact construction workers slightly.
- It will negatively influence to activities of service sector in around project areas shortly however, in long term it will positively impact service sector in the city, as a whole.

Long term impact:

- After completion of the flyover construction, will be used for long period and make positive impact to infrastructure development.
- Flyover bridge will positively impact local population's health and economy by reduced traffic jam on the road and air pollution reduction.

Short term impact:

Train noise and vibration, which is passed below the flyover, will be increased within short period and small amount of air, soil, river and water pollutions may be caused due to dust and waste of engineering and construction works.

Strong impact:

As a result of study on expected impact assessment, there is no strong and negative impacts will produced from the project.

4.3 Prioritization of environmental impacts

We have done prioritization assessment to impacts by using average normative method which is widely used to system selection method. Features of the method can be identified by following formula.

$$S = \frac{\sum I_i}{\sum I_i \times R_i}$$

Where, S – negative impact assessment or arithmetical sum of assessment scores. It ranges between 1-10 and in case, if sum is less than 4, it means less negative impacts; if it is between 4-7, it means medium negative impacts and if it is more than 7, it is expected more negative impacts. Prioritization of negative impacts will start from higher scores.

I- index grading that expresses demands to do impact assessment of a project. An expert who does assessment, will assign relevant scores based on his expert knowledge and experiences. Scores are expressed quantitevily and qualitively within range of 1-5 in relation to other activities.

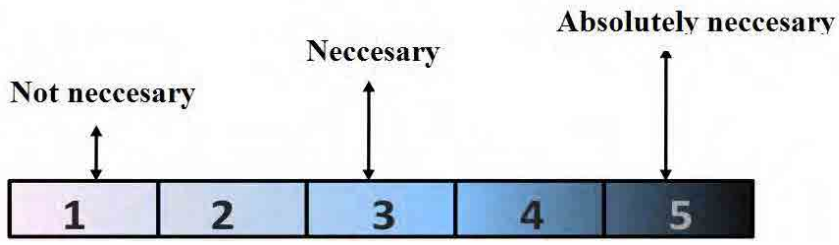


Figure 94. Index grading

R-negative impact of the project to the environmental factors. Negative impacts are expressed in number in range of 1-10 scores and an expert who makes assessment, will identify numerical meaning based on his expertise.

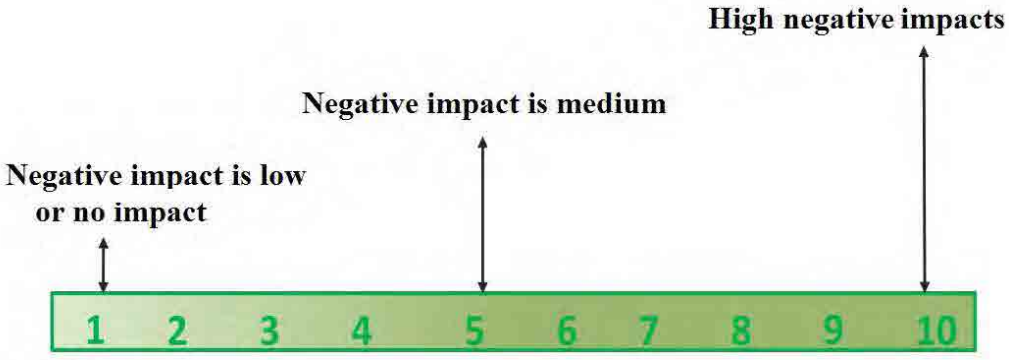


Figure 95. Scoring of negative impact for a project

Table 47 shows prioritized impacts of assessment for Ajilchin Flyover project.

Table 47. Prioritization of Ajilchin Flyover project impacts

No	Environmental components to be impacted	Negative outcomes from flyover bridge construction activities						Sum	Prioritization of impacts
		Flyover earthworks	Waste from flyover construction works	Noise and vibration from flyover construction works	Dust caused from flyover construction works	Emissions from machineries during the flyover construction	Accidents during the flyover construction		
1	Changes in surface water quality	1	7	-	2	1		**11**	**3**
2	Changes in underground water quality	1	-	-	-	-	-	**1**	**8**
3	Soil deterioration, erosion and pollution	7	2	-	1	1	2	**13**	**2**
4	Air pollution	3	1	-	6	3	1	**14**	**1**
5	Vegetation cover reduction	5	3	-	1	1	1	**11**	**3**
6	Wildlife disturbance	1	1	3	1	1		**7**	**5**
7	Impacts to activities of service sector	4	-	-	-	-	1	**5**	**6**
8	Resident's health	-	-	2	1	1	-	**5**	**6**
9	Employees' health	-	-	3	2	2	3	**10**	**4**
10	Traffic movement	-	-	-	-	-	1	**1**	**7**
Sum		**22**	**14**	**8**	**14**	**10**	**9**		
Number of prioritization of impacts		**1**	**2**	**6**	**3**	**4**	**5**		

Experts analysis and reviews yields the following prioritization results, which are reflected in table 47.

1. Prioritization of impacts that will be created during the flyover construction process:

- Among those environmental elements, which will be changed due to construction works of Flyover bridge, air quality is ranked highest to be impacted by the project with scores -14. Ai pollution is expected to increase due to construction. In the second place of prioritization is soil quality with score of 13. Soil depletion and pollution will be expected with construction.
- Degradation of vegetation cover is expected and this problem was ranked in third with score of 11. Same score is also with degradation of surface water quality. Both these elements will be affected by the project, in case if proper activities to prevent/avoid are not taking. Employee's health problem (score 10) and wildlife disturbance (score 7) problems were lowest ranked in prioritization of impacts.

All of these negative impacts can be caused during the engineering and construction works and their impacts will be reduced as Flyover bridge is constructed and got into exploitation.

It is expected that no negative impacts will be when the Flyover bridge got into exploitation. Regarding the positive impacts, when the flyover bridge will be built, traffic intensity will be reduced, air pollution from dust and emissions due to traffic jam will be reduced and thus, will make positive impacts to local economic activities and public health and brings savings to gasoline and timing.

2. Prioritization of project activities with negative impacts that will be carried out during the flyover engineering and construction periods:

- Flyover earthworks make negative impacts to the 6 environmental components and it was prioritized as highest impacts with 22 scores.
- Then, negative impacts from solid waste is prioritized with 14 scores, negative impact of dust due to construction activity is prioritized with 14 scores and Vehicle emission is prioritized with 10 scores, Road and construction accidents is prioritized with 9 scores and noise impact is prioritized with 8 scores.

Project implementing agency should pay attention to employees' health and labor safety As there is no massive population or social organizations are located within or close to project territory and the first receptors of negative impacts of air pollution, dust, noise and accidents will the construction workers during the Flyover construction period.

5. ANALYSIS OF ALTERNATIVES

5.1 "Do-Nothing" Alternative

Demand for building flyover is related to settlement and displacement features of population, growth to automobile quantity and current situation of road networks of Ulaanbaatar city. Songinokhairkhan district (24,8%) and Bayanzurkh district (26,2%) where half of population of Ulaanbaatar city lives here, lead in population growth and each of them was increased by 5% and 6.3% within last 10 years. (2001-2010)

In relation to that quantity of automobiles of Ulaanbaatar city was increased by 14.5 percent annually within last 10 years (2001-2010). This growth was declined for a short period due to winter disaster in 2003 but it was intensively increased in 2007-2010 and as of 2010 reached to 162,000 and was higher index that was annually increased by 25.3 percent. Quantity of automobiles which was 48,000 in 2001, was increased by 3.4 times within 10 years. Due to influences of the rapid economic development in recent years quantity of automobiles may be rapidly increased

As of 2010, Bayanzurkh district had largest quantity of automobiles （23.6), Bayangol (20.7%), Songinokhairkhan （18.3%）and 63% of total automobiles is occupying in these 3 districts. Especially, in Songinokhairkhan district which has largest quantity of population quantity of automobiles was increased by 24,8%, and 24,6% in Bayanzurkh district.

All these statistics show that traffic movement from east and west sides to the city center will be increased in future.

The railway that connects Ulaanbaatar city in the east-west routes can be important transportation infrastructure of Mongolia, simultaneously it divides the city into south and north sides and it is the reason that causes obstacles to the traffic movement networks. Nowadays, there are Peace bridge and Gurvaljin bridge and 3 railway gates which intersect at 6 railway points in the city center, including Narny Flyover bridge, which was recently constructed with support of Japanese government.

Main roads that connect Ulaanbaatar city in the east-west route, was restricted by Peace avenue and it increases movement intensity and is the reason for a constant traffic jams in the center of city.

Ulaanbaatar city development Master plan of 2030 included "Ajilchin" flyover bridge project into its plan and it pinpoints that the Ajilchin Flyover Bridge can be only bridge that connect the main road with east and west as an alternative road to current main road. Also it is impossible to freely convey the movement as a result of increased traffic intensities due to that crossing of the main roads of the city is intersected at the same level.

In case if "Ajilchin" flyover bridge is not built, traffic movement intensity will be increased in the west side of the city, causing frequent traffic jams and people traveling will lose their precious time and spend fuels without effectiveness, feel depression and health

problems associated with increased air pollution and noise will be increased and productivity will be reduced etc many negative impacts to economics, society and health will be caused.

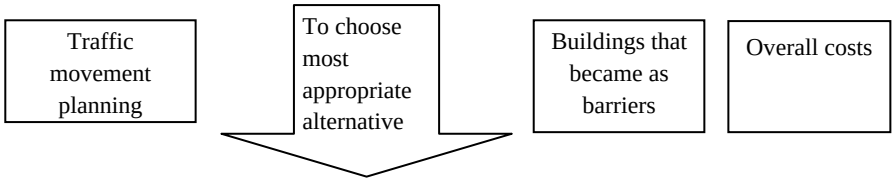
5.2 Technical Alternatives

(1) Identifiction of Flyover Routes

1. General sketch for comparison of flyover routes

In order to define the final route for "Ajilchin" flyover bridge two alternative routes have been comparatively studied: ①East-west route ②South-north route. Compared surveys were carried out based on traffic characters by using methodology described in figure 96.

①Alternative west-east route	②Alternative south-north route
Alternative-1: Shortest route Alternative -2: Offer to avoid removing storage Alternative -3: Offer to flyover which is passed over shortest railway section	Alternative -1: Offered route Alternative -2: Offer to avoid removing storage Alternative -3: Offer to connect to west industrial road of Dundgol



Comparisons of 3 alternatives		
1. East-west (Alternative - 2)	2. South-north (Alternative-1)	3. combination of east-west and south-north routes

To choose most appropriate offer⇒ East-west (alternative 2)

Remark: To estimate approximate costs, we used examples of "Narnii zam" flyover project costs (grant project).

Figure 96. Identification method for flyover route and project scope

JICA Study Team has conducted comparative surveys for two alternative routes, each of which has 3 sub- alternatives for "East-West" and "South-North" two routes. Survey parameters to compare were affected buildings and engineering and communication networks, total road length, road trace, total flyover bridge length and overall costs. In addition to mentioned parameters, the study team included traffic movement specifics in order to examine combined alternative of above mentioned two routes.

As a result of survey, bid for flyover length in the east-west route will be reduced compared to south-north route but auto road length will be increased and construction cost will be increased by 4%. On the other side, displacing or removing buildings will be reduced, compensation cost and transmission cost (displacement cost for industries is about 400,000-

600,000 MNT/m^2 under the Government resolution No. 36) for engineering and technical lines and networks will be decreased and it provides an opportunity without certain changes to overall cost of the project. Same time, they defined that using flyover to pass over the main railway line and branch railways has strength to remove probabilities of traffic jam due to railway and accidents and with these advantages, the study team selected the east-west route.

Alternative -2 within other alternatives of "East-West" routes was chosen the most suitable route in terms of traffic safety, project implementation and environmental sustainability.

(2) Environmental Costs

Impacts and benefits of two alternatives

Several environmental impacts with short and long term effects have been identified during the DEIA process of proposed Ajilchin Flyover project: air quality, noise, soil, vibration, vegetation cover and water resources.

The Terms of Reference suggested conducting analysis of environmental costs of alternatives and discussion of impacts that have not been expressed in monetary values, in quantitative terms, where possible.

As chapter 4 finds, there are not significant impacts anticipated while constructing and running the flyover.

Soil

In both considered alternatives of East-west and North- South routes, the most valuable soil with dimension of 0.34 ha, which located in the green park area in the north west of Ulaanbaatar Railway Station and which still contain untouched and natural quality soil will be affected.

In addition to 0.34 ha mentioned above, 0.39 ha of soil with some degree of degradation but still with quality, which contain six households to the east of Gobi factory in the North-South route will be impacted.

The soil losses have been calculated using the following formula:

Es=Ors x Kp x Kg x Ks x S x He

Es- Soil loss, in tugrug

Ors- soil humus, ton/ha

Kp- coefficient for soil property

Kg- soil geographical coefficient

Ks- Soil type coefficient

S-affected dimension of soil , ha

He- value of 1.0 ton of humus, tug/ton

The table 62 shows costs of soil losses in two alternatives.

Sampling point №	Soil depth, cm	Humus content %	Weight gr/cm^3	Humus reserve in a layer reserve / ton	Humus reserve ton/ha	Coefficient for soil property	Coefficient for natural geography	Soil type coefficient	Affected soil dimension ha	Value of humus, tug	Total value Thousand tug
Meadowy chernozem in the east-west route											
P-1	20	2.5	1,3	65	65	0.72	0.40	1	0,34	276000	1,756.0
Meadow + slightly degraded meadow like chernozem in the north-south route											
P-3	20	2.8	1,3	72.8	72.8	0.70	0.45	1	0.73	276000	4,630.3

Economic cost of soil losses in the East- West Route: Es= 1,756,000 tug

Economic cost of soil losses in the North- South Route: Es= 4,630,300

Air quality

Current air quality study reveals that one of main polluters of UB air quality –exhaust gas NO_2 from vehicles exceed 1.3-2.47 times in a single measurement the air quality national standard in all 5 sampling locations around the project site. Daily average of NO_2 measurement -1.2 times. Moreover, dust content exceeds its acceptable level by 52.5% in average in all sampling locations.

In 2030, it is anticipated that 58,000 vehicles will use East-west route whereas 41,000 vehicles North –South route. If compare these numbers, it looks that North-South route will be less pollute the air than the East-West one in the future. However, traffic projection model findings tell that traffic volume at Gurvaljin bridge, one of heaviest traffic roads will be reduced by 20%. Whereas, traffic volume will be reduced in the North –south route by 11%.

It requires a rigorous calculation using various models in order to monetize impacts and benefits of air quality in project area. In addition, more strategically located sampling points will be required to make the calculation. Due to limited time and limited air sampling points, we are not able to quantify approximate cost and benefits due to air quality variation based on traffic data.

Noise

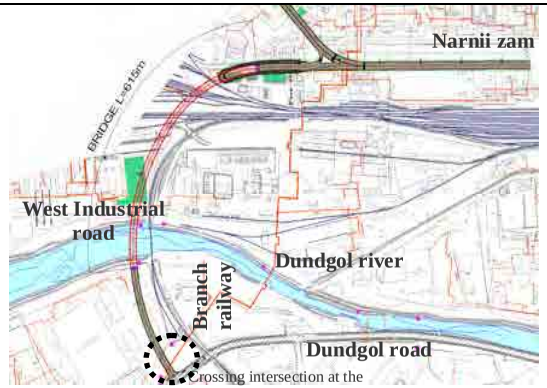
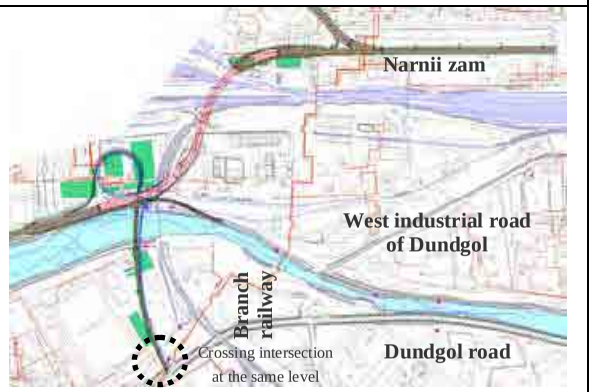
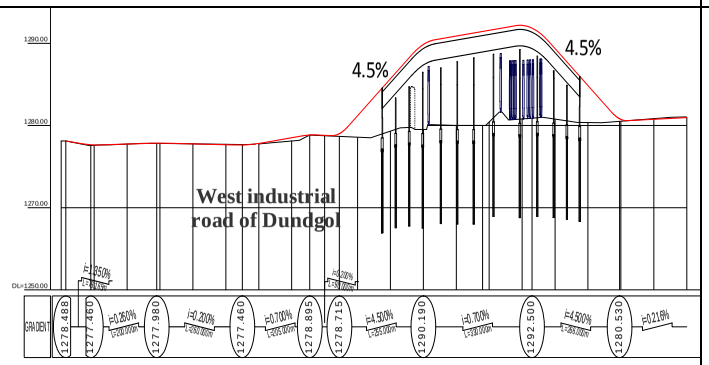
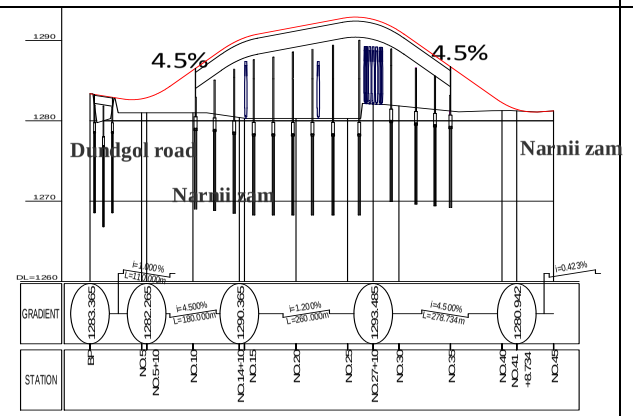
Using traffic projection data of 2030, study team concludes that average noise level will be around a little more (82.25±3.10 dB) than the acceptable health level of 60-80 dB (WHO) in case of North –South Route with 41,000 vehicle/day rate. This may create little unconventional condition for people close to the route. However, as mentioned, surrounding the flyover location is industrial zone of the city and the noise level thus, is does not make impact.

In case of East-West Route, average noise level will range within 87.53-90.63 dB with 58,000 vehicle/day. If the noise is constant for more than 8 hours or longer period of time (see table 50, chapter 6.1.2. for reference), it could create some hearing problem for nearby located population. However, the measured and projected noise levels are based on one time and there is no constant source of nouse at such level on the roads of Ulaanbaatar city. In addition, location of proposed flyover project is in the industrial zone and there is no residential areas closer. Taking all these consideration into account, noise level to be generated by passing vehicles through Flyover brlidge will not create a problem in both of alternative routes.

Vibration

Current vibration level does not indicate any alarm for environment and public health and the flyover construction and its exploitation as we anticipate, will not create a high level of vibration. Situation is same with environmental elements such as vegetation and wildlife, if construction follows environmental and safety regulations.

Table 48. Comparison of East-West and South-North routes and combined alternative

	1. East-West route	2.South-North route	3. Combined alternative of east west and north-south routes
Plan			
Vertical section			same as ① alternative

	1. East-West route	2.South-North route	3. Combined alternative of east west and north-south routes
Traffic specifics	・Planning the new movement axis in the east-west route in parallel to Peace avenue will assist development of the city in 4 routes. Expected traffic intensity of the flyover will be approximately 58,000 pcs/day (2030). ・Rotation intensity of the flyover is more than 30 percent compared to south-north route traffic intensity of Narnii zam will be increased by (+31～＋44%) ・62% of TPP road and 30% of Peace avenue road are entered to the main axis and there are much movement of cars and heavy-duty trucks from west side of TPP-4. ・Traffic intensity and load of the Gurvaljin bridge will be reduced by 20%. ・Traffic intensity of Peace avenue will be reduced by 2-19% due to road section.	・As a result that flyover above the railway is built and gate above the Dundgol is increased, approach in south-north route will be improved. Expected flyover traffic intensity will be **41,000** pcs/day ・Flyover rotation intensity will be reduced at least 30% compared to east-west route. ・Power plant road, Chinggis avenue, Ajilchin road is entered to the main movement bias from front of Dundgol road and movement load will be dispersed. ・Traffic intensity and load of current Gurvaljin bridge will be reduced by approximately 11%.	・Expected traffic intensity of the flyover will be 55,000 pcs/day approximately. (2030) ・Quantity of vehicles that are passed by south-north access road will be **8,000** pcs/day.
Affected buildings	20 pcs (6919.1 m^2), displace 2 families (7 citizens)	13 pcs (5,291 m^2), 6 gers (displace 30 citizens)	16 pcs (21,000m^2)6 pcs of gers (displace 30 citizens)
Affected comm/eng lines	・ High voltage lines of Golden Park (35kV), Heat pipelines (hot water) (Dia.350x2)	・High voltage lines of Golden Park (35kV), Heat pipelines (hot water) (Dia.800x2)	・High voltage lines of Golden Park (35kV), Heat pipelines (hot water) (Dia.800x2)
Road length	2200m	1,550 m	2200m+Рамп (ON,OFF)790m

	1. East-West route	2.South-North route	3. Combined alternative of east west and north-south routes
Road trace	Minimum rotation radius：200m / Sharpest bias size of the along crossng：4.5%	Minimum rotation radius：300m / Sharpest bias size of the along crossng：4.5%	Minimum rotation radius：200m / Sharpest bias size of the along crossng：4.5%
Total flyover bridge length	600 m	615 m	600m+Рамп bridge (180m)
Evaluation	・Bid for flyover length in the east-west route will be reduced compared to south-north route but auto road length will be increased and construction cost will be increased by 4%. In other way, displacing or removing buildings will be reduced, compensation cost and transmission cost (displacement cost for industries is about 400000-600000 MNT/m^2 under the Government resolution No. 36) for engineering and technical lines and networks will be decreased. ・Using flyover to pass over railway main magisterial and branch railway will remove probability of traffic jam and accident due to the railway. ・It is available to provide total project outcome	・It is necessary to displace and compensate storage building for fuel products (approximately 5400m^2). Also there are many social and economic issues to remove citizens (26 citizens) compared to bids in the east-west route. ・It is impossible to solve any issues in relation to traffic jam and accidents because branch railway and junction closely passes through road crossing of Dundgol road. ・Project outcome will depend on work result to complete road repairs of Dundgol road with 4 rows	・It was estimated that displacement and compensation for fuel product storage building and neighbor cement industry building will be caused and compensation rate will be higher. ・It is necessary to additionally build Ramp and approaching road and construction building cost will be increased by approximately 30% than bidding amount. ・. In case that Ramp and approaching roads of Dundgol road are fully solved, it will revise the schedule and complete construction.
	Recommended	Not recommended	Not recommended

6. ASSESSMENT OF IMPACTS/RISKS FOR PREFERRED ALTERNATIVE

6.1 Project Related Significant Impacts

6.1.1 Pre-construction stage

Air quality

As of today, total 48,673 vehicles travel through Ajilchin Street near to the project on business day and on weekends it is less by 36.3% or 30,990 vehicles are travelling here. At the Narnii street 40,757 vehicles are travelled on business day and it was decreased by 15% or 34,457 vehicles are travelled here. At the Peace avenue 75,400 vehicles are traveled (Source: CTI "Ajilchin" flyover feasibility study progress report, 2012).

By using these data, we estimated total air pollution which is emitted from vehicles which pass through the flyover per day according to following methodology as of 2012. (source: Methodology adapted from Asia Least-cost Greenhouse Gas Abatement Project)

Explanation on terms of methodology:

A- Quantity of vehicles which are traveling

B- Annual average travelled road of each vehicles (km/year)

C- A x B –total travelled road (km)

D – NOx –emission grade (g/km). In fact, heavy-duty trucks are mostly travelled in the territory of the project, there is no information of excretion grade of pollutions of these vehicles and we calculated based on emission rates of cars.

E- NOx – emission, (ton)	E = C x D/1000000
F – CO-excretion rate, (g/km)	
G- CO – emission, (ton)	G= C x F/1000000
H – NMVOC - (g/km)	
I – NMVOC - emission, (ton)	I= C x H/1000000
J- PM_{10} - emission rate, (g/km)	
K- emission, (ton)	K= C x J/1000000
L- PM_{25} - emission rates, (g/km)	
M - PM_{25} - emission, (ton)	M = C x L/1000000

Table 49 shows estimation results of emissions from traveled vehicles.

Table 49. Amount of air polluter from vehicles

No	Street name	Quantity of vehicles , t/day	Polluters discharged from vehicles /ton/			
			NO_x	CO	NMVOC	PM_{10}
1	Narnii road	40757	77.03	2046	209.1	2.61
2	Ajilchin street	48673	91.99	2443.38	249.7	3.12
3	Baruun teeverchid street	4300	8.13		22.1	0.28
4	Peace avenue	75400	142.51	3785.1	386.8	4.83
	Sum	169130	319.66	8490.33	867.64	10.82

About 319.7 tons of nitrogen dioxide, 8,490.3 tons of carbon monoxide and 867.6 tons of non methane volatile organic compounds 10.8 tons of dust are being emitted from over 170,000 of vehicles which are being travelled in the territory of the project per day.

According to air quality status, negative impacts of polluting substances (average content of nitrogen acid compounds, carbon monoxide and dust with large particles) in the territory of project exceeded daily acceptable concentration set forth in the air quality standard. Especially, nitrogen dioxide, which emitted mainly from vehicle and dust and dust-like substances are becoming the major pollution sources.

Soil status

Soil covers along the trace were strongly affected by impacts of human activities and morphological status and nutrition levels were destroyed.

Most of soil in the territory were covered by the asphalt road and also fully covered by cement covering of the construction site, lawn in around of buildings along the auto road were removed, became bare and also they were covered by dikes and dams thus, soil natural properties have been changed. In a limited area of garden located to the north of the Central Railway Station, soil quality was like in natural condition and so does some narrow stripes along the river shore and soil in some areas under the household's fences.

0.34 hectares of soils, which was less affected by human activities and keeps natural morphological properties and its nutrition in above mentioned garden and 0.39 hectares of soils inside of the fences of households next to Gobi Factory can be affected by negative impacts during the Flyover Project's engineering works.

Vegetation cover status

The area, where Flyover bridge will be built in the territory of Bayangol district of Ulaanbaatar city, is located in a transition zone of Mongolian-Daurian mountain steppe and steppe region of Mid-Khalkha. Flyover project area represents more the characteristics of Tuul river basin and meadow of the Dundgol River. Rare and endangered plants have not been registered in the project and neighboring sites.

Plants along the railway were affected by various human activities and polluted. Dominant species of plants are sage brush, feather-grass, nettle, anise and rib-grass.

Along the Dundgol River basin, meadow strips have been polluted with household waste, plants along railway and auto roads are polluted by lubricants and oil spellings.

Even though biological species in the project site are poor, areas partially degraded by the bridge construction and road construction works, the rehabilitation should be done after flyover project is completed. Majority of species in this area are of meadow and shore plants as well as of weeds, which are prone to quick deterioration and depletion under intensive activities.

Noise

Variable range at the maximum noise level around Flyover project area will be fluctuated at 62.3-104.0 dB a day and variable range at the minimum level will be fluctuated at 55.0-83.0 dB and average relative meaning at the maximum and minimum levels will be 74.80 dB and 64.13 dB respectively.

Average daily noise rate is 69.38 dB around Flyover project area and if refer to World Health Organization's guidance, it states that 70 dB of noise throughout 24 hours nearby industry, public service facility and auto road in settlement area will not cause negative impact to human health. With this situation, it is considered that there is no negative impacts on noise posed to population around the Flyover bridge project.

Freezing and thawing regime of soil

As of today, small cavities were generated on the surface due to human activities by building dam and dikes in the territory of the project site. Also it covered by dump soil with 1-2 m in depth. In contrast, this area has been considerably changed. According to our observation, seasonal freezing and thawing dynamics of soil in project area might be changed due to various human activities.

6.1.2 Construction stage

Air quality

For flyover construction works, machines and mechanisms will operate such as bulldozer, grader, excavator and heavy-duty trucks for earthworks in all seasons, except winter. During the technological process of the bridge construction (activities such as digging of ground, hauling, removing and transporting earths, dumping sand and gravel, compacting, carrying cement and mixing) air pollution (dust, nitrogen dioxide, polluting substance which is discharged from machines and mechanism) will be increased. It may cause negative impacts to surrounding environment and organizations and employees depending on predominant wind direction and speed. Thus, it is necessary to plan preventive measures to

reduce negative impacts which can be caused by dust and other emissions during the flyover construction activity.

Water quality

During the construction process, soil surface and surface water can be polluted. Especially, large amount of absorption substances can enter to the surface water causing mechanical pollution. It is the biggest factor to destroy living habitat of aquatic species such as fish and macro invertebrates. Thus, we must know chemical ingredients and compounds of materials which are used for flyover construction work and assess its quality so that leftovers of construction materials and wastes are not dumped or disposed through snow melts and rain water into Dundgol River causing water quality reduction. All precautionary measures should have taken to reduce the risks.

During flyover construction work process, it's possible to remove ground water while installing the column foundations depending on foundation depth. In case that foundation is located below 3-4 m, underground water current may be changed due to removal of soil water. Also during the foundation installation process, in case of use of any kind of chemical substances, one must ensure that chemicals are not spilled into underground water.

If reinforcement of existing dyke along the Dundgol River basin will be done, it will increase protection of water resources, aquatic species as well as woods and plant species. Renewing and expanding existing auto road along the Dundgol River basin will make positive impacts to reduce current dust pollution due bumpy and unpaved dirthy roads and increase auto road networks and to protect river basin.

While constructing the auto road along the river, increased dust and air pollution from operating heavy-duty trucks and mechanisms can be sources of pollution of river water and impact negatively river basin environment.

Impacts to soil

Negative impacts to the soil layer due to asphalt road and bridge construction activities.

Construction of access road will involve soil and earthworks total of 28,000 m^2 areas or 1600 m in length and 17.5 m in average width area. However, most soil is located under the used asphalt road and concrete field and therefore, it will not be negative impact for these hardened and barren soil due to the Flyover project. But 0.34 hectare land which is keeping its natural nutrition in the Garden area located to the north of the Railway Central Station along the Narnii zam and 20 cm compacted and deteriorated soil with 0.39 hectare area which is keeping humus "A" layer may be destroyed.

Together with 20 cm depth surface earth in total 0.73 hectare land, following amount of nutrition elements such as humus substances nitrogen, mobile phosphorus and mobile potassium will be destroyed. Here includes:

a) 0.73 hec x 1.3g/cm^3 x 20cm x 2.3% = 43.65 tons humus

b) 0.73 hec x 1.3g/cm^3 x 20cm x 0.3% = 5.7 tons total nitrogen

c) 0.73 hec x 1.3g/cm^3 x 20cm x 1.6mg/100g = 30.4 kg mobile phosphorus

d) 0.73 hec x 1.3g/cm^3 x 20cm x 22 mg/100g = 417 kg mobile potassium

While transporting sand and gravel to project sites, unpermitted dirt roads can be created between the sand and gravel mining and project area, as this is unfortunately common practice among underdisciplined truck drivers in Mongolia, which cause depletion of plant species and soil, pollution of surface water and air.

While project is implemented, it is estimated that about one hectare area of soil layer and vegetation cover will be destroyed in sand gravel mining area for carrying sand and gravels to the project site.

Occasional spills of oil and lubricants of machines and techniques, dirty water and liquids, chemical substances used for washing and cleaning of machinery and tools, disposals of household solid and liquid wastes to the environment may create pollution of soil, plants, surface and underground water and this also negatively impacts human health.

Impacts to vegetation cover

Any changes to vegetation cover will depend on following factors:

- During the flyover construction works, vegetation cover will be deteriorated and resilience capacity of plants will be declined due to human and technical impacts.
- There is a trend in increased frequency of extreme droughts, deficiency of water supplies and flash floods, which force change in soil properties.
- Pollution will be increased by disposal of household waste and poisonous emission of machineries and techniques.
- Once it is located next to railway and main roads, the vegetation cover can be polluted by various wastes and unwanted dirt roads created during the material and goods transportation seasons will destroy vegetation covers and its ability to recover of some plants which are grown in the ravine and cavities.

Noise and vibration impacts to population's health

Main noise and vibration sources in the environment are caused by movement of different kinds of vehicles and trains, construction of building, operations of mines and industries. Noise and vibration which exceed the acceptable level damages human hearing and brain organs and cells and impacts to central nervous system and also negatively impacts

to human health becoming as sources of fatigue, misconcentration, startling, insomnia, and eventually affects the cardiovascular activities causing high blood pressure, indigestion and poor digestion

Acceptable maximum level of noise which person is hearing continually for a day without negative impacts to hearing organ is established and followed by many countries of the world (table 50)

Table 50. Acceptable noise limit

Noise continuation, hrs	8	6	4	3	2	1.5	1	0.5	0.25	0.02	0.01
Acceptable noise limit, db	90	92	95	97	100	102	105	110	115	117	120

If people work in a room which has at least 90 dB noise level for period over 8 hours, it will negatively impact to human health. In case of more than 120 dB noise, a person should not hear over 0.6 minutes. Otherwise hearing organ of this person will be damaged irreversibly.

During the construction heavy machinery operation may create some increased noise in shorter period, which may pose some impact to construction workers. Operators of heavy machinery, working in the site, should wear personal protection device to avoid hearing problem. In the construction site, where flyover bridge will be built, there no residential settlements and therefore no impact disposed to population.

6.1.3 Operation and maintenance stage

Main project impact during the flyover operation is directly related with number of vehicles travelled through the flyover bridge.

When the flyover bridge is opened, it will connect Ajilchin road with Narny road and traffic volume will eventually increased.

According to preliminary schedule of construction and exploitation of Flyover bridge, it will be built and commissioned within 5.6 years since intergovernmental loan agreement is approved. It is estimated that 26,600 vehicles will be travelled on the flyover per day in 2020 and 57,900 vehicles per day in 2030 once the flyover is commissioned.

It is estimated that traffic intensity at Peace Avenue will be declined by 11%, Chinggis avenue by 21% and traffic of Gurvaljin Bridge will be declined by 20% respectively. As a result of flyover is operated, it will positively impact the surrounding environment with reduced air pollution and dust formation near Peace and Chinggis avenue and Gurvaljin bridge.

Table 51 shows pollution rate per day during the flyover utilization period in 2030.

It is estimated what environmental impact the growth of vehicles, travelling on the flyover bridge will cause:

Table 51. Shows pollution rate per day during the flyover utilization period in 2030.

Street name	Vehicle quantity, veh/day	Pollution from vehicles, ton			
		NO_x	CO	NMVOC	PM_{10}
Ajilchin flyover	57,900	109.43	2,096.58	297	3.71

Air quality

As we estimated emission volume from automobiles (NO_x, CO, NMVOC) in 2030 will be increased by 24.04 percent compared to 2012 (table 51), estimated traffic intensity reduction near project location and growth of vehicle numbers on 2030. But JICA Study Team considered that vehicle emission volume in air will not be increased because traffic speed will be increased and traffic jam will be declined. Despite this consideration, project needs to plan measures and regulation aimed to reduce possible negative impacts.

Noise

To date, average daily noise level was assessed 68.36 dB in and around proposed flyover bridge project site and average maximum level was 76.66 dB and average minimum level was 61,68 dB. If assume that maximum and minimum levels of noise as well composition and structure of vehicles will be kept same as in 2012 and only number of vehicles will be increased, the following conclusion can be made:

- It is projected that average noise level per day near the Flyover project will be increased by 4.88% from current level (68.36 dB) to 71,7 dB in case number of vehicles will be 13,300 per day in 2016 and it will be increased by 9.76% and noise level will be 75.3dB in 2020, when number of vehicles reaches 26,600.
- As per Mongolian standard (MNS 4585:2007), average level of outside noise is 60 dB in daytime (07.00-23.00 hrs) and 45 dB at night (23.00-07.00 hrs). If compare these standard with 2020 project noise level data, acceptable noise level will be exceeded by 13.6 dB in daytime and 23.54 dB at night in 2020.
- Since, there is no apartments and residential areas in project area but only railway employees and employees from industrial enterprises are working here. As the workers wear personnel protective devise as required by work safety regulation, noise will not negatively impact.

Vibration

Light and heavy duty automobiles which run through the flyover are becoming source of vibration. Vibration caused by automobiles, running below and above the bridge as well trains through railway can impact health of population.

Quantity of automobiles which run through the new bridge in 2030, will be increased by 29.7 percent and also vibration will be increased by 29.7 percent but expected vibration

rate will not be exceeding current hygienic standard. Vehicle accident or vibration due to earthquake can negatively impact population health. But this type of incident and emergency is rare.

6.2 Project Related Significant Risks

6.2.1 Construction stage

Earthquake risk

Highest risky natural disaster which can be occurred during the bridge construction or exploitation period, is earthquake.

According to BNbD22.01.01/2006 standard for earthquake resistance of Mongolia, it considers that magnetic index is MSK 6,7,8. "Ajilchin" Flyover project is located at MSK7~8 scale zone (Figure 97). As recent study of Ulaanbaatar city authority on 2010 reveals it is possible to occur magnitude 7 scale earthquake, study team of the Academy of Science of Mongolia is revising maps of earthquake regions of Mongolia.

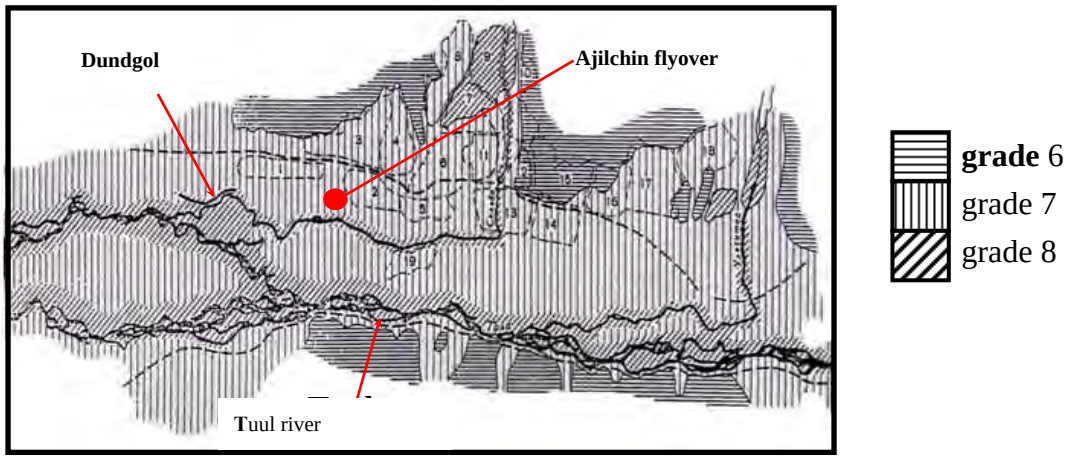


Figure 97. Map which shows earthquake rates of Ulaanbaatar city

Flood

We identified maximum rainfalls which can be occurred in the river basin by using intensity method for rainfall restriction, which is suitable in our country and method of flows ratio. Based on such method, we estimated maximum flows of small rivers with at least 200км^2 water accumulation areas and dehydrated pebble as follows.

$$Q_{1\%} = \grave{q}_{1\%}\varphi \quad \grave{H}_{1\%}\sigma\lambda_{1\%} \quad F$$

Hence, $Q_{1\%}$ - 1% sufficient stream

$\grave{q}_{1\%}$ - 1% - module of maximum stream, l/sec км^2

φ - stream ratio

$\grave{H}_{1\%}$ - 1%- maximum precipitation per sufficient day, mm

σ - lake, forest and marsh ratio

$\lambda_{1\%}$ - transfer ratio to sufficiency besides 1% sufficiency

F - water accumulation area, км^2

To estimate rainfall and flood stream which flows along the dehydrated pebble, maximum rainfall level per day is used and estimated that 1% sufficiency or much precipitation once every 100 years as 125 mm (Data of Ulaanbaatar meteo station). (Figure 98)

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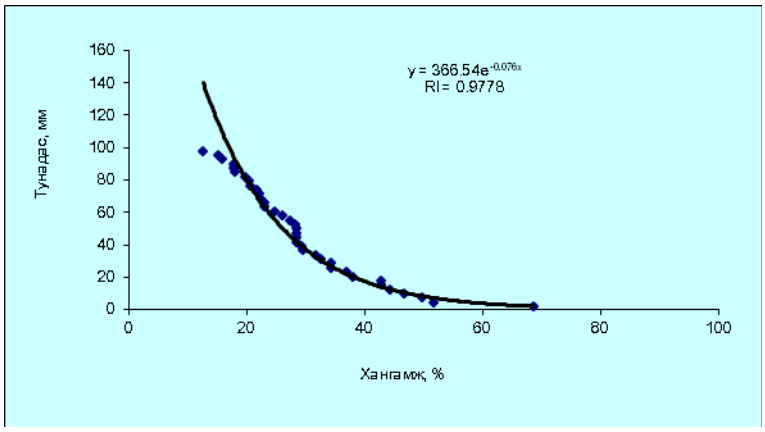


Figure 98. Data from Ulaanbaatar meteo station

We defined water source ratio /Φ_r/ and water outflow period /t_{xb}/ along the basin, which are required to determine maximum outflow module / $\grave{q}_{1\%}$/ by using following formula.

$$\Phi_r = 1000\ L/K_g\ J^k_g\ F^{1/4}\ (\varphi H_{1\%})^{1/4}$$

Hence: L - basic river and dry riverbed length till certain route, км

K_g - coefficient for Riverbed and holm

J_{gol} - river and pebble average bias , %o

We defined bias forms /Φ_{xb}/ which are required to water outflow time /t_{xb}/ along the slope of water accumulation field by using following formula.

$$\Phi_{xbel} = (1000\ l\ )^{1/2} / nxb\ J^{1/4}_{bel}\ (\varphi H_{1\%}))^{1/2}$$

$$l = F/1.8\ (\sum l + L)$$

Where , l -average slope length along the water accumulation field, km

N_{xb} - rainfall ratio of slope

J_{bel} - average basin bias, km

$\sum l$ - total pebble length, km

We defined flood outflow ratio as follows.

$$\varphi = C_2\varphi_o\ /(F+1)^{n6}\ \ (J_b/50)^{n5}$$

Where, C_2 - Ratio depending on soil quality

φ_o - outflow ratio in case of F=10 км^2, $J_b = 50$

n_6 - Soil quality ratio

n_5 - Climate ratio

To define maximum flood outflow, it requires calculating statistical estimation for maximum precipitation per day. Estimated that in the water accumulation field of Selbe River, maximum precipitation per day with 1% sufficiency must be 125 mm.

Table 52. Maximum outflow with 1% sufficiency

No	Indexes	Estimation
1	F ,км^2	195,4
2	L,км	31.2
3	$H_{1\%}$,mm	125
4	N_{xb}	0.3
5	J,$\%_0$	15
6	K	0.33
7	φ	0.22
8	Φ_{xb}	10.2
9	Φ_g	119
10	$T_{xb,min}$	155
11	$q_{1\%}$, l/s, km^2	0.023
12	$Q_{1\%}$ m^3/s	147.3

As a result of much flood estimations with the probability once every 100 years, result is 147.3 m^3/sec. (Table 52)

Table 53 shows maximum outflow rate with different sufficiency which were calculated as above.

Table 53. maximum outflow rate with different sufficiency, m3/sec

1	Basic-direction	Sufficiency , %				
		1%	2%	5%	10%	25%
1	Estimation result	147.3	130.0	107.9	90.7	68.7

Considering similarity of the Selbe River and Terelj River and taking calculation of maximum outflow by following formula based on multiyear data, we found that probability of outflow once every 100 years is **315 m^3/sec.**

$$Q_{P\%} = q_{p\%} * \delta_1/\delta_{1T} * \delta_2/\delta_{2T} * (A_T/A)^{n3} * A ,$$

Where: $Q_{P\%}$- outflow with estimated sufficiency m^3/sec

$Q_{p\%}$ - outflow module with estimated sufficiency, l/sec κm^2

δ_1,δ_{1T} - lake coefficient of estimated and same rivers

δ_2,δ_{2T} - marsh coefficient of estimated and same rivers

n_3 - reduction coefficient

A, At- water accumulation field of estimated and same rivers, κm^2

Riverbed coefficient n=0.025-0.03

Within the scope of flyover project, it is planned to reconstruct Baruun Teeverchid street and Dundgol shore dyke.

In order to implement dyke reinforcement, it is estimated overflow level of water of Dundgol, considering that maximum discharge of water is 346m^3/sec (100-year probability).

Table 54. Expected overflow level of Dundgol

STA. No.	0+120	0+220	0+320	0+400	0+500	0+600	0+700	0+800	0+900
HWL	1278.4	1277.9	1278.6	1279	1279	1278.7	1278.5	1279.5	1279.7
Dundgol	←Downstream (Ajilchin street)				←		←	←(Upstream)	

We calculate dyke reinforcement height of the oligopoly section by adding 0.8 m to the above mentioned expected overflow level.

Building of dyke reinforcement according to this calculation will reduce probability of flood risk, which can be occurred to organizations and buildings along the Dundgol. (Figure 99)

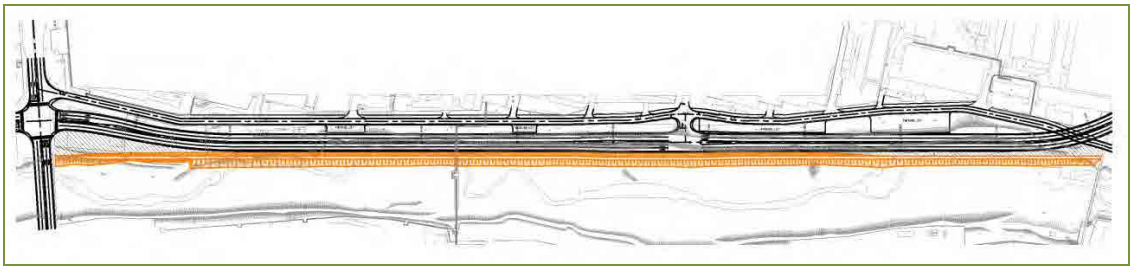


Figure 99. Dyke structure on the right shore of Dundgol River

Industrial accident

Accidents can happen due to following causes:

- Work of untrained or unprofessional person for electrical equipment
- Not follow up actions for maintenance and repair of external and internal electrical connections of a building
- Not comply with labor safety procedures, while working
- Due to employee's imprudent actions
- Left flammable substances in open area

Thus, it is necessary to plan and implement activities against accidents in relation to human activities.

6.2.2 Operation and Maintenance Stage

Risks to geomorphologic changes

Flyover bridge construction activity forces the landscape relief to change. Unless find the optimal location of a gutter for rain or snow melting, it can pose a risk for flooding or undesirable water accumulation.

Moreover, because of change of surface relief and vegetation cover sunlight direction and duration can be changed and thus, influence seasonal freezing and thawing dynamics and freezing depth. In case groundwater depth is relatively increased, water formed over melting ice during cold seasons can cause risks for any accident.

Risks to auto transportation road

Increased traffic intensity and increased density of vehicles at one location and one time may pose serious risk for traffic accident.

6.3 Mitigation measures

6.3.1 Pre-construction stage

In areas where the Flyover Bridge will be built, there are 31 households are living permanently. If detail 27 households are living nearby Ajilchin Intersection, including 22 families that rent rooms in a public house, owned and operated by Mr. Erdenebaatar and 3

households living in gers on the north shore of Dundgol River. Also, 6 households are living in southeast corner of Gobi Factory. All these inhabitants will be exposed to health risks (increased noise and vibration levels, dust and air pollution etc) due to construction activities. Special care should be taken to protect health of these families during construction stage. At pre- construction, health protection issues of inhabitants should be topics for discussion with inhabitants and all precautionary actions should be planned and implemented in accordance with national standards and regulations to ensure healthy and safe living of citizens.

It is important to use materials which meet standards and requirements after examined materials' quality and standards by authorized organization by ensuring that required solidity, quality and requirements of sand and gravels meet standards.

6.3.2 Construction stage

With the purpose to reduce and eliminate negative impacts to air, soil and vegetation cover in project area the following measures have to be taken:

- In order to conserve valuable soil in 0.34 hectare area inside of the garden in the north of Railway Central Station, which will be affected by Flyover bridge access road construction works, first must peel surface layer (dark colored humus) with 20 cm in depth and must store them in distance from other earth during the construction work. This dark colored humus layer will be used for recovery activities of land surface which would be destroyed by road-bridge construction works after the construction is complete. The conserved humus layer should be used for filling excavated holes or careers for making lawn.
- Before excavating holes for carrying sand and gravel in the mining site for sand and gravel exploitation, responsible person must peel and store the nutrient soil with 20 cm in depth for further recovery of soil after mining is closed.
- Before construction start, implementing agency must identify all work roads to be used by heavy machineries, trucks and other vehicles and only those identified roads should be used. It is prohibited to drive outside of established road. Also must provide condition and requirement to carry sand and gravel through joint single road not by branch roads in order to transport sand and gravel.
- Rehabilitation actions should be carried out after completion of Flyover project. For formation of species of plants and herbs in the environmental regions, occurred meadow and beach plants, herbal layer can be easily changed due to operation and must define local herbal species in details and collect their seeds and to do rehabilitation.
- Avoid spilling and disorderly removing fuel and oil from machine and techniques; drainage and liquids contained chemical substance which was caused by washing and cleaning equipment and tools; and solid and liquid waste caused by employees.

Must remove and liquidate them in accepted point and clean according to appropriate regulations.

- All kinds of maintenance services for machineries and techniques, which are used for road construction works, should be taken place in specifically appointed area, which fully provides the condition without negative impacts to soil and environment. Must have technical maintenance point.
- After completion of the road construction work, must fill all excavated and deteriorated holes, cover nutrient soil with 20-30 cm depth (previously stored) above it and plant local perennial plants.
- Must organize employees' accommodation as it is ordered and no negative impacts to the environment. Must do qualified protection from rainfall and flood.
- If necessary, it is important to easily remove dusts and clay by spraying water.

Measures for reducing noise level

Average noise level per day near to the flyover will be increased by 4.88% from current level (68.36 dB) to 71,7 dB in case that number of vehicles is projected 13,300 per day in 2016 and in 2020, thus, noise level will be increased by 9.76% and reached to 75.03 dB.

As construction site is located far from residential zones, impact receptors will be construction workers, engineers, technicians and operators of machineries and vehicles. All personnel working on the site should wear personal protective devices, including helmets, goggles and earmuffs or earplugs to protect hearing organs.

To comply with approved regulations such as forbids using sound signals in micro-regions and near to the schools, kindergarten and clinics where patients are being treated (Mongolia has legal regulation on use of horn signals), forbids vehicles without any muffler to travel around; restricting movement in certain hours;

It is appropriate to implement following advices about safety and implementation of laws and regulations. These include:

- In case, if new buildings and extensions that were not planned in project are will be built during the flyover construction, it must undergo additional examination for environmental impact assessment and its impacts should be monitored and reduced with constant control through involving environmental organizations.
- Climate conditions usually make positive and negative impacts to labor conditions of road employees and road and transportation environment, it also impacts to traffic. Thus, we recommend in studying and identifying micro climate around road and flyover bridge environment in the different weather conditions to ensure traffic safety. Also the constructors must use climate and geotechnical

construction norms, regulations and technical documents for auto road construction renovation and bridge building.

- To conduct fire safety training and awareness rising, prepare fire extinguishing equipment and tools according to appropriate standards and place them at the special place.
- To implement laws and regulations on environmental conservations and to promote preventive measures to avoid pollution and deterioration of surrounding environment
- To comply with safety guidelines

6.3.3 Operation and Maintenance Stage

It is necessary to create monitoring points that measure air quality and noise levels, to regularly control air pollution and noise levels; in case that it exceeds the standards requirements, must plan and implement measures to reduce it.

It is important to use materials which meet standards and requirements. Therefore, all materials, especially sand and gravels should be examined by authorized organizations and laboratories on quality demand to ensure that required solidity, quality and requirements of sand and gravels meet standards.

7. ENVIRONMENTAL MANAGEMENT PLAN (EMP)

7.1 Institutional framework for Implementation of EMP

7.1.1 Structure and organization for implementation of EMP

Environmental Management Plan identifies main impacts of the proposed project activities to the environment and society and based on the identified impacts, it proposes activities aimed to reduce or remove negative impacts of the project and estimates required funding and costs to implement stated activities.

To develop Environmental Management Plan, we considered all the environmental protection activities that have been reflected in the Detailed Environmental Impact Assessment Report, its duration, required costs, institutional framework and implementation management, and monitoring mechanisms.

Once EMP is developed together with DEIA report and approved by the Ministry of Environment and Green Development (MEGD) of Mongolia, it is obliged to be implemented by the project implementation agency. Roles and responsibilities of various organizations for EMP implementation are included in table 55.

Table 55 Involvement and Responsibilities of Organizations for Implementation of EMP

No.	Organizations	Relationship with project and EMP	Responsibilities for implementation of EMP
1	Ministry of Environment and Green Development of Mongolia (MEGD)	State Central Body for environmental policy setting and policy implementation	• Screening of project for general impact assessment • Review of DEIA report and EMP content • Approval of DEIA and EMP or rejection • Review of yearly report of EMP implementation • Approval of EMP for next year
2	Ministry of Road and Transportation of Mongolia (MRT)	Executing agency in charge of Flyover project execution	• Coordinate agencies responsible for projects, activity of project management committee, • provide guidance for implementation of EMP • M&E for EMP implementation
3	State Professional Inspection Agency (SFIA)	State Central organization for environmental policy enforcement and monitoring	Environmental law enforcement agency • Annual and quarterly monitoring of EMP implementation through its UB department and District division • Reporting to MEGD on EMP implementation
4	Road Department of Ulaanbaatar city	Project implementing agency	• Coordinate activities of project implementation unit for EMP

No.	Organizations	Relationship with project and EMP	Responsibilities for implementation of EMP
	(UBRD)		implementation • Coordinate consultant and contractor activities focused on EMP • Review of monthly, quarterly and annual EMP implementation report and approval of EMP for next year • Submission of EMP to MEGD
5	Project implementation unit	Day to day activity of EMP	• Oversee of contractor's activity on EMP implementation • Coordination of Consultant and contractor for bridge and road construction and subcontractors activities for EMP • Facilitation for implementation of EMP • Organization of daily monitoring according to EMP • Submission of annual performance report for EMP • Development of EMP for next year

Once the loan agreement is made between the Government of Japan and Government of Mongolia, the implementation agency under supervision of executing agency, should organize bidding among construction companies and select the best suitable and experienced contractor for bridge construction. The Project implementation unit (PIU), which created by the UB Road Department, a project implementing agency, will be responsible for implementation of approved EMP. PIU will be responsible for oversee the EMP is being implemented by the contractor.

Monitoring of EMP implementation will be done periodically by the environmental inspectors of local government, which is professional inspection division of Bayangol District under the Ulaanbaatar city Professional Inspection Department.

Project Contractor can cooperate with environmental agencies or consulting organizations for implementing or monitoring of activities reflected in EMP, but it does not free from its obligation.

7.1.2 Environmental parameters for monitoring

(1) Prevention from air and environmental pollutions

Impact code – Air

During the project implementation period polluting substances in the atmosphere will be increased due to increased dust during the road-bridge construction process, emissions

from machines, mechanism and equipment; exhalation of materials, which are used for paved road. Thus, we need to take preventive measures. For that, must comply with air quality standards, shown at table 56.

Table 56 Air quality standard

Parameters	Average measurement temperature	Measurement unit	Acceptable content level
Chemical impact			
Sulfuric gas (SO)	Average in 10 minutes Average in 20 minutes 24-hours average Annual average	$Mkg/_m^3$	500 450 20 10
Carbon monoxide (CO)	Average in 30 minutes 1 –hour average 8 –hours average	$Mkg/_m^3$	80 000 30 000 10 000
Nitrogen dioxide (NO)	Average in 20 minutes 24-hours average Annual average	$Mkg/_m^3$	85 40 30
Ozone /O/	8 –hours average	$Mkg/_m^3$	100
Dust /total weighing substance/	Average in 30 minutes 24-hours average Annual average	$Mkg/_m^3$	500 150 100
Coarse dust /PM10/	24-hours average Annual average	$Mkg/_m^3$	100 50
Ground dust /PM2.5/	24-hours average Annual average	$Mkg/_m^3$	50 25
Lead /Pb/	24-hours average Annual average	$Mkg/_m^3$	1 0.5
Benzene /CH/	24-hours average	$Mkg/_m^3$	0.001
Physical Impact			
Noise Daytime /7-23/ Night time 23-07	 16-hours average 8-hours average	dB	 60 45

Table 57 shows acceptable levels under the standard and norms and permitted level of pollution under the environmental license.

Table 57. Acceptable maximum concentration of dust and toxic gases in ambient air

parameters	Maximum concentration	Daily average concentration
Dust, mkg/m^3	500	150
Carbon monoxide, mkg/m^3	80,000	30,000
Nitrogen dioxide, mkg/m^3	85	40
Sulphuric gas, mkg/m^3	500	30

Justification for observations

It is necessary to be done detailed controls and examinations to avoid polluting air during the flyover construction works. These include:

- To regularly control dust, noise levels

- During the project implementation period, air sample will be taken by professional institution and it should be analyzed
- To be examines employees' health by professional physicians and to be make medical controls for symptoms of occupational diseases.

Financing sources

Project implementer must reflect cost for implementation measures about reducing negative impacts to the environment into annual financial plan and conduct activities according to the plan.

Table 58 shows cost estimations for preventive measures from air pollution.

Table 58.Cost estimations for preventive measures from air pollution. X 1000 MNT

Implementation activity	Duration	Contractor	Contracting organization	Frequency	Detailed cost for activities					Total cost
To determine air pollution status by professional organization	Since beginning of project activity	General project manager and environmental manager	Authorized professional organization for air quality assessment	2 Twice a year, in June and November	Salary of staff	Per diem for 2 people /2 days/	Transportation cost	Measurement & sample cost	Cost for laboratorial examination	350 700
					100	100	60	40	50	
during the construction period, to organize preventive measures from dusting in the air	Since beginning of project activity	Environmental manager appointed by contractor	Contractor executes it own techniques, technologies and work force	Once a month in draught season and 6 times a year	Managing officer /1day/	Employees' 4 salary people	Transportation cost /20km/	Water norm /200t/		650 3,900
					50	200	300	100		
Avoid polluting the environment by solid waste	Since beginning of project activity	Contractor's supervisor	Contractor executes it own techniques, technologies and work force	To collect and remove solid waste to the refuse dump, once a month	Transportation cost for removing solid waste from construction			Work cost		2,850
					2,400			450		
Avoid making exhalation of lubricants and oil in the air	Since beginning of project activity	Contractor's manager in charge of technical completeness	Contractor's mechanic and drivers	To make permanent control on quality of technical maintenance services	Environmental manager makes control			Work cost / monthly basis/		600
					Annual			50		
Total cost										7,920
Implementation activity	Duration	Contractor	Contracting organization	Frequency	Detailed cost for activities					Total cost
To be determined air pollution by professional organization	Since beginning of project activity	General project manager and environmental manager	Authorized professional organization for air examination	2 Twice a year, in June and November	Specialist's salary	Per diem for 2 people /2 days/	Transportation cost	Measurement & sample cost	Cost for laboratorial examination	350 700
					100.0	100.0	60.0	40.0	50.0	
during the construction period, to organize preventive measures for dust reduction in the air	Since beginning of project activity	Environmental manager appointed by contractor	Contractor executes it own techniques, technologies and work force	Once a month in draught season and 6 times a year	Salary for Managing officer /1day/	Employees' 4 salary people	Transportation cost /20km/	Water norm /200t/		650 3,900
					50	200	300	100		

Implementation activity	Duration	Contractor	Contracting organization	Frequency	Detailed cost for activities		Total cost
Avoid polluting the environment by solid waste	Since beginning of project activity	Contractor's supervisor	Contractor executes it own techniques, technologies and work force	To collect and remove solid waste to the refuse dump, once a month	Transportation cost for removing solid waste from construction	Work cost	2,850
					2400.0	450.0	34,200
Avoid making exhalation of lubricants and oil in the air	Since beginning of project activity	Contractor's manager in charge of technical completeness	Contractor's mechanic and drivers	To make permanent control on quality of technical maintenance services	Environmental manager oversee s	Work salary/ monthly basis/	600
					Annual	50.0	
Total cost							39,400

Project implementer will pay attentions to following preventive measures to avoid air pollution. That includes:

- To select sampling locations for air pollution measure in the center of the flyover project and in areas, where heavy machineries and/or truck work;
- In order to prevent from dust in the air, periodically use water for spraying for unpaved roads for construction vehicles, areas, where concentration of dust 6 times a year during dry seasons (spring, summer and autumn time).
- In order to avoid smell from solid waste to the environment and air, should build protective fence and bunkers and remove waste to the accepted disposal sites in Ulaanbaatar city on monthly basis.
- In order to avoid making exhalation from lubricants and oils to the air, should make permanent control on completeness of employees of road-bridge construction work and automobiles of flyover engineering works. In case if lubricant and oil spelled into ground, one should immediately remove the spelling and clean soil and to comply with waste removal procedure.

(2) Preventing from soil pollution and erosion

Impact code – soil

Environmental soil and land can be polluted due to failure to collect and remove solid waste which was caused by earthworks, soil erosion in the project site by machines' and techniques' impacts or caused by mechanic erosion, within scheduled time according to appropriate regulations. Also, spillage and flows of lubricants and oil may pollute land surface due to failure to execute maintenance, caring, oiling and repairing services of machines and mechanisms in the construction sites.

Object to be affected by impact

Soil around flyover

Soil along vehicle trace

Acceptable standard and norms

Table 59. Acceptable maximum concentration of toxic substances in the soil /AMR/

[1]No.	Substance name	AMR /mg.kg/
1	Benzene	0.3
2	Sulfuric hydrogen	0.4
3	Pb^{+2}	6.0

Justification for observation and control

It is necessary to make control on roads and routes where machines and techniques pass over. Should control changes to land quality and soil quality and occurrence of pollution, to report its outcome to the related authorities within scheduled time and to record registration and data.

Financing sources:

Project implementer must reflect cost for implementation measures about reducing negative impacts to the environment at annual financial plan and conduct activities according to the plan.

Table 60 shows cost estimations for preventive measures to avoid soil pollution.

Table 60. Cost estimations for preventive measures from soil pollution. X 1000 MNT

Implementation activity	Duration	Contractor	Contracting organization	Frequency	Detailed cost for activities					Total cost
To be determined soil pollution by professional organization	Since beginning of project activity	General project manager and environmental manager	Authorized professional organization for soil inspection and examination	Twice a year, in April and October	Specialist's salary	Per diem for 2 people /2 days/	Transportation cost	Measurement & sample cost	Cost for laboratorial examination	400 800
					100	100	60	40	100	
To peel off humus layer of 0.34 hectare soil in the garden along the Narnii zam; to pile and store for rehabilitation of lawn strips along both side of access road after construction	Soil digging	General project manager and environmental manager	Organization that executes technical and biological rehabilitation	Twice at the beginning of the project and before commission of construction work	Salary for managing officer	Employees' salary /10 people 10 days/	Transportation cost	Fuel cost	Fertilizer	7500 15,000
					500	5,000	1,000	500	500	
To clean, repair, fill and recover deteriorated road and field during the earthwork process	Since beginning of project activity	Contractor's supervisor	Professional organization	Annual	Salary for managing officer	Employees' salary /20 people 5days/	Transportation cost	Fuel cost	Additional cost	9,500
					500	5,000	1,000	2,000	1,000	
To build water removal pipelines n the roads, and areas, where high risk of flash flood and to reinforce dykes along Dundgol River	Since beginning of project activity	Contractor's supervisor	Professional organization	Annual	Salary for managing officer	Employees' salary /2 5days/	Transportation cost	Materials	Additional cost	75,500 (as the cost included into Flyover total construction cost, it will not be counted for the sum)
					500	10,000	10,000	50,000	5,000	

Implementation activity	Duration	Contractor	Contracting organization	Frequency	Detailed cost for activities					Total cost
To provide temporary routes for traffic movements with signs and avoid creating additional unpaved temporary routes	Since beginning of project activity	Contractor's supervisor	Contractor executes it own techniques, technologies and work force	Annual	Salary for specialist	Employees' salary / 5days/	Transportation cost	Materials	Additional cost	1,150
					200	250	100	500	100	
To build appropriate temporary parking area for automobiles and mechanisms during the flyover construction work	Since beginning of project activity	Contractor's supervisor	Contractor executes it own techniques, technologies and work force	Annual	Salary for specialist	Employees' salary / 5days/	Transportation cost	Materials	Additional cost	7,000
					300	1,000	2,000	3,000	700	
To place board and sign to prevent soil pollution in the territory of flyover construction zone	Since beginning of project activity	Contractor's supervisor	Contractor executes it own techniques, technologies and work force	Annual	Salary for specialist			Material		750
					50			700		
Total cost										34,200

(3) Preventing from water pollution

Impact code-surface and underground water

- Solid waste, which are disposed in open area may be absorbed to soil through water during the rain and flood and causes pollution by flowing into the surface water and underground water.
- Working conditions can be difficult and affected by flood due to that failed to build water removal channels and dikes.
- Spillage and flows of lubricants and oil from automobiles and mechanisms may pollute surface water.

Impact object

- Underground water
- Surface water
- Employees

Acceptable level by standard norm

Environmental Conservation. Hydrosphere. General requirement for protection of underground water from pollution MNS 3342-82

Status of protecting water resources from pollution (1st attachment to joint resolution No. 143/A/352 from 1997 by Ministries of Environment and Health and Social welfare)

Drinking water. Hygienic standard and its control, MNS 900-2005

Acceptable maximum level of poisonous substances in the water point for household and water utilizations(5th attachment to joint resolution No. 143/A/352 from 1997 by Ministries of Environment and Health and Social welfare)

Hydrosphere quality index. MNS 4586-98

Order for protection of population's drinking water sources and hygienic zone (1st attachment to joint resolution No. 167/335/a/171 from 1995 by Ministries of Environment, DPP and Health)

Recording procedure for pollution, dearth and rehabilitation of water resources (2nd attachment to joint resolution No. 167/335/a/171 from 1995 by Ministries of Environment and Health)

Water consumption norm "Identifying payment percent and rate" Government resolution No. 7, 2005

Financial sources:

Project implementer must reflect cost for implementation measures about reducing negative impacts to the environment at annual financial plan and conduct activities according to the plan.

Table 61 shows cost estimations for preventive measures from water pollution.

Table 61. Cost estimations for preventive measures from water pollution. X 1000, MNT

Implementation activity	Duration	Contractor	Contracting organization	Frequency	Detailed cost for activities					Total cost
To determine water quality by professional organization	Since beginning of project activity	Contractor's supervisor and environmental manager	Professional organization which in entitled to do water inspection and examination	Every spring of the year	Specialist's salary	Per diem for 2 people /2 days/	Transportation cost	Measurement & sample cost	Cost for laboratorial examination	960
					100	100	60	500	200	
To execute connection design according to plan for sewerage and pure water lines and collector for rain water removal	Since beginning of project activity	Contractor's supervisor	. To execute under the agreement made to related organizations	Annual	Material			Salary		600,000 (as it was included into project budget, cost is not included in sum)
					500,000			100,000		
To choose more than 3 points in surface water and underground water points parallel to inspection points of surface water		Environmental manager		Annual	Specialist's salary	Per diem for 2 people /3 days/	Transportation cost	Measurement & sample cost	Cost for laboratorial examination	1,350
					100	150	100	500	500	
To place boards and signs which protect water from pollution in the flyover zone	Since beginning of project activity	Environmental manager	Contractor executes it own techniques, technologies and work force	Annual	Work salary for specialist /5 people/			Material cost		900
					500			400		

Implementation activity	Duration	Contractor	Contracting organization	Frequency	Detailed cost for activities					Total cost
Based on monitoring results, to implement measures to reduce surface and underground water pollution	Since beginning of project activity	Environmental manager	Contractor executes it own techniques, technologies and work force	Quarterly	Work salary for specialist	Salary for workers	Cost for machines and	Fuel cost	Other	20,200
					200	10,000	5,000	3,000	2,000	
Total cost										23,410

Total annual cost for environmental protection measures is **97,010,000 MNT. For four years, total cost for environmental protection measures will be 425,480,000 MNT.**

It is necessary to implement following management and organizational activities for Environmental conservation.

Project implementer needs to operate practiced and trained officer who was included to the professional training for environmental conservation and conservation methodologies as an officer who provided implementation of environmental plan and must identify its performance within scheduled time and report to related organizations.

Also project implementer must make special scheduled plan for implementing measures at the environmental plan, simultaneously receive performance of the plan at management level, make permanent control on performances and cooperate to environmental inspection institutions and administrations of Khan-Uul and Bayangol districts.

Must regularly introduce laws and regulations about Environmental conservations for all employees and officers, conduct short-term training and conduct activities to implement them.

It is appropriate to remove waste from construction works to the refuse dump which was indicated by Inspection authority of environment, hygiene and infectious inspections and to cooperate to inspection authorities.

Must provide permanent attentions for employees' labor safety operations, regularly introduce safety rules and regulations and make control on their activities.

To define transportation road and route, place signs and to make control on its operation.

In case that it's operational trend is changed, assess to state administration organization in charge of environmental issues and be done and implemented required additional clarification to evaluation report of Environmental Impact Assessment.

7.2 Monitoring Mechanism

Monitoring mechanism aims to draft environmental monitoring program including pollution monitoring for water, air and soil during the project implementation period,

examination methodology to control any changes in each environmental component, monitoring period, location of the sampling and measuring points, parameters to be identified by the examination, concluding and reporting examination result, prevent from negative impacts to the environment, or in case negative impacts occur propose required measures to eliminate or reduce.

7.2.1 Air Pollution Monitoring

Demands for monitoring and monitoring parameters

Causing air pollution by dusting and fuel exhalation during the construction building works and causing unsuitable smell to the environment due to failure to remove solid waste within scheduled time required to execute monitoring.

Monitor monitoring parameters such as dust, carbon monoxide /CO/, carbon dioxide / CO_2/, nitrogen dioxide /NO_2/, sulphuric gas /SO_2/, and noise content.

Air test type and form

Air sampling and testing

Monitoring duration

Get air sample and be tested it in June and November of every year

Cost for air test

(Reflected it to detailed cost for environmental conservation)

Monitoring methodology

Controlling procedure for air quality in urban area MNS 17.2.3.16-88

Atmosphere. Basic requirement for sampling MNS 3384-82

Methodology for identification and classification for labor conditions and identification for evaluation criteria MNS 12.100-91

Air and hygienic standards in the work zone MNS 12.013-91

Measurement method for weather at work places MNS 12.054-91

Identification of dust level in the air of work places MNS 12.055-91

Air quality index

General standard MNS 4585-98

Equipment

By equipment of professional organization

Table for outcome records and reports

To be executed examinations by professional organization and report according to form approved by the organization

Examination laboratory

Botanical laboratory: Tel-451014, Address: Building of Jukov's Academy of Sciences, 13th khoroo, Bayanzurkh district

Central laboratory of Environment: Tel-341816, Address: Chinggis avenue, Khan-Uul district

Data collection, processing and reporting

Monitoring record and report will be prepared by the form approved by authorized organization and submit it to Environmental Agency by July 15 and Dec 15 of every year.

7.2.2 Soil pollution and erosion monitoring

Demands for monitoring and parameters

It is necessary to monitor situations which may cause soil pollution and erosion due to inadequate activities during bridge construction.

Sample mechanic structure of nutrient soil layer, salt accumulation and soil agrochemical parameters Sample parameters for pollution: petroleum and lead contents

Monitoring types and forms

Must get sample from project site, test agrochemical parameters of soil and compare results.

Location

To get samples near sewerage, garbage disposal and parking area.

Monitoring duration

April in spring and October in autumn

Monitoring methodology

Environmental Conservation. Soil assessment index and norms in urban area MNS 3297-91

General sampling standards for tests MNS 3298-91

Soil. Procedure for sampling, package, shipment and storage MNS 2305-94

Soil. Identification for soil agrochemical parameters MNS 3310-91

Environmental Conservation. Soil. Description of Hygienic 3parametersMNS 3985-87

Equipment

By equipment of professional organization

Table for outcome records and reports

To be executed examinations by professional organization and report according to form approved by the organization

Data collection, processing and reporting

Monitoring record and report will be prepared by the form approved by authorized organization and submit it to Environmental Agency by July 15 and Dec 15 of every year.

7.2.3 Water pollution and consumption monitoring

Demands for monitoring and parameters

Underground water and surface water can be polluted by construction building works of flyover and monitor it according to following indexes.

- Non sensation features and physical characters (color, odor, taste, brightness, turbid, absorption substance and temperature)
- Oxygen parameters /dissolved oxygen, chemical oxygen demandand biochemical oxygen demand/
- Minerals /calcium, magnum, total hardness, vanishing hardness, static hardness, chloride, sulfate, carbonate, hydro carbonate and total minerals/
- Water level

Sampling point

	latitude	longitude	Remarks
SW1	$47^0$54'20,58 N	$106^0$52'11,44 E	surface water sampling
SW2	$47^0$54'16,13"N	$106^0$51'42,26"E	surface water sampling
SW3	$47^0$54'17,66"N	$106^0$52'27,54"E	surface water sampling
UW1	$47^0$54'17,65"N	106^0 52'5,81"E	Underground water sampling
UW2	47^0 54'17,65"N	106^0 51'41,54"E	Underground water sampling
UW3	47°54'18.09"N	106°52'13.25"E	Underground water sampling
E coli	47°54'16.06"N	106°51'43.76"E	bacterial sampling

Monitoring duration

Every Spring

Monitoring methodology

Procedure for controlling surface water quality MNS 4047-88

Sampling method for water test and standardized and coordinated methods for chemical tests MNS 3534-83

Sampling for water tests MNS 3534-83

Quality indexes of hydrosphere MNS 4586-98

Controlling procedure for surface water quality MNS 4047-88

Procedure for estimation of basic water consumption

Procedure for report preparation on water consumption

Water utilization contract

Equipment

By equipment of professional organization

Table for outcome records and reports

To be executed examinations by professional organization and report according to form approved by the organization

Data collection, processing and reporting

Monitoring record and report will be prepared by the form approved by authorized organization and submit it to Environmental Agency in May.

7.2.4 Noise monitoring

Monitoring demand and parameters

It is likely that noise level caused by construction works of the flyover may exceed acceptable norms and make impacts to employees' health. With this, monitoring of noise should be conducted. Details of monitoring:

To make regular control for noise level

Monitoring duration

Every half year

Monitoring methodology

Labor safety and sanitation. Work place environment. Sanitation standard MNS 4990:2000,

Labor safety and sanitation. General standard to measure light norms at work places MNS 4996:2000,

Labor safety and sanitation. General standards to measure noise MNS 5003:2000,

Labor safety and sanitation. General standards to measure dust content in the air of work place MNS 5010:2000

Table for outcome records and reports

To be executed examinations by professional organization and report according to form approved by the organization

Data collection, processing and reporting

Monitoring record and report will be prepared by the form approved by authorized organization and submit it to Environmental Agency by July 15 and Dec 15 of every year.

7.2.5 Medical monitoring

Monitoring demand and parameters

Noise and dust levels caused by construction works of the flyover may exceed stated norms at work places, which in turn impact health of construction workers. Therefore, monitoring for health of workers should be done constantly. These include:

Monitoring duration

Employees must go for medical examinations once a year.

Monitoring methodology

To conduct joint examinations and diagnosing

Monitoring institution

Medical contracted institution with project implementer

Table for outcome records and reports

To be executed examinations by professional organization and report according to form approved by the organization

Data collection, processing and reporting

Monitoring record and report will be prepared by the form approved by authorized organization and submit it to Environmental Agency in October.

7.2.6 Other issues

- Must provide additional claims by state administrative institutions of the districts in relation to activities every time
- To usually cooperate to environmental and professional inspection organizations about performances of laws and regulations in relation to environmental conservations;
- In case that project activities are changed, assess to Ministry of Environment and make and be approved appropriate and additional clarifications to environmental plan and environmental monitoring program

Analysis and report:

An officer in charge of environmental issues must write down monitoring report on the special notebook and give evaluation and conclusion. As a result of monitoring report, there is a negative impact to the environment, must immediately inform to detailed assessment “Environ” LLC and related professional institution and implement research measures.

7.3 Grievance Redress Mechanism

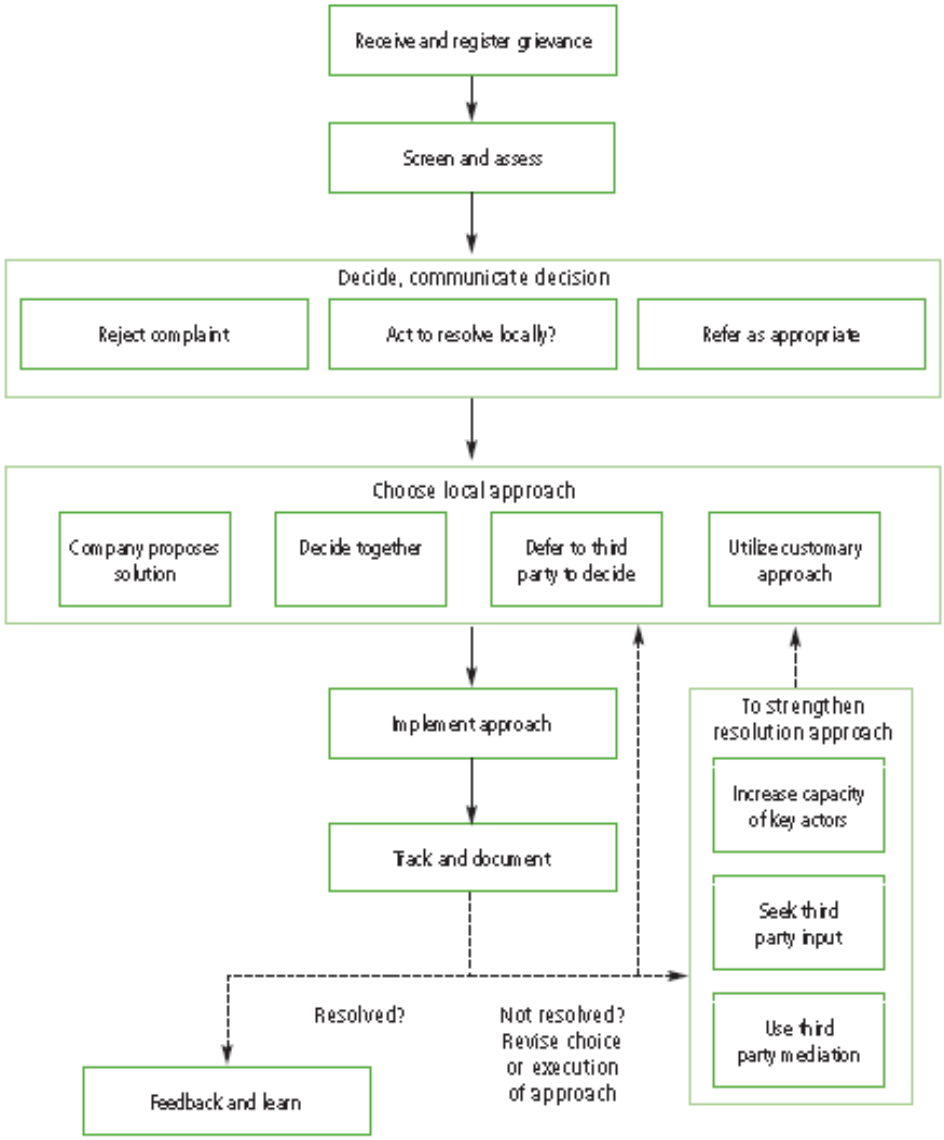
Project implementation unit will provide easy and effective Grievance Redress Mechanism which is sufficient for individuals and organizations which are affected by impacts.

Project implementation unit will provide and implement easy and effective Grievance Redress Mechanism which is sufficient for individuals and organizations which are affected by impacts at the first stage of the project.

To indicate structure and organization of Grievance Redress Mechanism must comply with following principles. Here includes:

- Must register and receive each complaint and request submitted by industrial workers and residents in the territory of project implementation, inform back that request or claim was accepted and provide public registration system.
- To ensure that each claim or request is included to project background or to define basis for the claim or request.
- To learn issues at the claim, to collect information about how same claim was solved or it is available to solve claim at the project scope; if it is available to be solved, must discuss to other which solutions are appropriate to remove it
- Methods to solve claims with or without involvement of lateral consult or any third party:
  - To give response to the claim according to internal decision making procedure or by using approved ethics and criteria within the project management, also in case that claim was not solved, must provide an opportunity to submit such claim to supreme managing organization of the project
  - To find out solution based on mutual discussion between plaintiff and project implementer
  - In case that parties can't make decision based on mutual agreement, must solve claims based on solution, offered by lateral body
- Must control solution and response to claims and provide control team that ensures response function
- Project implementation unit must provide information about taken measures against claims to population, citizens, industrial workers and employees in the territory of project site and to get citizen's views about improvement on Redress mechanism, structure and organization to solve it
- For citizens who are being affected by impacts, will pay attentions to demands of elders, women, children, native citizens and residents who are living in the territory without land license and have lowest living levels and be involved to discussion meetings
- In case that citizen or organization who is affected by impact don't have good satisfaction for decision, he/she is entitled be solved it by Mongolian court.

Working algorithm for Grievance Redress Mechanism that will be offered to project implementation unit



7.4 Implementation schedule of EMP

Duration of EMP corresponds with total project implementation period. According to preliminary schedule of the project, the construction activities will start when the contractor for construction is selected and a work contract for Ajilchin Flyover Bridge construction between the implementing agency and the contractor is signed. The construction duration will be four years.

Before bidding process for selection of contractor starts, preparation activity for bidding document should include revision of Environmental management plan in accordance with the detailed construction plan. It is important point that all EMP proposed activities (baseline setting, monitoring and correctional measures and M&E) are planned in line with construction elements and stages at the proposal level by bidders and the details are reviewed during the contractor's selection process. This way, EMP implementation process will be ensured at the start of proposal.

When the contractor selected and made agreement with implementing agency, a copy of approved EMP should be handed in to the contractor for enforcement purposes.

That way, the contractor is legally bind to implement EMP, while on the duty for project execution.

The contractor is obliged to renew EMP annually based on the monitoring results as well as on the results of corrective actions to reduce the negative impacts and submit the renewed EMP to implementing agency so that it in turn to submit to MEGD for review and approval. Environmental inspectors of Bayangol district will periodically examine the project activities in accordance with EMP and provide guidance in its implementation and recommendation to maintain the annual EMP. Unless there is a serious impacts to environment and society due to unexpected circumstances or emergency, the contractor should maintain the procedure of annual renew of EMP based on monitoring results. When serious impacts to environment and society are discovered because of monitoring outputs or observations, the contractor should take measures to stop or correct the activities that cause the harm to environment and society until the causes are eliminated. The project contractor and implementing agency should make sure that constant cooperation is maintained with all relevant agencies in charge of environment, which can be district professional inspection division, water, air and soil quality monitoring agencies and organizations at national and local levels.

According to the project construction schedule for four years, the contractor should renew EMP each year and four times in project duration and implement the renewed plan of monitoring.

8. PUBLIC CONSULTATION AND INFORMATION DISCLOSURE

8.1 Overview of consultation process

The study team has organized the first Public Consultation at the meeting hall of "Suuri" LLC, locates at the Baruun Teeverchid street on July 27 including representatives from Implementing agency – UB city Road Department and Land Administration Department.

Social study team member of the project study team delivered and has got signature for distribute invitation citizens and enterprises which are affected by Flyover bridge construction works in the territory of the 4th khoroo of Bayangol district of Ulaanbaatar city, where the project will be implemented 9 days ago prior to Public Consultation and also delivered brief information of the project in advance.

Figure 100. Public consultation process about environmental impact researches of the flyover

Citizens and workers who participated to the meeting, have known about preliminary project researches, basically environmental and social researches, also project activities and expected outcome and they are glad for submitting certain information about the project.

8.2 Details of Consultation Meetings and Discussions

At the range of preliminary research works, research team jointly organized the first Public Consultation with Auto Road Authority-Implementing agency of Metropolitan Governor's Office and Metropolitan Land Agency including delegations of citizens, industries, enterprises and workers. Table 61 shows discussion result.

Table 62.Public Consultation result

	The first public consultation
Date	At 14:00-16:00, July 27, 2012
Location	Meeting hall of the "Suuri" LLC
Participants	Total 26 people 「UB」MARA 1 delegation 「UB」MLA 1 delegation 4 people from Research Team 2 people from Mongolian Railway 1 person from Environmental NGO Delegations from 4 families who live in gers at the open site of Goviin 88

	12 delegations from industries and enterprises which can be affected by impacts
Consultation meaning	(Introduced by presentation) Environmental Impact Assessment Company (“Environ” LLC) which has entered into the contract by Research Team, conducted Public Consultation and briefly explained about environmental impacts and land surveys, 「Specialist from the Road department made a short intro on project. (Answers and questions) Questions and answers were existed at below. We aimed to hear public impression in relation to land exemption. Specialist of the Metropolitan Auto Road Agency answered to the questions. I want to know land size which will be affected by impacts from red lines (ROW) of the road, reflected to the presentation. When will you provide information about it? (Answer: In the future we will meet and discuss to industries which will be affected by impacts based on detailed ROW sizes.) It is available to explain it that time. Especially, bridge above the railway is widest; does the bridge have such width? (Answer: Did you say about the widening section to the flyover? There are several alternatives among all views and learn them in details until it selects the final alternative which can be main view to provide flyover outcome) Mongolian Railway is the Mongolian-Russian Joint Stock Company and for ownership land of Mongolian Railway we need to explain it to Managing directors. We ask state and administrative authority to organize meeting and explanation about it. (Answer: We are planning to organize consultation in relation to displacement next time. Also I think that we can invite authorized officials from Mongolian Railway or we can visit your organization and meet supreme officials and discuss about it). We understand that land exemption issues are difficult but it is important to make long term surveys for such project. It is necessary to build qualified and appropriate flyover that can freely convey heavy-duty trucks and avoid causing traffic jam. (Answer: A Specialist of UB Land Agency explained land exemption issues required to implement the project, combined understanding, simultaneously explained that this project is long term project that considered future sight)

8.3 Information disclosure

At the detailed research work of the Environmental Impacts, project team distributed brochures about Project brief introduction, Environmental research works and expected outcome of the project to 33 families and director of over 10 enterprises in the territory of the research and also delivered contacting telephone numbers and addresses of research team. Research team met with directors of over 10 branches of the Railway Joint Stock Association on Oct 09, 2012 and introduced about our surveys and ownership lands, construction buildings of Railway institutions which can be affected by flyover project plan and impact rate. Also research team is going to publicly introduce air quality, sound and noise rate, vibration level, water quality of Dundgol and depth wells, research result about soil and plants and Grievance Redress Mechanism for citizen’s claims and requests.

8.4 Second Public Consultation and Information Disclosure

The second public consultation meeting was held to introduce study results to public after the studies on DEIA and Resettlement plan completed. The meeting took place in the same conference room of “Suuri” LLC, where the first meeting was organized. As the venue is located right in the center of project site, it is very convenient for all entities and citizens to

participate for getting information and exchanging their views on this proposed project. The meeting took place on 17th of November 2012. Meeting agenda, List of participants, minutes of meeting and pictures from the 2nd PCM are included in appendices 16-19. In order to ensure participation of affected entities and citizens as well as to get their comments and complains, study team assistant gave a call to each of citizens and entity directors 7 days before the meeting date and invitation following calls has been handed in to each of potential participants 5 days in advance.

Figure 101. View on second public consultation meeting process on the study results

8.5 Details of Consultation Meeting

The study team has introduced the results of studies on environmental impact assessment and resettlement actions. Current status of soil, vegetation, air and water quality, noise and vibration levels; current and projected negative and positive impacts due to construction and operation of Flyover project were the topics of DEIA. Affected entities and citizens, affected properties and their portions, entitlements addressed to affected entities and citizens, current gaps of Mongolian legislation and JICA guidelines for settling the gaps within the land acquisition and resettlements process were topics for discussion and question answer session during the meeting.

Cut of date for restriction population influx was also announced to all participants. It is arranged that Land Administration Department will announce the cut of date through its website to public within a next week and instruct its Bayangol district's Land administration division on Cut-of- date, based on the official request from UB Road department.

Table 63 shows discussion result.

Table 63.Public Consultation info

	The Second public consultation
Date	15:00-17:00, Nov 17, 2012
Location	Conference room of the "Suuri" LLC
Participants	Total 26 people Representative from UB Road dept Representative from UB Land dept 4 people from Study team 2 persons from Environmental NGO 5 citizens from nearby living households

	13 persons represented 8 affected entities
Consultation process	Meeting started at 15.00 and finished 17.20. Two presentations are made: results of environmental studies on air, water and soil qualities and pollution levels against the national standards and projected negative and positive impacts from the Flyover bridge construction and operation; study results of land acquisition and resettlement study. Participants were interested in about the environmental study results as to know in whether air pollutants are exceed the acceptable level or not. if the water quality they consume is ok or bad. How much proposed bridge construction will impact in reducing current traffic jams and if there would be an increase or decrease of air pollution due to flyover bridge. Land acquisition and resettlement issues were hot and fragile among participants especially for some affected entities. Mr. Altanochir of Badral Gas Station, questioned justification of east –west ROW, offering ROW along and over Dundgol river, stating that since this river is polluted and no one is needed. Even tough, proposed entitlements for each affected entity or citizen are introduced to public, some persons (especially those who have no right/license for land possession) were anxious: since Mongolian legislation has a lot of gaps in entitlement, can JICA's and other international experiences can really influence enforcement of these entitlements. Dominant participants were happy to know about how the process of land acquisition and resettlement would take place, who will be responsible, how compliance redress mechanism will be working and if the proposed entitlements will really be workable. Details are included in the minutes of meeting. Cut of Day was also announced at this meeting to restrict influx of population. Some people reacted with question: how would people move to this location, when those living will be moved? It is understandable that not many aware and sure about the entitlements offered. From the Mongolian past practices, no one were happy because of resettlements. Details are included in the minutes of meeting.

9. CONCLUSION

Experts of consulting company ENVIRON on air quality, soil, vegetation, noise, vibration, wildlife, water resources, resettlement and emergency management have studied the proposal “Ajilchin Flyover Project” based on the existing materials, field data collection, sampling and data analysis.

As the results discover that the proposed project on Ajilchin Flyover Bridge will minimally impact the air quality, soil, water quality and negligible impacts to surrounding society during its implementation and expected to bring positive impacts through its construction of Flyover Bridge and access roads, to society, districts of Ulaanbaatar city in terms of economic development, reduction of traffic jams, improvement of air quality, and creation of work places.

Provided that the project properly implements all the actions set in the environmental management plan and monitoring programs, there will not be serious impacts to environment and society. Taking into consideration of all above factors, it concludes that the proposal “Ajilchin Flyover Project” should be approved for implementation consideration.

STUDY TEAM COMPOSITION FOR DEIA REPORT

1. Mr. Erdenesaikhan, team leader, Director of Environmental Consulting Company ENVIRON LLC
2. Ms. Undrakhtsetseg, EIA manager
3. Prof Urjin O., Science advisor
4. Enkhmaa S., Chief Researcher for air quality
5. Prof Tugjsuren N., Noise measurement and analysis
6. Prof Saijaa N., Vibration measurement and analysis
7. Dr. Baatar R., Soil and sedimentation sampling and analysis
8. Dr. Janchivdorj L., Surface and underground water sampling and analysis
9. Mrs. Battuya, surface water expert
10. Mr. Badarch, ground water expert
11. Dr. Suran, Flora study (vegetation and forest) expert
12. Dr. Tseveenmyadag, Fauna expert
13. Ms. Baasanjav, Aquatic biologist
14. Dr. Jambaljav, Permafrost and geographical expert
15. Mr. Tuvdendroj, social expert and lawyer
16. Ms. Munkhtsetseg, GIS expert
17. Ms. Adilbish, Remote Sensing expert

18. Mr. Erdenetsogt, Graphic designer
19. Ms. Khishigsuren, Hygienic expert

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Office address: R#314 Mongolian Youth Federation Building, Baga toiruu-42
Sukhbaatar District, Ulaanbaatar Mongolia

10. APPENDIXES

1. A copy of EIA General Conclusion of the Ministry of Environment and Green Development
2. Terms of Reference for DEIA
3. List of bird species in the project implementation territory
4. Central Geological Lab: results of heavy metal contents of soil and sediment samples 1
5. Central Geological Lab: results of heavy metal contents of soil and sediment samples 2
6. Central Geological Lab: results of heavy metal contents of surface and underground water samples
7. Soil and Biochemical Lab: results of Chemical analysis of soil samplings
8. Public Health Bacteriological Lab: results of bacterial content of surface water
9. Geo-Ecological Institute Water Lab: results of Chemical analysis of water samplings
10. Copies of Minutes of Meeting of First Public Meeting
11. Agenda of First Public Meeting
12. Pictures of First Public Meeting
13. List of participants of 1st PCM
14. List of participants of a Meeting organized for management staffs in the Conference Room of the Mongolian –Russian Railway Joint Venture
15. A copy of translation of Letter from Railway Authority on Flyover project.
16. Agenda of Second Public Consultation Meeting
17. A copy of Minutes of Meeting of 2nd PCM
18. List of Participants of 2nd PCM
19. Picture taken at 2nd PCM

APPENDIX 1. A COPY OF EIA GENERAL CONCLUSION OF THE MINISTRY OF ENVIRONMENT AND GREEN DEVELOPMENT

МОНГОЛ УЛСЫН
БАЙГАЛЬ ОРЧИН,
АЯЛАЛ ЖУУЛЧЛАЛЫН ЯАМ

15160 Улаанбаатар хот, Чингэлтэй дүүрэг,
Нэгдсэн Үндэстний гудамж 5/2, Засгийн газрын II байр,
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2019.04.26 № 6/1662

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АВТО ЗАМЫН ГАЗАРТ

Улаанбаатар хотын Баянгол дүүргийн нутаг дэвсгэрт төмөр зам дээгүүр гүүрэн гарц барих төсөлд "Байгаль орчинд нөлөөлөх байдлын үнэлгээний тухай хуулийн дагуу ерөнхий үнэлгээ хийв.

Ерөнхий үнэлгээний дүгнэлтээр уг төсөлд байгаль орчинд нөлөөлөх байдлын нарийвчилсан үнэлгээ хийлгэх шаардлагатай гэж үзлээ.

Ерөнхий үнэлгээний дүгнэлтийг хавсаргав.

ЕРӨНХИЙ ШИНЖЭЭЧ Д.ЭНХБАТ

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APPENDIX 2. TERMS OF REFERENCE FOR DEIA CONSULTANCY

TERMS OF REFERENCE

FOR

ENVIRONMENTAL IMPACT STUDY

UNDER

THE PREPARATORY SURVEY FOR AJILCHIN FLYOVER PROJECT IN ULAANBAATAR CITY

1. Background

Currently, the population in Ulaanbaatar city (UB) accounts for more than 40 % population of Mongolia, and the southern part of UB has developed quickly with economic and population growth.

As its economy and population grow, the traffic volume has increased rapidly, and it is expected to increase further continuously. Moreover, the railway and Dund River flowing from east to west divide the city into two parts, the north and south, which aggravate traffic congestion is a major hindrance for economic activity and livelihood in the city. Therefore, in order to mitigate the traffic congestion and promote economic activity, it is vital to construct a new bridge over the railway and Dund River to link the north and the south.

According to "MDG based National Development Strategy (2007-2021)", it is highly prioritized to improve the road network in UB. Also, in "the Mid-Term Program of new construction of Mongolia" construction of railway flyover (at least seven flyovers) in UB including Ajilchin railway flyover is stated as one of the priority actions.

2. Project Location

"Ajilcin Flyover" is planned to be located in the western part of Ulaanbaatar City to fly over railway and connect Narny Zam to road along the Dound River and road to Thermal Power Station No.3.

Two routes, i.e. East-West route and North-South route, shall be compared as a part of alternatives analysis. Cartographic information on the two routes is to be provided as an annex.

3. Project Components

The Project consists of the following components:

- Construction of main flyover
- Building of access roads to the flyover

PART A: DEIA REPORT

4. Objective

The main objective of the Detailed Environmental Impact Assessment (DEIA) study is to assess both positive and negative environmental impacts due to each project activities. Assess the impacts and recommend appropriate mitigation measures during construction, and operation phases to minimize negative impacts of the Project to acceptable levels. Prepare DEIA and Environmental Management Plan (EMP) including Monitoring Program in both Mongolian and English in compliance with Mongolian Law on Environmental Impact Assessment (1998, amended 2002) and JICA's Guidelines for Environmental and Social Considerations. The contracted company shall meet the requirement of this TOR as well as the requirement of GEIA issued by MNET, as per attached as an annex.

5. Scope of Work

5.1 Baseline Studies

5.1.1 Review on Legal and Administrative Procedures

- Review prevailing government regulations and JICA's policies governing the assessment and management of environmental impacts of the Project, including norms and standards on air, noise, vibration, water and waste, etc.
- Conduct a series of meetings with officers of Ministry of Nature, Environment and Tourism (MNET) and other relevant organizations, if necessary.

5.1.2 Baseline Assessment and Scoping

- Review reports and secondary data collected from the Project.
- Collect general baseline information on existing environmental condition in the project influenced area i.e. monitoring data around the project area, and identification of the environmental components that need detailed further study.
- Note that the baseline assessment will be carried out basically based on the available secondary information and field visits on the following items.
    i. Physical Resources: topography, climate, soils, geology, land use, aquatic resources, and surface and groundwater resources. (The JICA Survey Team is going to organize other surveys on some physical resources. Necessary data will be provided to the awarded company if deemed relevant.)
    ii. Environmental Risks: floods, earthquakes, road accidents, etc.
    iii. Ecological Resources: landscape and natural ecosystem, flora and fauna, wildlife and wetland habitats, and protected areas.
    iv. Environmental Quality:
- Air quality: Ascertain air quality on major variables identified in the national standard.
- Noise and vibration level: Ascertain noise and vibration level compared with the national standard.
- Water Quality: Ascertain water quality on major variables identified in the national standard

- Soil/sediment quality: Ascertain the current conditions compared with the national standard on soil and sediment.
- Other important variables, if any.
    v. Cultural Resource Site: Identify structures and sites which are historical, religious, architectural, etc.
- Identify the possible project impacts and prepare the scoping for DEIA based on the baseline assessment clarified 5.1.2.

5.1.3 First Public Consultation Meeting

- Conduct the first public consultation meeting to ensure relevance of the project to the interests of the people in the project area; and to seek views and suggestions toward the result of baseline assessment and scoping.

5.2 Detailed Studies

5.2.1 Field Investigation

- Conduct necessary investigations and fieldwork for gathering of additional information on ecological and environmental parameters selected during the Baseline Studies mentioned in 5.1.

Those may include, but not limited to, the followings.

I. Physical Environment
- Regional Hydrology and Flood Pattern,
- River Sediment and Siltation, and
- Land use

II. Ecological Environment Tree Plantation/Felling, Water bodies and Fisheries, and
- Wildlife

III. Environmental Pollution
- Air Pollution,
- Noise and Vibration,
- Soil Contamination including dredged soil
- Surface and Ground Water Quality, and
- Pollution due to Waste

IV. Social Environment
- Land Acquisition,
- Cultural and Common Resources Loss,
- Livelihood and Local Economy
- Employment Opportunities,
- Infrastructure and Industry,

- Road Transport,
- Women Empowerment,
- Split of Communities,
- Health and Safety, and
- Road Accident

5.2.2 Focus during Field Investigation

The current study will especially focus on but not limited to the following. Detailed studies will be done based on the primary information obtained through actual measurement and investigation, unless otherwise mentioned. For some investigation items, please refer the attached map of sampling points.

1. Landscape, Geohazards and Slope Stability

- Identification of natural landscape of the project area. Assessment of geological, hydrological and morphological features of the project area, as well as any violent interference in the natural processes. Investigation and evaluation of results to predict erosion, siltation, ground subsidence, floods, and banks washing-off (lateral erosion) in the project area.

2. Regional Hydrology and Flood Pattern

- Assessment of the situation pertaining to regional hydrology and flood pattern in the project area.

3. Climate Change Impact, if relevant for the Project

4. River Morphology

- Study possible impacts on river morphology, various environmental parameters and flooding.

5. Soil Erosion and Bank Stability

- Analysis of soil characteristics, moisture contents to predict possible soil and bank erosion to project activities.

6. Terrestrial Flora and Fauna

- Investigation of the composition of plant species, migratory and local birds, aquatic habitats, terrestrial fauna including wildlife in the Project area.

7. Sensitive Areas/ Receptors

- Identification of locations of sensitive areas and receptors to ensure that they are sufficiently distant enough to maintain harmonization and avoid any potential social disturbances.

8. Traffic Flow

- Predict future traffic growth and load on the bridge and access road by examining changes in traffic counts and flow. (Please note that the result of traffic survey will be provided by the JICA Survey Team.)

9. Air Quality1

- Conduct air quality analysis by measuring temperature, wind direction, wind velocity, suspended particulate matter (SPM), CO, NO2, SO2 and Pb throughout the project area. Numbers and locations of sampling points shall be decided by considering traffic/road conditions and location of sensitive receptors. Minimum numbers are five points; one in the northern-side intersection (A1), one under the planned flyover (A2), one in the southern-side intersection in case of the South-North route (A3), one in the western-side intersection in case of the East-West route (A4) and the one near the current Dound River Bridge (A5). More points could be proposed if deemed appropriate.

10. Noise and Vibration Level

- Conduct noise and vibration survey and measure average equivalent sound level (Laeq), frequency, velocity and sound acceleration during both day and night times, as defined by the national standard. Minimum numbers are five points; one in front of School 38 on the Narny Zam Stree (NV1), one near the railway track in the project area (NV2), one near the current Dound River Bridge (NV3), one in the ger families' area along the railway branch line (NV4) and one in Dound Gol street (NV5). More points could be proposed if deemed necessary.

11. Water Quality

- Conduct water quality analysis for major water sources in and around the project site by measuring water temperature, DO, BOD, COD, turbidity, pH, TOC, TDS, TSS, EC, As, Coli form, hardness, oil and grease. For water quality of groundwater, if a well in residential areas is used for drinking purpose, water quality has to be compared with the standard of drinking water quality. Minimum numbers of sampling points are five; three 1 The parameters for air quality, noise and vibration, water quality, soil and sediment contamination should be in line with the relevant national standards. In addition, it is advisable to include parameters that are surveyed by DEIAs of other similar projects funded by ADB and World Bank.

  for groundwater quality (a well in the ger families' area along the railway branch line (GW1) and two deep wells which will be dug by the JICA Survey Team (GW2 and GW3)) and two for surface water (one in the upper side of the Dound River (W1) and the other in the lower side of the Dound River (W2)). More points could be proposed if deemed necessary.

12. Soil

- Conduct analysis on the chemical properties of soil and assess the presence of toxic substances and heavy metals like Cu, Pb, Zn, Mn, Hg, Cd, As. Evaluate the environmental impact of such contaminants on the end-use and environmental impacts of soil. Minimum numbers of sampling points are five; one in the central reservation on the Narny Zam Street (SO1), one in the railway premises (SO2), two along the northern embankment of the Dound River (SO3 and SO4), the other in the ger families' area along the railway branch line (SO5). More points could be proposed if deemed necessary.

13. Sediment

- Conduct analysis on the chemical properties of sediment and assess the presence of toxic substances and heavy metals like Cu, Pb, Zn, Mn, Hg, Cd, As. Evaluate the environmental impact of such contaminants on the end-use and environmental impacts of sediment.

  Minimum numbers of sampling points are two; one in the upper side of the Dound River (SE1) and the other in the lower side of the same river (SE2). More points could be proposed if deemed necessary.

14. Sand Mine, Quarry and Borrow Sites

- Estimate impact of sand mining, quarry and barrow pit operations toward the environment in the project area.
- Carry out a study on the potential impacts due to various construction methods.

  The below table summarizes the minimum requirement of measurement for selected investigation items. Please note that once DEIA starts, numbers and locations of sampling points have to be agreed by the JICA Survey Team prior to any actual measurements.

  Table 1. The ***minimum requirement*** of selected investigation items **Investigation items Parameters to be analyzed No. of sampling points**

  Air Quality Temperature, wind direction, wind velocity, SPM, CO, NO2, SO2 and Pb5 Noise and Vibration Equivalent sound level (Laeq), frequency, velocity and sound acceleration (during both day and night times) 5 Water Quality (surface water) 2 (surface water) 7 water temperature, DO, BOD, COD, turbidity, pH, TOC, TDS, TSS, EC, As, Coli form, Hardness, oil and grease (groundwater) TS, NO3-, Pts, heavy metals (Cu, Pb, Zn, Mn, Hg, Cd, As), coliform, fecal coliform 3 (groundwater) Soil Cu, Pb, Zn, Mn, Hg, Cd, As 5 Sediment Cu, Pb, Zn, Mn, Hg, Cd, As. 2

5.3 Analysis of Alternatives and Economic Assessment

5.3.1 Analysis of Alternative Options

- In the Project, there are two *alternative routes*, namely the East-West route and the South-North route as per attached as an annex. Obtain the information on all the alternative

route and conduct comparative environmental analysis of these routes, including "No Project" scenario.

5.3.2 Economic Assessment

- Conduct economic analysis of all alternatives for (i) costs and benefits of environmental impacts; (ii) costs, benefits, and cost-effectiveness of mitigation measures; and (iii) discussion of impacts that have not been expressed in monetary values, in quantitative terms where possible.

5.4 Anticipated Environmental Impacts and Mitigation Measures

5.4.1 Estimation of Impacts

- ***Estimate*** air and noise quality based on predicted traffic estimates and recommendation of mitigation measures.
- Evaluate the project impact on all physical and ecological resources described above and recommendation of mitigation measures.
- Evaluate socio-economic and cultural impacts, such as:
  - Assessment of the status of livelihoods.
  - Assessment of impacts on culturally and religiously sensitive locations and other sensitive receptors
  - Assessment of impacts on industrial development
  - Assessment of traffic safety.
  - Assessment of impact on health and safety and estimation of possible health and safety impacts (such as occupational safety, HIV/AIDS, STDs) on construction workers.

5.5 Environmental Management Plan

5.5.1 Environmental Mitigation Measures

- Prepare Environmental Management Plan (EMP) together with the executing agency for ***all phases of the Project*** for effective implementation of environmental protection and mitigation measures of significant environmental impacts.
- Preparation of environmental protection measures together with the executing agency to (i) mitigate environmental impacts, (ii) compensate for adverse environmental impacts or (iii) enhance environmental resources. Prepare cost estimates for each mitigation measure proposed in the EMP and to make sure that all the mitigation measures are adopted in the engineering design of the Project.

5.5.2 Institutional Assessment

- Assess institutional capacity of the implementing agencies for effective implementation of environmental management and monitoring plan and recommend possible institutional arrangement for implementation and supervision of the EMP.

5.5.3 Monitoring Mechanism

- Elaborate monitoring mechanism and develop a monitoring form, a tool to be used by implementing authorities together with the executing agency in order to be able to interfere and respond quickly to activities, which during the construction and operation turn out to have a negative effect to the environment. The tool will specify the parameters, location, frequency and means of monitoring.

5.6 Public Consultations and Disclosure Plan

5.6.1 Public Consultations

- Assist the executing agency to conduct two public consultations (the first one after the scoping stage and the second one after preparation of draft DEIA report). This will ensure that the consultation process will involve affected people, key agencies, NGOs, public representatives, and other stakeholders and they are provided with opportunities to participate in the decision-making process. Please note that assistance shall include all logistical supports such as arrangement of conference room, handouts, etc; thus such cost shall be included in the total quoted cost.
- Consult with the governors of relevant districts on the contents of DEIA report.
- Record and document the minutes of meetings of all the public consultation meetings.

5.6.2 Disclosure Plan

- In consultation with the stakeholders, prepare information disclosure plan for dissemination of DEIA to the affected community and general public.

5.7 Grievance Redress Mechanism

5.7.1 Establishment of Grievance Redress Mechanism

- Recommend appropriate Grievance Redress Mechanism based on the review of current practices in Mongolia and other similar projects by other donor agencies.

6. Team Composition

- Formulate a team with necessary experts in order to carry out DEIA in line with a work program mentioned in the next section. Currently, the followings experts are considered to be indispensable. Please propose any other experts or assistants if deemed necessary.

 # Position Person Months

1 Team Leader (EIA Specialist) 5
2 EIA Assistant 5
3 Environmental Specialists (subject-wise) 7
4 Environmental Assistants (subject-wise) 10
5 Social Expert (Resettlement) 1
6 Economist/ Valuator 1
7 Other Experts (i.e. GIS experts) 1

7. Work Program

- The duration of the preparation of the DEIA including EMP will be about 4 months. The work program and personnel schedule is provided in Figure 1

Figure 1: Implementation Schedule June July Aug. Sept.
1 Project Mobilization
2 Review Previous Studies
3 Identification of Possible Project Impacts (Scoping)
4 First Public Consultation
5 Detailed Field Investigation
6 Preparation of Draft EIA Report
7 Second Public Consultation
8 Finalization of Deliverables, inc. EIA Report
9 Submission them to JICA and MONET

8. Reporting

The following is a list of deliverables and those shall be written in both Mongolian and English.

- Draft Scoping (Identification of Possible Project Impacts)
- Draft DEIA Report
- Final DEIA Report

The report should include necessary annexure, i.e. official letters from MNET on GEIA and DEIA and minutes of meetings of public consultation meetings, and shall be submitted to the JICA Survey Team in time.

APPENDIX 3 A LIST OF BIRD SPECIES AND THEIR HABITAT AREA SPECIFICS WITHIN THE AJILCHIN FLYOVER PROJECT STUDY AREAS

[1]	SPECIES NAME	Habit areas in Mongolia	U	M	N	W	O	Occurrence	Distribution
1.	Milvus migrans Black Kite	TB. Mountain steppe, urban areas	-	1	1	-	-	C	E.Sib
2.	Circus aeruginosus Westren Marsh Harrier	W. meadow, wetland, lake with reeds	-	-	-	1	-	R	PA
3.	Accipiter nisus Eurasian or Northern Sparrow Hawk	TB. Coniferous and mixed forest	1	-	-	1	-	E	PA
4.	Buteo hemilasius Upland Buzzard or Hawk	S. Mongolian steppe, mountain steppe	1	-	1	-	-	C	Mon.T
5.	Falco tinnunculus Common or Eurasian Kestrel	S. Steppe, mountain steppe, desert, rocky place	1	-	1	-	-	C	PA
6.	Falco amurensis Amur (Red-footed) Falcon	TB. Coniferous and mixed forest	-	1	-	-	1	C	CH
7.	Falco cherrug Saker Falcon	S. rocky mountain, steppe	1	-	1	-	-	C	Mon.T
8.	Perdix dauuricae Daurian Partridge	S. steppe of mountain, steppe, desert, sandy	1	-	-	-	-	C	Mon.T
9.	Vanellus vanellus Northern Lapwing	W. river basin, meadow, wet meadow	-	1	-	-	1	C	PA
10.	Charadrius dubius Little Ringed Plover	W. river, lake, small lake, some green water	-	1		-	-	C	PA
11.	Tringa glareola Wood Sandpiper	W. green water, lake, small lake	-	1	-	-	1	C	PA
12.	Tringga hypoleucos Common Sandpiper	W. river, lake, small lake	-	1	1	-	-	C	E.Sib
13.	Columba livia Domestic or Rock Dove	RP. Western in Mongolia	1	-	1	-	-	A	M-MT
14.	Columba rupestris Blue Hill Pigeon	RP. Rocky place, mountain,	1	-	1	-	-	A	Mgl
15.	Streptopelia orientalis Rufous or oriental turtle Dove	TB. Forest of river	-	1	1	-	-	R	PA

[1]	SPECIES NAME	Habit areas in Mongolia	U	M	N	W	O	Occurrence	Distribution
16.	Cuculus canorus Eurasian or Common Cuckoo	TB. forest, place with bush	-	1	1*	-	-	E	PA
17.	Athene nocuta Little Owl	RP. Rocky place, steppe, mountain	1	-	1	-	-	E	M-MT
18.	Apus apus Nortern or Common Swift	RP. Rocky place, mountain, forest	-	1	1	-	-	C	Eu
19.	Apus pacificus Pacific or White-rumped Swift	RP. Rocky mountain roof of house	-	1	1	-	-	C	CH
20.	Upupa epops Hoopoe	RP. Rocky mountain, mountain side, Gobi, steppe	-	1	1	-	-	C	Eu.Ch
21.	Eremophila alpestris Shore or Horned Lark	S. desert, steppe, Altai mountain	1	-	1	-	-	A	Mgl
22.	Riparia riparia Bank Swallow or Sand Martin	W. river and lake, in the water	-	1	-	-	-	C	M-MT
23.	Hirundo rustica Barn or Common Swallow	W. wetland, lake, river	-	1	1	-	-	C	Sib
24.	Delichon urbica Northern House Martin	RP. Rocky mountain, mountain side, Gobi, steppe	-	1	1	-	-	C	PA
25.	Motacilla alba White or Pied Wagtail	W. river and lake, in the water	-	1	1	-	-	C	PA
26.	Motacilla flava Yellow Wagtail	TB. Wetland	-	1	-	-	1	R	PA
27.	Anthus hodgsoni Olive-backed or Indian Tree Pipit	TB. Coniferous and mixed forest, mountain	-	1		-	-	R	CH
28.	Anthus spinoletta Water or Rock Pipit	RP. Mountain, forest	-	1		-	-	R	T
29.	Lanius cristatus Brown Shrike	TB. Wetland, place with plant	-	1	1	-	-	C	CH
30.	Lanius isabellinus Isabelline or Central Asian Shrike	TB. wetland, plants, Gobi, place with plant	-	1	1	-	-	R	CH
31.	Bombycilla garrulus Bohemian Waxwing	TB. Coniferous and forest	-	1		1	-	C	Sib
32.	Prunella montanella Siberian Accentor	RP. Coniferous, forest, mountain	-	1	-	1	-	R	Sib

[1]	SPECIES NAME	Habit areas in Mongolia	U	M	N	W	O	Occurrence	Distribution
33.	Prunella fulvescens Brown Accentor	RP. Mountain, rocky place, Coniferous	1	-	1	-	-	R	Mgl
34.	Oenanthe oenanthe Northern Wheatear	S. steppe, mountain, Gobi, forest	-	1	1	-	-	R	PA
35.	Phoenicurus phoenicurus Eurasian Redstart	TB. Coniferous, forest, mountain, rocky place	-	1	1	-	-	R	Eu
36.	Phoenicurus ochruros Black Redstart	ÕÀ. Forest and rocky place	-	1	1	-	-	E	Eu
37.	Phoenicurus auroreus Daurian Redatart	TB. forest, in the river	-	1	1	-	-	E	CH
38.	Turdus ruficollis Dark-or Red-throated Thrush	TB. Coniferous forest	-	1	-	-	1	E	Sib
39.	Locustella certhiola Pallas' Grasshopper	TB. High and wet place	-	1	-	-	1	E	Sib
40.	Phylloscopus trochiloides Greenish Leaf-warbler	TB. Mixed forest, plants	-	1	1	-	-	E	CH
41.	Phylloscopus inornatus Yellow-browed Leaf-warbler	TB. Coniferous and mixed forest	-	1	-	-	1	E	Sib
42.	Phylloscopus proregulus Pallas' Leaf-warbler	TB. Shore of river, coniferous forest	-	1	-	-	1	E	Sib
43.	Muscicapa parva Red-breasted or Red-throated	TB. Coniferous and mixed forest	-	1	1	-	-	E	Sib
44.	Aegithalos caudatus Long-tailed Tit	TB. Coniferous and mixed forest, bush	1	-	1	-	-	E	PA
45.	Parus major Great Tit	TB. Coniferous and mixed forest, elm,	1	-	1	-	-	E	Eu.Ch
46.	Em.eriza leucocephala Pine Bunting	TB. forest, tree, coniferous forest	1	-	1	-	-	R	Sib
47.	Emberiza spodocephala Black-faced Bunting	TB. Wet place, tree, bush and elm	-	1	1	-	-	E	CH
48.	Acanthis flavirostris Twite	RP. Rocky mountain, steppe, mountain	1	-	-	1	-	C	Mon.T
49.	Uragus sibiricus Long-tailed Rosefinch	TB. forest, brushwood	1	-	1	-	-	C	CH

[1]	SPECIES NAME	Habit areas in Mongolia	U	M	N	W	O	Occurrence	Distribution
50.	Carpodacus erythrinus Scarlet Rosefinch or Grosbeak	TB. forest, brush, mountain	-	1	1	-	-	C	CH
51.	Passer domesticus House Sparrow	TB. In the city	1	-	1	-	-	C	PA
52.	Passer montanus (Eurasian) Tree Sparrow	TB. tree, mountain, in the river, Gobi	1	-	1	-	-	A	PA
53.	Pica pica Black-billed Magpie	TB. tree, mountain, forest	1	-	1	-	-	C	Eu.Ch
54.	Pyrrhocorax pyrrhocorax Red-billed Chough	RP. Rocky place, mountain and rocky mountain	1	-	1	-	-	A	Mon.T
55.	Corvus dauricus Daurian Jackdaw	TB. River basin	-	1	1	-	-	E	Eu.Sib
56.	Corvus corone Eurasian Carrion or Hooded Crow	TB. forest, brush, coniferous	1	-	1	-	-	A	PA
57.	Corvus corax Northern Raven	TB. steppe, Gobi, forest, reedy lake, rocky place	1	-	1	-	-	A	PA

First remark of chart:

- TB – Tree and bush, W– Wetland, S – Steppe, M - Mountain, RP – Rocky place.
- U – Urban, M – Migratory, N - Nest, W - Wintering, O – Occasional, E – endangered, R – Rare, C – Common, A – abundant.
- PA – Paleo-Arctic, Sib - Siberian, Ch - China, Mon.T – Mongolian- Tibetan, M-MT – Mongolian-Mid-Terrainian, EC – Europe-China, Eu - Europe, E.Sib-Europe-Siberian, T- Tibetan. Mgl-Mongolia

APPENDIX 4. CENTRAL GEOLOGICAL LAB: RESULTS OF HEAVY METAL CONTENTS OF SOIL AND SEDIMENT SAMPLES 1

Маягт ХФ-01

ГТЛ-ийн Захиралын 2011 оны
155 тоот тушаалын 1-р хавсралт

ГЕОЛОГИЙН ТӨВ ЛАБОРАТОРИ

18080 цэл-417, Улаанбаатар хот, Сонгинохайрхан дүүрэг
Үйлдвэрчний эрдэмийн гудамж, ГТЛ-ийн байр
Утас: 976-11-632904, 632914; Факс: 976-11-632944
Цахим хаяг: info@centgeolab.com; http://www.centgeolab.com

ИТГЭМЖЛЭГДСЭН ЛАБОРАТОРИЙН ШИНЖИЛГЭЭНИЙ ДҮН

Захиалгын дугаар : ХФ 2012/1134
Захиалагчийн нэр : Энхайрхан ХХК
Хаяг :
Утас : 99165110
Факс : 311938
Шинжилсэн огноо : 2012.09.07
Хуудасны тоо : 1

Нэгжийн нэр : Хими физик аргын лаборатори
Дээжийн баталгаруулалт : -
Шинжилгээний арга : Химн
Дээжийн тоо, төрөл : 7, пунтаг дээж
Хүлээн авсан огноо : 2012.08.31

* - Одон үлсын хэмжээнд итгэмжлэгдсэн арга

№	Лаб №	Дээж №	Дээжийн тодорхойлолт	Элемент, мг/кг	
				Hg	Cd, %
1	15681	X-1 Гүүр	-	0.15	<0.005
2	15682	X-2 0-5	-	0.19	<0.005
3	15683	Sed-2	-	0.11	<0.005
4	15684	X-3 0-5	-	0.13	<0.005
5	15685	X-5 0-5	-	0.19	<0.005
6	15686	Ссд-1	-	<0.05	<0.005
7	15687	X-4 0-5	-	<0.05	<0.005

Чанарын хяналт

1	АСЗ	Шифр-2539	аттестатчилсан утга	1.52	0.001
			шинжилсэн утга	1.69	<0.005
Шинжилгээний аргын код				EPA-7473	AAC-10*

Энэхүү шинжилгээний дүн нь захиалагчаас ирүүлсэн түүвэр дээжид хамаарах бөгөөд зөвхөн эх хувь нь хүчинтэй.

Тэйлбар: АСЗ - Аттестатчилсан стандартчилсан загвар

Лабораторийн эрхлэгч /Д.Пүрэвжаргал/ Хяналтын инженер /Б.Буянхишиг/
(гарын үсэг) (нэр)

Гүйцэтгэсэн инженер: М.Амгалантуяа, Ч.Цэрэнхүү
(нэр)

Энэй байдуулагаар үйлчлүүлсэнд баярлалаа.

APPENDIX 5. CENTRAL GELOGICAL LAB: RESULTS OF HEAVY METAL CONTENTS OF SOIL AND SEDIMENT SAMPLES 2

Маягт ХФ-01

ГТЛ-ийн Захирлын 2011 оны
155 тоот тушаалын 1-р хавсралт

ГЕОЛОГИЙН ТӨВ ЛАБОРАТОРИ
18080 ш/х-437, Улаанбаатар хот, Сонгинохайрхан дүүрэг,
Үйлдвэрчний эвслийн гудамж, ГТЛ-ийн байр,
Утас: 976-11-632904, 632914; Факс: 976-11-632944
Цахим хаяг: info@oungeolab.com; http://www.oungeolab.com

DAP-PL-0781.00

C 002
MNS ISO/IEC 17025

ИТГЭМЖЛЭГДСЭН ЛАБОРАТОРИЙН ШИНЖИЛГЭЭНИЙ ДҮН

Захиалгын дугаар : ЦЛ 2012/0212
Захиалагчийн нэр : Энвайрон ХХК
Хаяг :
Утас : 99165110
Факс : 311938
Шинжилсэн огноо : 2012.09.13
Хуудасны тоо : 1

Нэгжийн нэр : Цацраг идэвхт материалын лаборатори
Дээжийн боловсруулалт : СБСЛ-д боловсруулсан.
Шинжилгээний арга : Рентгенфлуоресценцийн шинжилгээ
Дээжийн тоо, төрөл : 7, нунтаг дээж
Хүлээн авсан огноо : 2012.08.29

* - Олон улсын хэмжээнд итгэмжлэгдсэн арга

№	Лаб №	Дээж №	Дээжийн тодорхойлолт	Элемент, мг/кг		
				As	Pb	Cr
1	3028	Х-1 гүүр	-	18	45	49
2	3029	Х-2 0-5	-	11	27	68
3	3030	Sed-2	-	13	57	91
4	3031	Х-3 0-5	-	7	62	40
5	3032	Х-5 0-5	-	9	97	51
6	3033	Сед-1	-	11	481	23
7	3034	Х-4 0-5	-	6	25	44
Чанарын хяналт						
1	АСЗ	Шифр-2531	аттестатчилсан утга	2.28	24.81	182
			шинжилсэн утга	<5	23	185
Шинжилгээний аргын код				РФА-49*		

Тайлбар : АСЗ - аттестатчилсан стандартчилсан загвар
Энэхүү шинжилгээний дүн нь захиалагчаас ирүүлсэн тухайн дээжинд хамаарах болоод зөвхөн эх хувь нь хүчинтэй.

Лабораторийн эрхлэгч (гарын үсэг) /Б.Долгодмаа/ (нэр)

Хяналтын инженер (гарын үсэг) /Г.Цэвэлмаа/ (нэр)

Гүйцэтгэсэн инженер: Ц.Надмид (нэр)

Манай байгууллагаар үйлчлүүлсэнд баярлалаа.

APPENDIX 6. CENTRAL GELOGICAL LAB: RESULTS OF HEAVY METAL CONTENTS OF SURFACE AND UNDERGROUND WATER SAMPLES

Маягт ХФ-01

ГТЛ-ийн Захирлын 2011 оны
155 тоот тушаалын 1-р хавсралт

ГЕОЛОГИЙН ТӨВ ЛАБОРАТОРИ
18080 ш/х-437, Улаанбаатар хот, Сонгинохайрхан дүүрэг,
Үйлдвэрчний эвлэлийн гудамж, ГТЛ-ийн байр,
Утас: 976-11-632904, 632914; Факс: 976-11-632944
Цахим хаяг: info@cengeolab.com; http://www.cengeolab.com

DAP-PL-5751.00

C 002
MNS ISO/IEC 17025

ИТГЭМЖЛЭГДСЭН ЛАБОРАТОРИЙН ШИНЖИЛГЭЭНИЙ ДҮН

Захиалгын дугаар : ХФ 2012/0912
Захиалагчийн нэр : Энвайрон ХХК
Хаяг : 3Г-н III байр 123 тоот
Утас : 99884609
Факс : 311938
Шинжилсэн огноо : 2012.07.20
Хуудасны тоо : 1

Нэгжийн нэр : Хими физик аргын лаборатори
Дээжийн боловсруулалт : СБСЛ-д боловсруулсан.
Шинжилгээний арга : Хими
Дээжийн тоо, төрөл : 5, ус
Хүлээн авсан огноо : 2012.07.18

* - Олон улсын хэмжээнд итгэмжлэгдсэн арга

№	Лаб №	Дээж №	Дээжийн тодорхойлолт	Элемент, мг/л
				As
1	12279	1(1)	-	<0.01
2	12280	2(2)	-	<0.01
3	12281	3(3)	-	<0.01
4	12282	4(4)	-	<0.01
5	12283	5(5)	-	<0.01

Чанарын хяналт

1	СУ	Шифр-1818	стандарт уусмалын шүүлга	0.75
			шинжилсэн утга	0.77
Шинжилгээний аргын код				ICP-25*

Энэхүү шинжилгээний дүн нь захиалагчаас ирүүлсэн тухайн дээжинд хамаарах бөгөөд зөвхөн тх хувь нь хүчинтэй.

Тайлбар: СУ- Стандарт уусмал

Лабораторийн эрхлэгч /Д.Пүрэвжаргал/ Хяналтын инженер /Б.Буянхишиг/
(тамга) (гарын үсэг) (нэр) (гарын үсэг) (нэр)

Гүйцэтгэсэн инженер: Ч.Цэрэнхүү
(нэр)

Манай байгууллагаар үйлчлүүлсэн байрлалаа.

(гарын үсэг, нэрийн үсэг)

APPENDIX 7. SOIL AND BIOCHEMICAL LAB: RESULTS OF CHEMICAL ANALYSIS OF SOIL SAMPLINGS

ХӨДӨӨ АЖ АХУЙН ИХ СУРГУУЛЬ,
ЭРДЭМ ШИНЖИЛГЭЭ СУРГАЛТ ҮЙЛДВЭРЛЭЛИЙН "НАРТ" ТӨВ,
ХӨРС-БИОХИМИЙН ЛАБОРАТОРИ

Монгол улс, Улаанбаатар – 210153, Хан-Уул дүүрэг, 11-р хороо, Зайсан, Мал аж ахуйн эрдэм шинжилгээний хүрээлэнгийн байр, 406, 415, 419 тоот
Ш/х 53/10 ХААИС
Утас: (976)-98006123, 98001838Факс: (976-11)-341377
E-mail: nartcenter@msua.edu.mn

20 12 оны 08 сарын 31 өдөр

Зинайран

Хөрсний химийн задлан шинжилгээний дүн

№	Дээж	pH	Давс, %	ЦДЧ, dS/m	CO_2, %	Солилцох суурь, мг-экв 100гр		Ялзмаг, %	NO_3, мг/100гр	Шим тэжээлийн элементүүд мг/100гр	
						Ca	Mg			P_2O_5	K_2O
1	P-1 0-20	8.2	0.05	0.190	0.16	13.4	4.2	1.56	1.10	[illegible]	[illegible]
2	25-35	8.5	0.04	0.141	0.16	16.8	2.4	1.17	0.03	[illegible]	[illegible]

Механик бүрэлдэхүүний задлан шинжилгээний дүн

№	Дээж	Механик ширхэгүүд % ширхэгийн хэмжээ, мм						
		1-0.25	0.25-0.05	0.05-0.01	0.01-0.005	0.005-0.001	<0.001	<0.01
1	P-1 0-20	1.6	56.0	20.6	6.0	9.1	6.2	21.9
2	25-35	13.0	40.5	17.5	25.2	1.9	1.8	28.9

Хөрсний шинж чанарын үзүүлэлтүүдийг:

1. Хөрсний урвалын орчин- Усан бэлдэц дээр хэмжих ионометрийн арга
2. Хөрсний ялзмаг- Тюрины арга, %
3. Хөрсний нитратын азот- усан хандаар потенциометрийн арга мг/100гр
4. Хөрсний хөдлөнгийн фосфор (P_2O_5) - 1% нүүрс хүчлийн аммонийн уусмалд Мачигины арга, мг/100гр хөрсөнд
5. Хөрсний хөдлөнгийн кали- 1% нүүрс хүчлийн аммонийн уусмалд, дөлийн фотометрийн арга, мг/100гр хөрсөнд
6. Хөрсний давсжилт- ионометрийн арга, %
7. Хөрсний механик бүрэлдэхүүн- Качинскийн аргаар, %
8. Хөрсний цахилгаан дамжуулах чадвар- ионометрийн арга, dS/m
9. Солилцох суурийг- комплексметрийн аргаар, мг-экв/100гр
10. Хөрсний карбонатын агууламж, кальциметрийн арга, % зэрэг стандарт аргуудаар тодорхойлов

МОНГОЛ УЛС ХААИС "НАРТ" ТӨВ

Лабораторийн эрхлэгч Г. Солонго /Ph.D/
Задлан шинжээч Ч. Уранхайч /McS/

APPENDIX 8. PUBLIC HEALTH BACTERIOLOGICAL LAB: RESULTS OF BACTERIAL CONTENT OF SURFACE WATER

ЭРҮҮЛ МЭНДИЙН ЯАМНЫ ХАРЪЯА
НИЙГМИЙН ЭРҮҮЛ МЭНДИЙН ХҮРЭЭЛЭН

2012 оны 10-р сарын - ны өдөр № 774 Улаанбаатар 211049 Утас: 452774

Шинжилгээний хариу

Шинжилгээ ирүүлсэн байгууллага:	"Environmental Consulting"
Шинжилгээ ирүүлсэн огноо:	2012-10-03
Сорьц, шинжилгээ авсан хүний нэр, албан тушаал:	Б.Доржханд ЭЗБАСЛ-ийн бактериологич
Лабораторид хүргэсэн хүний нэр, албан тушаал:	Хишигсүрэн
Шинжилгээ авсан эх үүсвэр:	Дунд голын ус
Сорьцийн нэр:	Цэвэр саванд 0.5л-ээр 1ш дээж

Шинжилгээний дүн :

Д/д	Дээж №	Нянгийн тоо	Гэдэсний бүлгийн бичил биетэн	Анаэроб бичил биетэн	Гэдэсний бүлгийн эмгэг төрөгч
	Стандарт үзүүлэлт	100 MNS 900-2005	0 MNS 4697-98	Илрэхгүй MNS 7939:2000	Илрэхгүй MNS 6340-2003
1	1	$5x10^4$	*E.coli* илрэв	*Cl.perfringens* илрэв	Эмгэгтөрөгч илрээгүй

НЭМТЛ-ийн захирал,
БШУ-ны доктор, проф, академич Ц.Энхжаргал

Шинжилгээ гүйцэтгэсэн: Бактериологич Б.Доржханд

APPENDIX 9. GEO-ECOLOGICAL INSTITUTE WATER LAB: RESULTS OF CHEMICAL ANALYSIS OF WATER SAMPLINGS

Geoeco

ШИНЖЛЭХ УХААНЫ
ГЕОЭКОЛОГИЙН ХУР
ШИНЖИЛГЭЭНИЙ Л

Усны химийн шинжилгээний тодорхойлолт

Сорьц авсан: 2012 оны 07 сарын 09 өдөр

Шинжилгээ хийсэн 2012 оны 07 сарын 09 өдөр

Сорьц авсан газрын нэр: Хан-Уул дүүрэг, Гадаргын усны Дунд гол, "Илч Хангай"ХХК - эйм

Сорьц шинжлүүлсэн байгууллага, хувь хүн: "Энвайрон" ХХК

Солбицлол X= Гүн : м

Y= Ундарга: л/с

Уст цэгийн төрөл ба дугаар: гол

Анион	1 дм³ -д байгаа мг	мг-экв	мг-экв%	Катион	1 дм мг	м
Cl^-	23.08	0.65	20.40	$Na^+ + K^+$	15.42	
SO_4^{--}	25.00	0.52	16.34	Ca^{++}	40.08	
NO_2^-	0.00	0.00	0.00	Mg^{++}	6.08	
NO_3^-	1.00	0.02	0.51	NH_4^+	0.30	
CO_3^{--}	0.00	0.00	0.00	Fe^{++}	0.00	
HCO_3^-	122.00	2.00	62.76	Fe^{+++}	0.00	
Дүн	171.08	3.19	100.00	Дүн	61.88	

HCO_3^- ийн хэмжээг хасан анион катионуудын Анион

нийлбэр: 171.95 мг/ дм³ нийлбэр:

Хуурай үлдэгдэл: 176.00 мг/ дм³

Ус ангилагч чулуулгийн

Ерөнхий хатуулаг: 2.5 мг-экв/ дм³ Онцлог тод

pH: 7.90 EC:

Исэлдэх чанар: 3.92 мг/ дм³ TDS:

Физик чанар: жинлэгдэх бодис: 29.54

Тунгалаг: 15 см Ерөнхий шүлтлэг 44

Өнгө: бор Чөлөөт CO_2 9.80

Үнэр: балл Идэмхий CO_2 2.90

Амт: - балл

Тунадас: шороотой

Усны нийлэгийн томьёо: $M_{0.2}\frac{HCO_3^-63\ Cl20\ SO_4}{Ca^{2+}63\ Na^+ + K^+21}$

Дүгнэлт

Хөөфэн бүрэлдэхүүнээрээ гидрокарбонатын амт бүлгийн, 2-р төрлийн, цэнгэг, эвлэлэн ус ба Гадаргын усны шинжийн зэргийн ангилалын норм "Болорцолтой" гэсэн ангилалд хамаарч байна. Ус у уяуулалтууд мө Монгол улсад мөрдөж байгаа бариллын зуурмаг хэрэглэх усны УСТ 3821-8 шаардлага хангаж байна.

Шинжилгээ хийсэн:
Химич _____ /Б.Баттуул/

Шалгаж, дүгнэсэн:
Эрдэмэч: доктор, Ph.D _____ /М. Энхтуул/

APPENDIX 10. FIRST PUBLIC CONSULTATION MEETING ON AJILCHIN FLYOVER PROJECT

Meeting place: Meeting room of Suuri LLC, Industrial Road, Bayangol District Ulaanbaatar city.
Meeting date: 2 PM, 27 July 2012.
Meeting started at 2 PM and ended 4 PM.
Meeting participants:

1. N. Erdenesaikhan, director of consulting company Environ LLC, team leader of Environmental and social survey.
2. G. Hasbaatar, specialist of UB Road department
3. O. Enkhtuya, specialist, Resettlement Division, UB Land department
4. D. Chinzorig, engineer, UB Railway Joint Venture
5. Ch. Erdenedalai, State inspector, Department of Railway
6. B. Munkhzul, representative, Mongolian Association for Conservation Nature NGO
7. B. Tumenjargal, representative, Environment and Security Center of Mongolia NGO
8. O. Chimeddorj, vice director, Khuvsgul Trade LLC
9. B. Davaadulam, manager, Global Shariin Gol LLC
10. B. Ulambayar, engineer, Tsuurden LLC
11. B. Otgonbayar, engineer, NRTS LLC
12. E. Chgnaasuren, manager, Suuri LLC
13. B. Solongo, lawyer, Gobi LLC
14. J. Khorloo, Advisor to Director, Suuri LLC
15. J. Demberel, manager, Wagner Asia LLC
16. Ts. Ganbaatar, manager, Mon Karotage LLC
17. D. Erdenebaatar, manager, Metal Trade LLC
18. Kh. Ariunzaya, spokesperson, Suuri LLC
19. P. Tuvdendorj, lawyer, Environ LLC
20. G. Undralbat, EIA manager, Environ LLC
21. D. Lhamsuren, manager, San Industrial LLC
22. D. Munkhbayar, resident, Gobi 88
23. D. Erdenebaatar, resident, Gobi 88
24. Kh. Munguntuya, resident, Gobi 88
25. T. Munkhbold, resident, Gobi 88
26. M. Ganbat, supervisor, CTI engineering LLC

Protocol was made by Tuvdendorj, lawyer of Environ LLC.

Mr. Erdenesaikhan opened meeting and thanked all participants for their coming and introduced purpose and agenda of the meeting. The purpose of the meeting was to introduce about the start of Flyover project's environmental and social studies, which would provide pros and cons of the project in terms of surrounding environment and residents and entities located within and nearby project. With this, all participants have an opportunity to express their views upon receiving all information related to this project. He explained that this project is implemented by the UB Road department and Environ was hired to conduct the EIA and resettlement studies. JICA supports the current studies.
Mr. Hasbaatar made a short presentation on policy and programs of UB road department to improve road network and reduce traffic jams. He briefed about UB plan on proposed flyover bridges in the 7 intersections, including Ajilchin Flyover project.
Mr. Erdenesaikhan made a short presentation on environmental and social studies to be take place in conjunction with Ajilchin Flyover project and introduced about EIA and Resettlement plans. He also explained the Right of Way of project, based on recently acquired blueprint and about the affected households and entities.
He emphasized all current studies focused to identify possible negative and positive changes in surrounding environment and social elements during construction and exploitation of Flyover project and elaborate ways to reduce the negative changes and to disseminate and share all findings with all stakeholders including residents and economic entities located in and around project site.
Ms. Enkhtuya briefly introduced about the UB Land department policies on resettlement issues related with ongoing and planned infrastructure projects.

Question and answer session:
Demberel Wagner Asia LLC: regarding the RoW picture, you would need to have a very clear delineation of affected objects and nearby objects in the picture. When this info will be available?
Erdenesaikhan: as soon as we get the detailed RoW, we will visit each affected entities and households and explain to relevant persons and identify the size and impacts.
Erdenedalai, Railway inspector: why road width while intersecting with the Railway?
Hasbaatar: there is in and out road traces to flyover bridge and therefore it is looks wide. We have reviewed several routes before reaching the consensus with all decision makers in our department and consultants.
Chinzoring, Railway Joint Venture: As current railway organization is joint venture of Russia and Mongolia, we cannot solve this issue (meaning that several infrastructures and buildings of this organization are affected by the project) without negotiation with our partner. Also, we kindly

request you to make presentation in our organization so that relevant people get more clear picture of Ajilchin Flyover project.
Erdenesaikhan: We plan to make the public meeting 2 times and one public meeting on resettlement plan. We will discuss about your request and let you known soon.
Khorloo, Suuri LLC: As this is very important project, those, who plan to do this project need to have a long term perspective so that all current and possible future problems are solved within this project. Meaning that make double passes, allow heavy trucks to use this flyover, use of land beneath Flyover Bridge etc.
Enkhtuya, Land department: Existing legal environment is not suitable to current situation on resettlement and compensation. For example, we use outdated rate of land resettlement compensation of government on 2005, which is MNT13,200 per square meter of land and which does not reflect current market price. Also, I recommend to review certificates/licenses of your immovable properties and land if these are legal and or meet legal requirements etc. if everything is legal, then, it is easier for affected person.
Munguntuya, resident: is government going to change current decree on land valuation?
Enkhtuya, Land dept: we are discussing about a draft law on resettlement. If this law passes via parliament, the government would be changing the valuation rate.
Demberel, Wagner Asia: I would like to thank organizers of this meeting. From my previous experience, those who implements project, worked forcefully without taking permission from affected people. I appreciate your approach to introduce first about the start of study to be taken place before the Flyover project. This gives opportunity for possible affected people to make changes on their plans or postpone the decision, if someone starts to invest on land.
Hasbaatar, UBRD: Can you provide Railway authority view on possible two routes of railway via UB?
Chinzorig, UB railway: yes, we have provided all relevant info to JICA study team. Our request is not to cross the future road with railway. Again remind, we will be very happy if your project makes a presentation about the Flyover project among our Railway decision makers. One would need to understand that railway is joint venture of two countries.
Hasbaatar, UBRD: yes, we understand this situation. Let’s agree on timing for making presentation via communication.
Erdenesaikhan thanked all participants for their visit and active participation and provided contact address in case of info request and comments.

APPENDIX 11. INVITATION AND AGENDA OF FIRST PUBLIC MEETING

INVITATION FOR PUBLIC MEETING

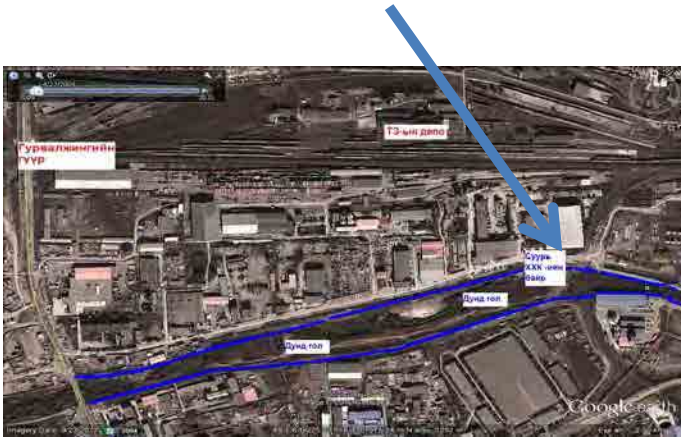
Dear invitee . . . . (name of person/director of entity)

Under auspices of the cooperation agreement between the Japanese International Cooperation Agency of the Government of Japan, the Ministry of Road, Transport, Construction and Urban Development of Mongolia and Ulaanbaatar Municipality, the feasibility study on Ajilchin Flyover project is ongoing to date. Within the framework of this feasibility study, an environmental and social impact study is being carried out by the Environ LLC, a government authorized research entity.

In connection with the study, the Public Consultation Meeting to disclose information on proposed study activities and disseminate to all population and entities located in and around the project territory is now being announced.

I kindly invite you to attend this event and receive most recent info and express your opinions regarding the proposed study.

The event will be take place at 2PM on 27th July of 2012 in the Conference room of SUURI Company, which is located in the north east of Dund River Road. Location of Suuri Company is shown on the map below:



EIA Team of ENVIRON LLC.

Meeting agenda

14.00	-	14.10	Registration/tea and coffee
14.10	-	14.20	A short intro on Ajilchin Flyover project, - Mr. Hasbaatar, specialist of UBRD
14.20	-	14.40	Question/clarifications
14.40	-	15.00	EIA and Resettlement study plans and current activities – Mr..Erdenesaikhan, study team leader and director of Environ LLC
15.00	-	15.15	Question/clarifications
15.15	-	15.30	Current land ownership and resettlement policy of UB municipality – Ms. Enkhtuya, specialist of UB Land department
15.30	-	15.45	Question/clarifications
15.45	-	15.55	current policy of UB Railway to support in development of UB road network – Mr. Chinzorig, representative of UBTZ, a Russian Mongolian Joint venture.
16. 10			Meeting closing

Meeting related questions and clarification can be obtained from Mr. Tuvdendorj, coordinator of social events and lawyer of Environ LLC through the following phones 9100-0331 (cell) and 311938 (office).

APPENDIX 12. PICTURES OF FIRST PUBLIC MEETING

APPENDIX 13. LIST OF PARTICIPANTS OF A MEETING ORGANIZED FOR MANAGEMENT STAFFS IN THE CONFERENCE ROOM OF THE MONGOLIAN –RUSSIAN RAILWAY JOINT VENTURE

"Ажилчны гудамжны гүүрэн гарц" төсөл

Олон нийтийн уулзалтанд ирсэн албан байгууллагуудын жагсаалт

Д.д	Байгууллагын нэр	Хүний нэр	Албан тушаал	Гарын үсэг	Холбоо барих утас, хаяг
1	"УБТЗ" ХНН	Д. Чинзориг	инженер	[illegible]	99095214
2	МВОХ Холбоо	Б. Мөнхзул	хэ-бо ажилтан	[illegible]	99059262
3	Нийслэлийн гудамж зам	О. Батцэцэг	Газар зохион байгуулагч	[illegible]	96641021
4	Хөвсгөл трейд ХХК	О. Чимэддорж	Ерөнхий захирал	[illegible]	99900802.
5	НАЗГазар	Г. Хасбаатар	Төслийн нэгжийн зохицуулагч	[illegible]	99990181
6	Глобал Шарын Гол	Б. Давааджаргал	референт	[illegible]	99965082
7	Бүгдээр	Б. Чойдорж	инженер	[illegible]	99110884
8	[illegible] ХХК	Б. Отгонбаяр	Инженер	[illegible]	91811621
9	Сүлжээ ХК	Э.Чагнаасүрэн	Менежер	[illegible]	94089099
10	Хөх ХК	Б. Сэлэнгэ	Хуульч	[illegible]	86646678.
11	Төмөр замын газар	Ч. Эрдэнэцэцэг	хяналтын улсын байцаагч	[illegible]	99098684
12	Сүлжээ ХК	Ж. Дорлиг	Зөвлөх	[illegible]	98181284
13	Вагнер Ази	Ж. Энхбаяр	менежер	[illegible]	99096152
14	Монгол [illegible] ХХК	Ц. Ганбаатар	Менежер	[illegible]	99023132.
15	Монгол [illegible]	Д. Эрдэнэбаатар	менежер	[illegible]	96682690
16	Сүлжээ ХХК	Ж. [illegible]	менежер	[illegible]	88535059 88118189
17	[illegible] Сангийн Өмчийн Байгууллага ТББ	Б. Гантулга	захирал	[illegible]	91910212
18	Эвсаран ХХК	А. Эрдэнэбаатар	захирал	[illegible]	91910321
19	Энергия ХХК	П. Түвшинбаяр	ажилтан	[illegible]	91000881
20	Энэргон ХХК	Г. Энхрэлбат	менежер	[illegible]	99884609.
21	САН ИНДУСТРИАЛ	Д. ЛХАМСҮРЭН	менежер	Д. ЛХАМСҮРЭН	96659956
22	СТI инженеринг	М. Ганбат	ахлагч		88177744

“Ажилчны гудамжны гүүрэн гарц” төсөл

Олон нийтийн уулзалтанд ирсэн айл өрхүүдийн жагсаалт

Д.д	Өрхийн тэргүүлэгчийн нэр	Гарын үсэг	Холбоо барих утас, хаяг
1	Д. Мөнхбаяр	[signature]	99163149 Ухаа(?) ХУД 3-р хороо 81 тоот
2	Д. Эрдэнэбаатар	[signature]	ХУД - 3-р хороо үйлдвэр Говь 88 тоот 88447887
3	Ж. Мөнхтуяа	[signature]	ХУД - 3-р хороо Говийн 10 тоот
4	Ш. Мөнхболд	[signature]	ХУД - 3р хороо 99085574 Говь-ийн 88.
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APPENDIX 14. LIST OF PARTICIPANTS OF A MEETING ORGANIZED FOR MANAGEMENT STAFFS OF RAILWAY IN THE CONFERENCE ROOM OF THE MONGOLIAN –RUSSIAN RAILWAY JOINT VENTURE

The following representatives of subsidiary organizations of Mongolian –Russian Railway Joint Venture (MRRJV), which some areas and buildings affected by proposed Flyover project trace, have participated in the conference room of Railway Head Quarter, where EIA study team has made presentations on current results of EIA and Social impact study of Ajilchin flyover feasibility study that is going to be built over the UB railway.

1. Chief of Technical Policy and Projects Center Erdenebulgan.Sh
2. Vice chairman of Signalization Communication, Energy Authority Sukhbaatar.Ts
3. Vice chairman of Security Service Delgersaikhan.U
4. General engineer of Passenger's Transportation Authority Tsogtgerel
5. Chief of Passenger Coach Depot Dorjbat.L
6. Chief engineer of Passenger Coach Depot Jamiyansuren
7. General engineer of Energy brigade No.1 Enkhtaivan.M
8. General engineer of Signalization brigade No.2 Gungaajantsan.L
9. General engineer of UB station Munkhtsooj.Ts
10. Chief of UB railway Fire department Bayrjargal.Yu
11. Engineer of Construction and Usage department Chintuya.P
12. Engineer of Technical Policy and Projects Center Chinzorig.D

As result of this meeting, Railway authority has send a letter addressed to the head of UB Road Department on views and concerns of MRRJV regarding the proposed Flyover project.
A translation copy of this letter is attached in annex 15

APPENDIX 15. A COPY OF TRANSLATION OF LETTER FROM RAILWAY AUTHORITY ON FLYOVER PROJECT.

UNOFFICIAL TRANSLATION OF THE LETTER SENT FROM MR. ERDENEBULGAN, HEAD OF THE CENTER FOR TECHNICAL POLICY, DRAWING AND PROJECT OF UB RAILWAY (UBTZ)

Address: 210535 Zamchny str 1, Bayangol District
Ulaanbaatar
Phone: 244840
Fax: 242202, 244490

Date: 15th of October 2012. Letter No. 13/276

Attn: CAPITAL CITY ROAD DEPERTMENT

Re: Comments on Ajilchin Flyover project

Herewith, we are delivering the comments and some recommendations regarding the feasibility study on Ajilchin flyover project, in which route some of subsidiary organizations of UBTZ are being affected.

1. A Russian- Mongolian joint venture 'Ulaanbaatar railway' has been established in 1949 in accordance with the agreement built between the governments of former Mongolian People's Republic and Soviet Union. As per the chapter 5 and provision b of this agreement, it points out that the buffer zone of 120 meters along entire railway route as well as of 300 meters, where railway stations located, are given to the UBTZ for its use with no expiry date indicated. So, one would need to find out a solution, how to allocate land replacement costs in this situation.
2. International fiber optical cables, technological cables as well as electrical cables that provide safety of railway locomotives and energy supply for traffic signals and other important constructions are allocated along the railway main route and subroutes. These are needed to be taken into consideration while developing the proposal.
3. If there is relationship or coordination of Flyover project with ongoing work of 1.06 km road renovation/expansion, which takes place in the west part Narny road within the territory of 4th khoroo of Bayangol district.

Regarding the affected constructions and building:

4. Passenger's locomotive station is the only enterprise in Mongolia, which in charge of maintenance, repair and passenger transportation nation-wide. It needs to ensure it's continues activity.
5. Auto transport center and fuel distribution station are provide all transportation services to ensure everyday operations of railway.
6. Railway Fire station also plays role to ensure fire safety at Railway in 24 hours and a part of fire safety operations of UB city. In order to displace this organization, one would need to agree with Capital city Emergency Department and other relevant organizations, prior.
7. The repair workshop of the Second division of Railway is in charge of ensuring traffic safety of locomotives in main routes and subroutes and everyday maintenance repairing works
8. Storehouses for vegetables are play important role to provide foods to various employees living along railway routes as well as serve as luggage upload and unload platforms.

In addition, there is a plan to construct a new railway station and as well as other development plans and all of these need to be taken into consideration

Copies of this letter are sent to the following organizations:

- UB Land Department
- Ajilchin Flyover Project Feasibility Study Team
- Environmental consulting company ENVIRON LLC

SH. ERDENEBULGAN DIRECTOR

APPENDIX 16. AGENDA OF SECOND PUBLIC CONSULTATION MEETING

ENVIRON

INVITATION FOR PUBLIC MEETING

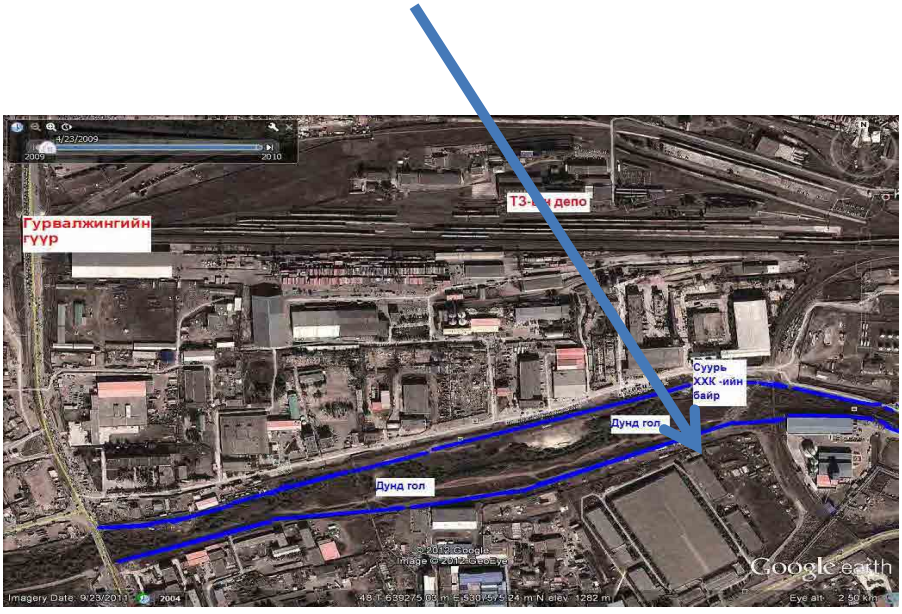
Dear invitee ……. (Name of person/director of entity)

Under auspices of the cooperation agreement between the Japanese International Cooperation Agency of the Government of Japan, the Ministry of Road, Transport, Construction and Urban Development of Mongolia and Ulaanbaatar Municipality, the feasibility study on Ajilchin Flyover project is ongoing to 2012. Within the framework of this feasibility study, an environmental and social impact study is being carried out by the Environ LLC, a government authorized research entity.

In connection with the study, the Second Public Consultation Meeting to disclose information on the findings of study results and disseminate to all population and entities located in and around the project territory is now being announced.

I kindly invite you to attend this event and receive most recent info and express your opinions regarding the proposed study.

The event will be take place at **3PM on 17th November 2012** in the Conference room of SUURI Company, which is located in the north east of Dund River Road. Location of Suuri Company is shown on the map below:



EIA Team of ENVIRON LLC.

MEETING AGENDA

15.00	-	15.10	Registration
15.10	-	15.20	A short intro on Ajilchin Flyover project, - Mr. Hasbaatar, specialist of UBRD
15.20	-	15.40	Question/clarifications
15.40	-	16.00	A short intro results of EIA report and Resettlement study plan – Mr. Erdenesaikhan, study team leader and director of Environ LLC
16.00	-	16.15	Question/clarifications
16.15	-	16.30	Results of property valuation of affected HH and entities and resettlement action plan under the Ajilchin Flyover project – Mr. Tuvdendorj, study team member and Social study expert of Environ LLC
16.30	-	16.45	Question/clarifications
16.45	-	16.55	Issues on legal environment for resettlements and grievance redress mechanism– Ms. Enkhtuya, specialist of UB Land department in charge of resettlement
16.55	-	17.05	Question/clarifications
17.10			Meeting closing

Questions and clarifications on this meeting can be obtained from Mr. Tuvdendorj, coordinator of social events and lawyer of Environ LLC through the following phones 9100-0331 (cell) and 311938 (office).

APPENDIX 17. A COPY OF MINUTES OF MEETING OF 2ND PCM

"Ажилчны гудамжны гүүрэн гарц" төсөл

Олон нийтийн уулзалтанд ирсэн албан байгууллагуудын жагсаалт 2012 оны 11-р сарын 16

Д/д	Байгууллагын нэр	Хүний нэр	Албан тушаал	Гарын үсэг	Холбоо барих утас
1	Хө Бстаа итрейд ХХК	Л. Мөнхтуяа	менежер		99110347
2	Цуурдан ХХК	Л. Энхжаргал	захирал		99180996
3	Цуурдан ХХК	М. Батцэрэн	Нягтлан		88078117.
4	Вагнер Ази ТТ. ХХК	Ц. Баярзаяа	Архитектор		99281225
5	НАЗГ	Хасбаатар	Төсөл хэрэгжүүлэх нэгж		99990181
6	НГА.	Энхтуяа	Төрийн бус байгууллага		96641021
7	Бадрал ХХК	М. Алтан-Очир	Д/захирал		91112130
8	"Метал трейд" ХХК	Д. Эрдэнэбаяр			96692550
9	Бэлэх Суурь ХХК	Д. Эрдэнэбаатар			96682690
10.	Суурь ХХК	Б. Бадрах	инженер		99225545
11	Жаст ОЅн ХХК	Ш. Алтанхуяг	инженер		88050071
12.		Ц. Ган-Од	хуульч		99110899
13.	МонКонстан ХХК	Н. Зоригоо Болормаа	Захирал.		99117369.
14	Тэвагрон ХХК	Н. Эрдэнэ [illegible]	[illegible]		99910331
15.	Эс Жи Би Юу ХХК	Я. Сайнбаяр	Захирал		91011533.
16	ЭмОТиЭл ХХК	А. Рэнчиндорж	Менежер		99919910
17	Бадрал ХХК	С. Самбалхүү	менежер	С. Самбалхүү	88113992
18	Суурь ХХК	Цолмон	Дизайнер		88740421
19	Суурь ХХК	Батмөнх	хуульч		99646333
20	Байгаль орчин ... ТББ	Ж. Тамирбаатар		Ж. Тамирбаатар	99130131
21	САНГАА ПҮРЭВ				98664006

22.	Environ LLC.	Ц. Ундралцэцэг	менежер	Ц. Ундрах	99667363
23.	Хувиараа	Б.Мөнхбаясгалан			99947281
24	"Цэнхэр гараг" ТББ.	Б. Түмэнжаргал	Тэргүүн	[illegible]	91910212
25	Хувиараа	Доржсүрэн		[illegible]	99185031
26.	"[illegible]" ХХК.	[illegible]	ахлах [illegible]	[illegible]	91000837

APPENDIX 18. LIST OF PARTICIPANTS OF 2ND PCM

MINUTES OF MEETING

ON THE SECOND PUBLIC CONSULTATION MEETING FOR DISCLOSING THE RESULTS OF DETAILED ENVIRONMENTAL IMPACT STUDY AND LAND ACQUISUTION AND RESETTLEMENT STUDY REPORTS

Date: 16 November 2012

Venue: Conference room of Suuri LLC, 4th Khoroo, Bayangol District, Ulaanbaatar city

Names of participants:

1. Mr. Munkhchuluun, manager, Khuvsgul Trade LLC
2. Mr. Enkhmend, Director, Tsuurden LLC
3. Ms. Batsuren, accountant, Tsuurden LLC
4. Mr. Gayabazar, manager, Wagner Asia LLC
5. Mr. Khasbaatar, officer, Ulaanbaatar city Road Department
6. Ms. Enkhtuya, officer in charge of resettlement, UB Land Administration Department
7. Mr. Altan ochir, Deputy director, Badral LLC
8. Mr. Erdenebayar, manager, Metal trade LLC
9. Mr. Erdenebaatar, inhabitant of 4th khoroo Bayangol district
10. Mr. Badrakh, manager, Suuri LLC
11. Mr. Altansoyombo, manager, Just Oil LLC
12. Mr. Gan Od, lawyer, Just Oil LLC
13. Mr. Zorigtbaatar, Director, Mon karotage LLC
14. Mr. Erdenesaikhan, Director, Environ LLC
15. Mr. Sainbold, Director, SJBU LLC
16. Mr. Rinchendorj, manager, NOTS LLC
17. Mr. Sanjaa, manager, Badral LLC
18. Mr. Tsendsuren, human resource manager, Suuri LLC
19. Mr. Tumurbaatar, public relations officer, Environment and Health NGO
20. Mr. Purev, inhabitant, of 4th khoroo Bayangol district
21. Ms. Undraltsetseg, EIA manager, Environ LLC
22. Ms. Munkhbayasgalan, resident of Gobi 88, 3rd Khoroo, Khan uul district
23. Ms. Tumenjargal, chairwomen, Blue Planet NGO
24. Mr. Dorjsuren, inhabitant of household living on the shore of Dundgol River
25. Mr. Tuvdendorj, social study expert, Environ LLC

Issues for discussion:

Disclosure of information to public on the study of Environmental Impacts of Proposed Ajilchin Flyover Bridge

Disclosure of information to public on the study of Land Acquisition and Resettlement

The opening of the information disclosure was made by Mr. Erdenesaikhan. He introduced that this is the second time we invited people from the area, where Flyover bridge project is proposed. In first meeting, we introduced about the necessities of Flyover Bridge and that it is included into the General Development Plan of Ulaanbaatar City. We met with all potentially affected entities and citizens and provided related info and in turn gathered info from them. We appreciated cooperation from those who provided info.

As per our plan of studies on DEIA and LARP, which were shared with you in our first meeting, the study teams have worked for three months to identify all potential negative and positive impacts on surrounding environment and society and to develop possible actions to eliminate all identified negative impacts, if not possible then to mitigate and minimize. We are going to share with you the results of these studies and get your comments and feedback. I would like to emphasize that the main purpose of LARP study is to fully compensate all affected entities and citizens so that no one is worsened off and everyone benefits because of the project.

As in the meeting agenda, Mr. Khasbaatar, specialist of Ulaanbaatar Road Department made a short speech.

In accordance with City Development Plan, there are 8 flyover bridges will be built and among them Ajilchin Flyover. The feasibility study has been done and within which, Environ conducts studies on DEIA and LARP and nearing completion. There are three alternatives on Flyover bridge direction have been studied and east –west direction was selected as the most suitable and less cost one. The main reason for selecting this direction was to link industrial zone with residential zones of Ulaanbaatar and to reduce the heavy traffic volume created currently. In addition, it will be very necessary for development of satellite cities and balancing the traffic volumes.

Mr. Erdenesaikhan introduced results of DEIA study: air, water, soil quality, lab results of surface and underground water and soil samplings; noise and vibration levels, wildlife, aquatic life, plants and impacts and the proposed actions to reduce impacts and environmental management and monitoring plans to follow, when project progresses.

Question and answers:

Mr. Altanochir (Badral LLC): from my observation, air pollution is not due to concentration of vehicles as Erdenesaikhan stated but, too much concentration of too many construction factories and markets that sell construction materials in this area. These need to be moved out of city. With this, I am not agree with your proposal to reduce traffic volume through affecting our business and taking part of our land. If you like to build, why you do not build road along and above

Dundgol River? Once river is polluted as your study discovers, then one can construct columns along both sides of shore and make road. It does not need make too broad road and impact person's property.

Mr. Erdenesaikhan: I understand your concern. It was not decision of only this study. A feasibility study for various alternatives for reducing the traffic volume was done and many road and traffic experts are involved and various factors have been analyzed and that resulted in a final route.

Zorigtbaatar (Mon Karotage LLC): can you show whose objects are affected and how much are those affected?

Mr. Tuvdendorj (Social study expert on LARP) shared the results of LARP: introduced the ultimate goal of LARP, legal environment of Mongolia and JICA guidelines, resettlement impacts: affected entities, citizens and properties; compensation and livelihood restoration measures; grievance redress mechanism and LARP implementation arrangements, M&E of LARP.

Ms. Enkhtuya (Land Administration Department): with introducing impacts of project to population and entities, we officially announce the Cut -of- Date for receiving compensation and or any other assistance for resettlement. Cut -of- Date means no one/entity will be allowed by the Land Administration department to newly settle in this area and extend their land. Also no one from today who moved to this place will be able to receive any assistance for resettlement.

Altansoyombo (Just Group LLC): Who defines this Cut-of-Date? Is there any provision in regulation?

Enkhtuya: there is no definition on this in regulation but once there is no regulation, we follow international best practices and JICA guidelines. It is essentially means to restrict those people, who tries to make profit on others issues.

Mr. Altanochir (Badral LLC): Mongolia has very bad regulatory basis for land resettlement. In addition to this, recently there was road expansion in front of our entity. Why talking another expansion?

Mr. Tuvdendorj: Yes, we agree that we have a weak regulation on land acquisition and resettlement. Existing legal gaps are complemented by regulatory measurements on this project, which JICA and World Bank have been applying successfully for many countries. Moreover, a

draft law on Land Acquisition and Resettlement is being discussed publicly and if this passes through the Parliament, the legal environment will be much improved.

Ms. Enkhtuya: there was not many practice before for this type of public projects to inform all people, study impacts and disseminate related results as with this project. We appreciate the project proponents. I understand your concerns on your property and land, but you have to conscious about your citizen's duty. Public interest is also essential.

Ms. Enkhmend (Tsuurden LLC): I understood from the study that there is no clear info on our company's land permission license. We have a land permission license until 2013.

Mr. Tuvdendorj: We have all official info on land license from Land Administration Department and we have not found license info on your company. We have been requesting related info several times, but it resulted in no info. It is in your interest to provide all necessary info to the study team.

Mr. Munkhchuluun (Khuvsgul trade LLC): ROW line passes through a water reservoir of 200 m3 located to the northwest corner of our company. Is it possible not to dismantle the reservoir?

Mr. Erdenesaikhan: the part of Flyover Bridge will be constructed on air along your portion of land. I am not quite sure if the bridge columns will be created exactly on your land. Even if columns will not be in your land, it will be impacted by construction process.

Mr. Zorigtbaatar (Mon Karotage LLC): to the north of my company, there is garden area of Mongol Tulkhuur LLC. Can't you move ROW to this garden area instead of passing through my entire land area? I am not against of improving the road. Regarding the property compensation, you should be aware while making valuation that costs will be changed with passing years.

Mr. Erdenesaikhan: regarding compensation and livelihood restoration strategy, affected person's living condition should not be reduced with project implementation. I would like to re-emphasize Tuvdendorj's introduction of resettlement results. As was explained, every affected person/entity will receive compensation/assistance differently according to the provisions indicated in the entitlement matrix.

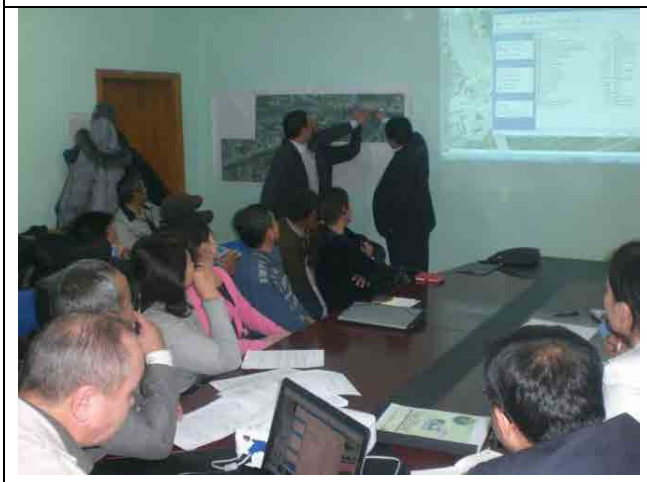
Mr. Altansoyombo: Once Ulaanbaatar city will not be moved to another location, the responsible organizations should make a good planning so that traffic volumes are adjusted and coordinated in roads between the flyover bridges. Otherwise, with building a flyover it shifts traffic jam into another roads.

Gayabazar (Wagner Asia LLC): I very much appreciate that study team policy on resettlement supplements gaps in Mongolian legislation and it ensures that affected people will be suffered with construction of Flyover Bridge.
Tumurbaatar (NGO): When the construction of flyover will be started?
Mr. Khasbaatar: Once the loan agreement on flyover construction will be established between Mongolian and Japanese governments. If very optimistic, we anticipate agreement may be in 2014, otherwise in 2016 or after.
Thank you for coming and providing comments and feedback.

Meeting ends.

APPENDIX 19. PICTURE TAKEN AT 2ND PCM






Appendix-10

Land Acquisition and Resettlement Action Plan

JICA

PREPARATORY SURVEY

FOR

AJILCHIN FLY-OVER CONSTRUCTION PROJECT

IN

ULAANBAATAR CITY

LAND ACQUISITION AND RESETTLEMENT PLAN

DECEMBER 2012

ABBREVIATIONS

AH	Affected household
AP	Affected person/entity
EMA	External monitoring agency
GAF	Grievance action form
GOM	Government of Mongolia
HH	Household
IRP	Involuntary Resettlement Policy
LAR	Land Acquisition and Resettlement
LARF	Land Acquisition and Resettlement Framework
LARP	Land Acquisition and Resettlement Plan
M&E	Monitoring and evaluation
MRT	Ministry of Roads and Transportation,
NGO	Nongovernment organization
OP	Operational Policies (World Bank)
PAPs	Project Affected Persons
PIU	Project Implementation Unit
ROW	Right of way
WG	Working Group

DEFINITION OF TERMS

Affected Household (AHs): All persons residing under one roof and eating from the same kitchen, who are adversely affected by the Project, or any of its components; may consist of a single nuclear family or an extended family group

Project affected People/ Entity (PAPs): Any person/entity affected by loss of assets, income or business due to Project-related changes in the use of land, water or other natural resources

Compensation: Cash or in-kind payment of the replacement cost of an asset lost due to Project-related impacts

Entitlement: Range of measures comprising compensation, income restoration, transfer assistance, income substitution, and relocation, which are due to affected people, depending on the nature of their losses, to restore their economic and social base

Income Restoration: Reestablishment of income sources and livelihoods of PAPs

Involuntary Resettlement: Full or partial, permanent or temporary physical displacement (relocation, loss of residential land or shelter) and economic displacement (loss of land, assets, access to assets, income sources, or means of livelihoods) as a consequence of development projects, compelling PAPs to rebuild their lives, incomes and asset bases

Land Acquisition: The process whereby a person is compelled by a government agency to acquire all or part of the land a person owns or possesses to the ownership and possession of the government agency for public purpose in return for compensation

Rehabilitation: Compensatory measures provided under the ADB Policy Framework on Involuntary Resettlement other than payment of the replacement cost of acquired assets.

Relocation: The physical resettlement of an AP from her/his pre-Project place of residence

Relocation assistance - Support provided to persons who are physically displaced by a project. Relocation assistance may include transportation, food, shelter, and social services that are provided to the displaced persons during their relocation. It may also include cash allowances that compensate displaced persons for the inconvenience associated with resettlement and defray the expenses of a transition to a new locale, such as moving expenses and lost work days.

CONTENTS

CHAPTER 1 INTRODUCTION

1.1 Project description

Ajilchin Flyover (the Project) is planned to be constructed in the territories of the 4th khoroo of Bayangol district and 3rd khoroo of Khan-Uul district of Ulaanbaatar city and will be located between Narny Bridge and Gurvaljin Bridge. The alignment stretches from the right-hand end of Narny zam road to the south, passing above railway lines, and continues along Baruun Teeverchdiin Street and ends at the intersection of Ajilchin Street. A flyover bridge is planned to be 828 m in length and an access road to the flyover bridge with a length of 2.2 km and width of 17 m will be constructed. The Project will improve auto road networks of the city, as well as disperse and reduce traffic volumes of Gurvaljin and Narny bridges. Moreover, the traffic volume of a main magisterial auto road alignment parallel to Peace Avenue and of Peace Avenue will be reduced and an auto road network running west-east through the city will be improved. Moreover, as the Project is located in an industrial zone of Ulaanbaatar city, which is specialized for providing services of international freight shipping, transportation and logistics, chemical subsistence and petroleum storage, custom bonded warehouse and car and truck storage, it is expected to bring greater economic benefits.

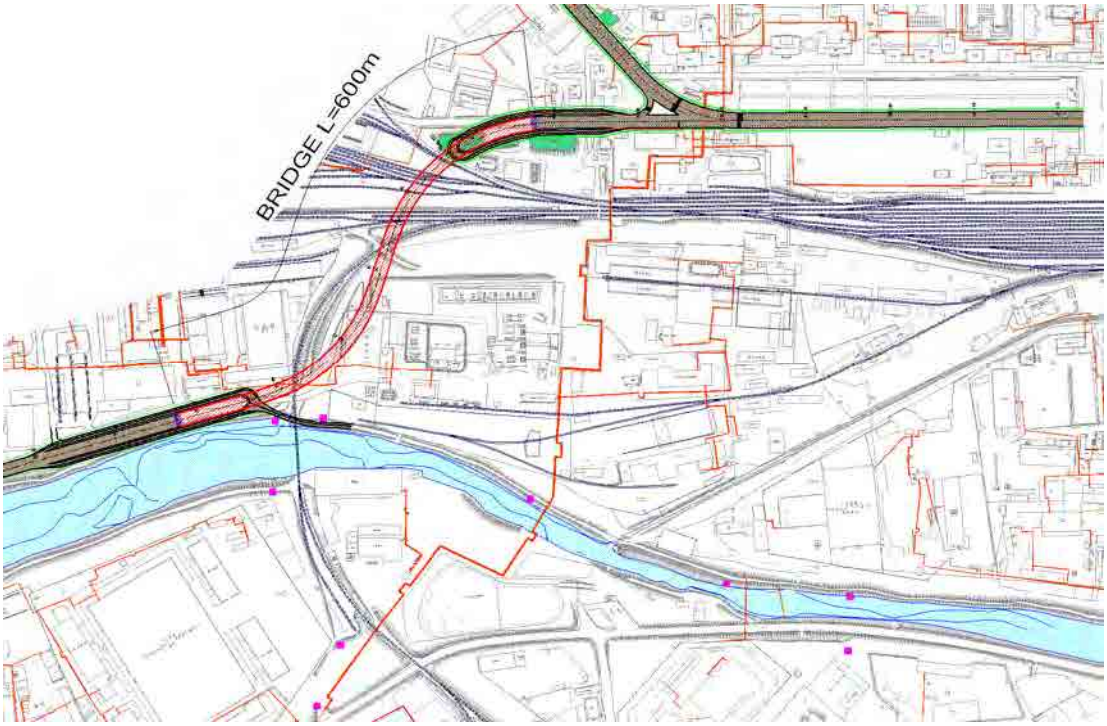


Figure 1. Project Area Map

The proponent of the Project is the Ministry of Roads and Transportation, and Road Department of the Municipality. The Project's civil works are expected to commence on March 2014, and be completed on 2018.

The project is planned to be implemented under the following schedule.

First stage: Feasibility Study is being implemented from March 2012 to April 2013.

Second stage: The Project requires approval by the Mongolian Parliament. A Loan Agreement shall be concluded between the Mongolian Government and the Japanese Government if a Japanese yen loan is taken out.

Third stage: Detailed Engineering Design and Preparation of Bid Documents will be conducted for twelve (12) months after a consultant has been selected according to the loan agreement.

Fourth stage: Bidding and selection of the Contractor will be carried out within six months.

Fifth stage: Construction work will be implemented for 4 years.

1.2 Objective of the LARP

The objective of this LARP is to stipulate all relevant entitlements, procedures and compensation, relocation and rehabilitation measures due to the affected persons/entities for the acquisition of land under the Project, while safeguarding their livelihoods. The Land Acquisition and Resettlement Plan (LARP) was prepared in compliance with JICA Guidelines for Environmental and Social Considerations April 2010 (JICA Guidelines) and World Bank Operational Policy 4.12 "Involuntary Resettlement" (World Bank OP 4.12).[1] The LARP describes in detail project affected people's entitlements (PAPs); income and livelihood restoration strategy; institutional arrangements; consultation, participation and disclosure; grievance redress mechanism; monitoring and reporting framework (including external monitoring for projects with significant involuntary resettlement impacts), budget and time-bound implementation schedule. The preparation of LARP supports a more systematic approach to management of project social risks and opportunities, helping to enhance the development impact of the project and improve the living standards of the displaced people.

The policy framework and entitlements for this LARP are based on the applicable Mongolian Laws and the JICA Guidelines. All provisions of this LARP are directed at ensuring that no displaced persons shall be worsen off as a result of the Project. Key safeguard principles are:

(i) Adverse social and physical impacts are avoided, minimized, and mitigated;
(ii) Stakeholders, and more importantly PAPs, will benefit from the Project;
(iii) PAPs are provided with sufficient compensation and assistance for lost assets which will help them improve or at lease restore their pre-project standard of living; and
(iv) Resettlement activities are implemented with appropriate disclosure of information, consultation, and the informed participation of those affected.

[1] JICA confirms that projects do not deviate significantly from the World Bank's Safeguard Policies

CHAPTER 2 RESETTLEMENT POLICIES, LEGAL AND INSTITUTIONAL FRAMEWORK

2.1. Legal Framework for Involuntary Resettlement in Mongolia

The basic legislative framework for involuntary resettlement (IR) consists of the Constitution (1992), the Law on Land (2006) and the Law on Allocation of Land to Mongolian Citizens for Ownership (2003). The Law on Land governs expropriation of land allocated for possession or use. The Law on Allocation of Land to Mongolian Citizens for Ownership contains provisions respecting expropriation of land taken from private ownership. Both laws provide for compensation to a certain extent. The Civil Code may require the State to provide compensation beyond that required by the Law on Land.

According to Article 5.1 of the Law on Land states that any land other than that owned by the citizens of Mongolia shall be the property of the State. Individual's property rights are protected by the Constitution; Art.16.3 of the Constitution prohibits expropriating private property unlawfully, and obligates the State to make due compensation and payment in the case of taking private property for public use.

Law on Allocation of Land to Mongolian Citizens for Ownership

Article 32.1 states that special cases in which owned land can be acquired are:

- Ensuring national defense and security
- Creating a permanent surveillance field for scientific and technological tests or experiments and environmental or forecast observations
- Building national roads, engineering lines, buildings and constructions

The State must notify owners and enter into negotiations with owners at least one year prior to a decision to expropriate land, attempting to agree on the:

- Value of the land and immovable property located on it
- Transportation costs regarding resettlement or relocation
- Investment made by the owner of the land
- Location, size, characteristics and quality of replacement land that is provided by the State
- Conditions and deadline for vacating the land
- Amount of compensation, payment procedures and date

If an agreement is reached, the owner must vacate within one year of the agreement date. If there is no agreement, the dispute will be referred to the court.
Under Article 33 *soum* and district governors may establish servitudes over private land for the purposes of access through the land, installing survey markers, drainage or other land management measures. No compensation need be paid for such access. If the land becomes difficult or impossible to use because of the servitude, the owner has the right to demand that the authorities purchase the land or compensate for damages.

Article 37 outlines the principles applicable to compensation that landowners are entitled to upon expropriation:

- Replacement land must be not worse in character and quality than the owner's land
- Land and immovable property will be compensated at their value
- Improvements made to the land will be financially compensated for
- Losses incurred by the owner due to the taking of the land and relocation must be compensated for
- No compensation is paid for immovable property built or improvements made after the notice given at the start of the process

Law on Land

The Law on Land contemplates three kinds of private land tenure: (1) ownership, which may be granted only to citizens of Mongolia; (2) possession, granted under license, to Mongolian citizens, economic entities and organizations, for terms of 15 to 60 years, extendable up to 40 years at a time; (3) use, granted under contract or lease to foreign countries and legal entities.

The Law on Land lists special cases for which land in private possession can be acquired by the State.

- land under special government protection;
- border strip land;
- land taken to ensure national defense and security;
- land given to foreign diplomatic missions and consulates, as well as residents
- offices of international organizations;
- land for scientific and technological tests, experiments and sites for regular use
- environmental and climatic observation;
- *aimag*-level reserve rangeland;
- hayfields for government fodder reserves.

Moreover, land belonging to any classification of the unified land territory can be taken in special cases.

The State body/and or municipality in charge of land issues must notify the affected persons and undertake negotiations. If the negotiation is amicably completed, the government issues a decision on land acquisition and the governor of the appropriate level concludes an agreement with the affected person. The affected person must vacate the land within 90 days of the agreement date, except that this may only be required between May 15 and September 15. If there is no agreement or if a dispute arises, it may be referred to the court.

Under Article 43, possessors are entitled to replacement land or compensation for land under possession including the current market price of buildings and other constructions plus all expenses related to relocation.

There is no clear provision in the Law on Land concerning LAR over land that is in use, except the obligation of the land office to provide prior notice. The Law is silent on negotiation and compensation, except to say that the provision on compensation for possessors is not applicable to them.

There is possible protection for users of land under the principles of the Civil Code, which may entitle them to compensation for immovable assets built in accordance with the contract and with the proper permission.

The actual local practice of LAR among Ulaanbaatar city and District level land administration officers does to some extent reflect the above-mentioned laws based on contracts between autonomous legal persons, but also maintains certain elements of involuntary land acquisition and resettlement. After identification of the required properties, affected persons are sent official notifications or “demand letters” by the District Land and Property Departments, often repeatedly, if no positive response to the government’s claim to land is forthcoming. Thereafter, negotiations about the terms of compensation take place with titled PAPs (owners and possessors) and eventually a written agreement is reached. Land has been valued according to the Cabinet resolution 103 of April 13, 2003, which determines land valuation tariffs (e.g., MNT 13,200 per m^2 in the case of UB yurt areas). There is no official data information on market value of the land. Non-titled occupants of land are considered illegal land users and are evicted on the basis of Article 27.4 of the Land Law, which states that “possessing land without a valid license is prohibited.”

Compensation for structures follows a detailed assessment and application of unit rates based on the market values of construction and services, minus depreciation, as assessed by the local Property Relations Agency (PRA). Depreciated replacement cost is calculated in accordance with International Valuation Standards, under Cabinet Decree No. 336 of 2010.

LAR has been applied to recent projects funded by the ADB in compliance with the social safety policy of the Bank. For instance, advanced principles including paying compensation to possessors, applying a fixed tariff set by the government or market price whichever is higher to calculation of the compensation, land by land principle for persons without a proper license who lost their entire land, compensation for facilities on lands and excluding deficiency in property evaluation have been implemented. Currently, many cases of urban development as well as re-development projects have been implemented with a lack of applicable law that regulates LAR.

In January 2013, the Law on Land Expropriation was submitted to the Parliament. The proposed law only applies to cases of involuntary resettlement that are undertaken by the State for justified public use through use of its powers of eminent domain. This means the entity affected does not have the option to refuse land acquisition and resettlement if the State decides to pursue the case using the provisions set out in the proposed law. The Government is attempting to improve the existing legal framework for LAR while integrating the social safeguard principles into national legislation for land acquisition through eminent domain within the context of Mongolia and achieve a balance between individual property rights and the rights of the State to apply eminent domain for justified public use.

The provisions are founded on the key principle of fair compensation. The draft proposed by this LARP recommends that the involuntary resettlement process (i) is to be justified as an unavoidable measure on the basis of public interest, and (ii) ensures fair compensation through a transparent, consultative and participatory process with the affected entities, whereby agreements are reached based on inventory assessments and valuation, social impact assessment and mutual negotiations. If such negotiations fail, there is a final step whereby the project proponent/initiator may continue the process by use of expropriation.

2.2 JICA Policies on Involuntary Resettlement

The key principles of JICA policies on involuntary resettlement are summarized below:

1. Involuntary resettlement and loss of means of livelihood are to be avoided when feasible by exploring all viable alternatives.
2. When population displacement is unavoidable, effective measures to minimize the impact and to compensate for losses should be taken.
3. People who must be resettled involuntarily and people whose means of livelihood will be hindered or lost must be sufficiently compensated and supported, so that they can improve or at least restore their standard of living, income opportunities and production levels to pre-project levels.
4. Compensation must be based on the full replacement cost as much as possible.
5. Compensation and other kinds of assistance must be provided prior to displacement.
6. For projects that entail large-scale involuntary resettlement, resettlement action plans must be prepared and made available to the public.
7. In preparing a resettlement action plan, consultations must be held with the affected people and their communities based on sufficient information made available to them in advance. When consultations are held, explanations must be given in a form, manner, and language that are understandable to the affected people.
8. Appropriate participation of affected people must be promoted in planning, implementing, and monitoring resettlement action plans.
9. Appropriate and accessible grievance mechanisms must be established for the affected people and their communities.

The above principles are complemented by the World Bank OP 4.12, since it is stated in JICA Guidelines that "JICA confirms that projects do not deviate significantly from the World Bank's Safeguard Policies." Additional key principles based on World Bank OP 4.12 are as follows.

1. Affected people are to be identified and recorded as early as possible in order to establish their eligibility through an initial baseline survey (including a population census that serves as an eligibility cut-off date, asset inventory, and socioeconomic survey), preferably at the project identification stage, to prevent a subsequent influx of encroachers of others who wish to take advance of such benefits (Paragraph 16).
2. Eligibility to Benefits includes the PAPs who have formal legal rights to land (including customary and traditional land rights recognized under law), the PAPs who do not have formal legal rights to land at the time of census but have a claim to such land or assets and the PAPs who have no recognizable legal right to the land they are occupying (Paragraph 14~16).
3. Preference should be given to land-based resettlement strategies for displaced persons whose livelihoods are land-based (Paragraph 11).
4. Provide support for the transition period (between displacement and livelihood restoration) (Paragraph 6(c)(i)).
5. Particular attention must be paid to the needs of the vulnerable groups among those displaced, especially those below the poverty line, landless, elderly, women and children, ethnic minorities etc(Paragraph 8).
6. For projects that entail land acquisition or involuntary resettlement of fewer than 200 people, an abbreviated resettlement plan is to be prepared (Paragraph 25).

2.3 GAP Analysis of Mongolian Legal Framework and JICA Guidelines on Involuntary Resettlement

The JICA Guidelines state that projects must comply with national laws and standards, and not deviate significantly from World Bank Policies and international safeguard standards. Moreover, JICA encourages project proponents to take measures to the PAPs in terms of a policy framework if national laws and regulations related to the environmental and social considerations of the project are significantly inferior to international standards and good practices. Table 1 below has shown the difference revealed by comparing key policy issues in the JICA Guidelines and Mongolian laws and regulations pertinent to involuntary resettlement. Moreover, the table presents measures to be taken under the Project in the right-hand column.

Table 1. Comparison of JICA policy and Mongolian laws and regulations on Involuntary Resettlement

Item	Provision of Mongolian Laws	JICA/WB Policies[2]	Measures taken under the Project
Land Acquisition and Resettlement Policies	• Invoking eminent domain is only legally recognized when taking back land for special use by the State, including lines and networks and other objects of national scale (Land Allocation Law, Articles 32 and 37; Land Law,	Eminent domain is generally recognized and subject to policy provisions aiming at avoiding and minimizing land acquisition and resettlement and replacement of lost assets and rehabilitation of	Minimized land acquisition and avoided resettlement as much as possible through route selection and road design.

[2] The relevant policy papers are *Operational Manual OP4.12 Involuntary Resettlement* (December 2001, Revised February 2011) for the World Bank and JICA Guidelines. Since the JICA Guidelines clearly state that JICA confirms that projects do not deviate significantly from the World Bank's Safeguard Policies in Section 2.6, Laws, Regulations and Standards of Reference, the Table covers both JICA's Guidelines and OP4.12 of WB.

	Articles 42 and 43). The Civil Code of Mongolia is the legal basis for contractual agreements on the transfer of land in the Right-of-Way (ROW) from Project Affected Persons (PAPs) to the government (Chapter 15, Articles 1, 6, 7, 8, 109 and 112, among others).	livelihoods.	
Eligible PAPs	• Licensed owners, possessors and users of land can transfer their titles to other legal persons recognized under the Land Law (Articles 35 and 38) and the Land Allocation Law (Article 27). • Non-titled occupants of land as illegal possessors are not eligible to transfer the land occupied or receive compensation (Land Law, Article 27.4). • The Civil Code recognizes the right of a long term non-owner occupant of ownerless immovable property (incl. land) to own it after 15 years, if registered in the State register (104.2).	Lack of formal legal title to land is not a bar to compensation entitlements. PAPs with formal legal rights and PAPs with recognizable claims to land/assets are entitled to compensation for affected assets at replacement cost. PAPs with no recognizable claims to the land they are occupying are entitled to resettlement assistance in lieu of compensation such that they are no worse off than before the project.	All the lands which will be acquired by the project are possessed lands; all PAPs hold formal legal titles. Thus, all PAPs are eligible for compensation entitlements.
Compensation for Land	Contractually agreed payment for land transferred to the government. • Local practice applies the government land valuation tariff (Cabinet Resolution 103, 2003), but negotiates with PAPs as well. • Replacement land can be provided if PAP's entire land or a large part thereof is acquired.	Land compensated for in-kind (replacement land of similar size and quality) and/or cash compensation at replacement cost (amount needed to acquire land of similar size, quality, location advantages and level of improvements, including transaction costs).	For full loss or in case the remaining land becomes economically unviable, the PAP may choose between the following alternatives: i) provision of replacement land of comparable size, value, location, and utility as lost plot; ii) cash compensation at replacement rates or the government compensation tariff, whichever is higher, based on contractual agreement. For partial loss or in case the remaining land plot is economically viable, the above-mentioned ii) will be applied for the lost plot.

Compensation for Structures	Contractually agreed payment for transfer of structures located on land acquired. The value of structures is determined either by the government valuation tariff (Cabinet Resolution 336, 2010) or at market rates, with depreciation deducted from the gross value of the structure.	Structures compensated for in-kind (replacement of structure of similar size, quality and amenities) and/or cash compensation at replacement cost (amount needed to construct new structure of similar size, quality and amenities, without deduction of depreciation). PAPs shall be permitted to salvage materials.	Compensation amount is estimated according to replacement cost based on Cabinet Resolution 336, 2010 or market prices.
Income and Livelihood Rehabilitation	No provision in contractual agreements for transfer of property.	Assistance for economic rehabilitation due to loss of income sources or means of livelihoods, including (i) income compensation or support for the period of interruption of business or employment, (ii) economic support after displacement, for a transition period, based on a reasonable estimate of the time likely to be needed to restore their livelihood and standards of living; and (iii) additional development assistance, such as land preparation, credit facilities, training, or job opportunities.	PAPs are eligible for income and livelihood rehabilitation.
Relocation and Transaction Cost	All registration and other fees, as well as cost of relocation, are responsibility of parties to a contract and can be included in a contract.	Relocation and transfer expenses, including fees for the registration of properties and transfer tax, are part of the replacement cost of lost assets and included in compensation.	PAPs are eligible for compensation for relocation and transfer cost.
Grievance Redress	The Land Law refers disputes over land to the governors of administrative units and eventually the courts (Article 60). The Civil Code and Land Allocation Law refer various types of disputes to the courts.	An adequate grievance redress mechanism for affected people is required.	Working group on land acquisition[3], which will be established in UB City, handles grievances.
Information Disclosure and Public Consultation	No provision for public consultation and information disclosure. In practice, all cases involve a period of negotiation.	PAPs are to be fully informed and closely consulted on compensation and resettlement options. Draft, final and revised Land	Public consultations are organized to discuss the land acquisition plan. The final plan is disclosed

[3] As for the details regarding the working group, please see Chapter 7 Institutional Arrangement and Implementation Schedule of Land Acquisition and Resettlement Plan for the Project.

		Acquisition and Resettlement Plan (LARP) is to be disclosed to relevant PAPs through public consultation meetings, and discussed with PAPs in order to reflect their feedback to the LARP.	also through public consultations.
Cut-off Date	No provision in Mongolian laws.	An eligibility cut-off date is typically the date the census begins. The cut-off date could also be the date the project area is delineated, prior to the census, provided that there has been an effective public dissemination of information on the area delineated.	A cut-off date has been defined by Dept. of Property Relation in Ulaanbaatar on May 10th 2013 and the notice was sent to Bayangol District. It is expected that the Cut-off date would be announced through website of UB City and also through direct notification to PAPs.
Right-of-Way	BNbD (Building Norms and Regulations) Clause 6.24 state that 20 to 25m of ROW is required for Urban Arterial Road.	No conflict with WB requirements.	In order to minimize land acquisition, ROW is defined as road width plus 1 meter at the out side .

CHAPTER 3 SCOPE OF LAND ACQUISITION AND RESETTLEMENT IMPACT

The JICA study team has been working on developing the most viable Project design based on socio-economic development trends of Ulaanbaatar city, population growth while studying current traffic volume and future traffic trends. Two basic alternative routes "East-West" and "North-South" and three alternatives within each of these two alternatives have been analyzed in terms of traffic volume, road safety and the Project's economic, financial and social costs.

A key deciding factor in selecting project alternatives was the JICA Guidelines, which state that involuntary resettlement and loss of means of livelihood are to be avoided when feasible. The chosen project alternative requires minimal land acquisition and has the least adverse impact on the communities in the project area. By exploring all viable alternatives the Project has successfully minimized the scope of involuntary resettlement.

Access roads to Ajilchin Flyover will be constructed on existing roads, except for a new bridge and road section passing under the bridge. Most of ROW consists of existing road alignment and public land; however, some parts require the acquisition of land and other fixed assets along the proposed alignment. All of the affected lands are Possessed Land which belong to 17 entities including 2 self-employed persons. Out of 17 affected plots, PAP-01 and PAP-04 have expanded the land beyond the boundaries of their possession. These PAPs have already built moveable and immoveable structures.

As mentioned earlier, the Project area is dominantly an industrial zone, therefore only possession rights have been granted. Currently ownership right is granted for Mongolian citizens using land for residential purposes and residences in the area designated for ownership by Citizens' Representatives Khural of Ulaanbaatar city. Possession right is a long-term contract regarding the use of the land between individual Mongolians or economic entities, institutions on the one hand and the State on the other. Right over the land is for 15–60 years, with a possibility of renewal for another 40 years subject to the approval of the concerned governors. In practice, possession right is allocated 5 to 15 years in most cases, in order to accommodate rapid urban growth and demand for ever-increasing social and economic infrastructures on the one hand, and to manage land effectively on the other hand. A possession license confers on the holder all the rights of owners except permanent disposal through sale or contribution and limitations on land use to those prescribed in the contract. A total of 17,558.7 m^2 of possessed land need to be acquired for ROW to construct the Ajilchin Flyover.

3.1 Affected Entities at Census

Table 2 and 3 indicate the number and types of affected entities in the Project. A total of 17 entities including 2 self-employed persons will be affected. As the Project is located in the industrial zone of Ulaanbaatar city, which is specialized for providing services of international freight shipping, transportation and logistics, chemical and petroleum storage, custom bonded warehouse and car and truck storage, mostly business entities are affected by the activities of the Project. The Yearly or Monthly Incomes of each entity were estimated based on interviews and information from the tax office.

Table 2. Summary of project affected entities

	Name of entity	Business activity	Number of employees	Tax record (2012)	Estimated income
PAP-01	Jamzam LLC	Car trade	—	N/A	—
PAP-02	SJBU LLC	Car trade	8	N/A	—

PAP-03[4]	UB Railway Mongolian-Russian Cooperation	Railway operation, freight forwarding and custom bounded warehouse	—		
PAP-04	Badral LLC	Petrol station	7	9,012,000	90 million MNT/year
PAP-05	Ulaanbaatar Railway Department 2	Vehicle storage	120		
PAP-06	Railway system's commercial business center	Business office	78		
PAP-07	Just Group LLC	Petrol station	7	5,378,400	54 million MNT/year
PAP-08	Railway Fire Station	Fire brigade	128		
PAP-09	Road transport service center of Railway	Petrol storage, car maintenance	—		
PAP-10	Khuvsgul Trade LLC	Bulk petrol storage	16	74,589,000	746 Million MNT/year
PAP-11	Tsuurden LLC	Garage for heavy machinery	20	17,958,000	180 million MNT/year
PAP-12	Gatsuurt LLC	Heavy machinery storage	5	N/A	—
PAP-13	NOTS LLC	Road transportation, containers, window factory	100	9,676,500	100 million MNT/month
PAP-14	Mon Carotage LLC (Zorigtbaatar)	Road transportation and custom bounded warehouse	35	N/A	50 million MNT/month
PAP-15	Erdenebaatar	Room lease (Self-employed)	1	N/A	4.0 million MNT/month
PAP-16	Erdenebayar	Car maintenance warehouse (Self-employed)	1	N/A	2.5 million MNT/month
PAP-17	Mongol Tulkhuur LLC	Trade	15	N/A	—

Note: PAP-03, PAP-05, PAP-06, PAP-08, and PAP-09 belong to the Mongolian Railway.

[4] This entity has a problem with land possession regarding PAP-01 and PAP-02, and the problem needs further clarification.

Table 3. Information on Self-employed Persons

	Name of PAPs	Relation to head of household	Sex	Age	Education	Employment status	Monthly income (MNT)
PAP-15	D. Erdenebaatar	Head	Male	40	Vocational	Self-employed	Unstable and unidentifiable
	B. Purevsuren	Spouse	Female	41	University	Accountant in public organization	500,000 MNT
	E. Sayiinnyambuu	Child	Male	20	Completed secondary school	Student	—
	E. Narangarav	Child	Female	13	Primary school	Student	—
PAP-16	D. Erdenebayar	Head	Male	46	University	Coach in Temuujin school	280,000 MNT
	Ts. Oyundari	Spouse	Female	40	University	Engineer at MKA LLC	1,000,000 MNT
	T. Undram	Child	Female	19	Completed secondary school	Student	—

Affected entities:

PAP-01, PAP-02 and PAP-03 are located in an area which has been reserved for construction of a building by the Mongolian-Russian Joint Venture. All three run temporary parking lots on the land and their land will be affected partially. Some of the area belonging to PAP-01 has been expanded beyond the boundaries of their possession.

PAP-04 offers petrol providing services. The roof and gas station of the PAP will be affected. However, the affected facilities belonging to PAP-04 have been expanded beyond the boundaries of their possession.

PAP-05 belongs to the UB Railway and has about 120 employees. It ensures the operability and safety of machines and mechanisms. A garage, three buildings, a cement square, gas station and warehouse on the affected land will be affected.

PAP-06 has 15 chain stores, and it is a non-profit organization that provides railways stations that are located along the UB railway, employees of the junction stations, locomotive workers and citizens with food and daily consumption products. It has a total of 78 staff. There are two vegetable storage pits with a capacity of 300 tons, one with a capacity of 60 tons, and concrete panels and these will be affected.

PAP-07 is a branch of a company providing Just Oil petrol and it has seven employees. Part of its plot without fences will be affected.

PAP-08 belongs to the UB Railway. The operational radius of this department is 100 km. This is a special object that provides fire safety and security from some major railway objects such as a UB Station, Locomotive Station, and Wagon Department. This department has a total of 128 employees. A building with a firefighting truck garage, block and one iron fence with a rolling gate, shelter, and concrete square area in front of the building and water fountain will be affected.

PAP-09 provides fuel and auto vehicle services to railway organizations and part of the land, service center office, post guards, cement square and fence will be affected.

PAP-10 uses its plot for the purpose of oil storage and to operate a petrol station. An iron/concrete panel fence of the company will be affected.

PAP-11 uses its land for the purpose of storing mechanisms. More than 60% of the land of PAP-11 will be affected by the project and the entity needs to be relocated since their business can not be continued.

PAP-12 provides heavy machinery services and a small portion of the land will be affected.

PAP-13 provides an auto transportation service, container maintenance, vacuum window production, and real estate property brokerage service. The company has over 100 staff and has seasonal business; thus the number of employees goes up in the summer and falls in winter. One sandwich house (pre-fabricated building) for an office, one garage, a warehouse, cement square, concrete panel with an iron gate, wooden latrine, and high-voltage iron shed are located on land possessed by the company and 71 percent of these structures are affected by the project. Therefore, the entire land will be acquired.

PAP-14 provides geological exploration, auto vehicle repair and maintenance services. It has 35 employees and will be entirely affected by the project and will be relocated. The affected premises includes land, a sandwich warehouse, a garage, two greenhouses, a brick building for a generator, a carriage or wagon assembled on the concrete base, concrete embankments with a concrete base, two self-moving metal doors, one movable metal barn and six containers. This land will partially be affected.

PAP-15 comprises four members: the parents (ages 40 and 31), and their son and daughter. This family possesses the land and lives in a house with an area of 418 $m^2$and rents out 15–18 m^2 as rooms for 20 households. This land will be partially affected but the building where the 20 households including the owner are living is not affected.

PAP-16 is comprised of three members, both the wife and husband are employed and they live in an apartment. This family runs an auto vehicle repair and maintenance business on the land that they possess or they rent out the land to earn 2.5 million MNT from such business. One sandwich house (pre-fabricated building) that is used for business, one wooden barn for a guard post, one clay building, a wooden fence and metal door of the fence will be affected by the road development work.

PAP-17 provides data information and advertisement services. Steel fence and 560 m^2 of green space behind of parking lot will be affected by the Project.

3.2 Affected Land

The total size of affected land under possession is 17,559 m^2. As shown in Table 4, as for PAP-11, PAP-13 and PAP-14, all or the majority of their land will be acquired and therefore unavoidably they will be relocated. PAPs whose land belongs to other entities will be only partially acquired, and relocation will not be necessary for them. In addition, some land which is occupied by AFO-01, AFO-04 and AFO-11 without a license will also be acquired, although the exact size of such land has not been clarified at this stage.

Table 4. Possessed land to be acquired for ROW

Plot name		Plot number	Land use	Date granted possession right	Validity period	Size of plot land (m^2)	Size of affected land (m^2)	Percentage of land lost
PAP-01	Jamzam LLC	18640310667007	Commercial	Unknown	Unknown	1,506	N/A	N/A
PAP-02	SJBU LLC	18640310608008	Commercial	2012.06.22	5 years	1,000	63.2	6.32%
PAP-03	UB Railway Mongolian-Russian Joint Venture	18640309863987	Railway operation, passenger transportation, freight forwarding	Unknown	Unknown	58,546	375.6	0.6%
PAP-03(2)	Green Park		-do-				3410	
PAP-05	UB Railway Department 2	18640309300985	Auto garage & warehouse	Unknown	Unknown	15,207	1,919.1	12.68%
PAP-06	Railway system's Commercial business center	18640309100995	Vegetable pits	Unknown	Unknown	15,149	4,701.8	31%
PAP-07	Just Group LLC	18640310318072	Commercial	2008.06.25	5 years	2,000	512.4	25.6%
PAP-08	Railway Fire Station	18640310213084	Fire brigade	Unknown	Unknown	4,559	1,890.0	41.5%
PAP-09	Road transport service center of Railway	1864031008541	Car maintenance Bulk petrol storage	Unknown	Unknown	28,215	1,786.4	6.3%
PAP-10	Khuvsgul Trade LLC	18639309972760	Commercial	2010.03.25	5 years	26,887	687.5	2.6%
PAP-11	Tsuurden LLC		Commercial	Unknown	Unknown	1,311	797.6	60.8%
PAP-12	Gatsuurt LLC	18639309776765	Commercial	Unknown	Unknown	10,918	147.7	1.4%
PAP-13	Nots LLC		Commercial	Unknown	Unknown	2,797.2	2,797.2	100%
PAP-14	Mon Carotage LLC (Zorigtbaatar)	18638309906421	Commercial	Unknown	Unknown	1,727.5	1,230	71.2%
PAP-15	D. Erdenebaatar	18638309815403	Residential & commercial	Unknown	Unknown	1,000	400.0	40%
PAP-16	D. Erdenebayar	18638309815403	Commercial	Unknown	Unknown	1,124	488.2	43.4%
PAP-17	Mongol Tulkhuur LLC	18638309855486	Commercial	2008.08.25	5 years	17,285	559.6	3.2%

3.3 Affected Structures

A total of 56 immovable structures and 56 movable structures including containers, an iron shed and wagon will be affected. Fences, concrete panels and gates with a total length of 2,153m, belonging to 15 affected entities, will need to be dismantled, moved or replaced. Other immovable structures include houses, warehouses, four latrines, containers, sheds, fountain, yurts, garages, cement squares, guard posts, a water kiosk and water reserve tank.

Table 5. Summary of Affected Structures

No.	Type of Structure	Unit	Quantity	Remarks
PAP-01	Steel Fence w/concrete foundation	m	50	
PAP-02	Steel Fence w/concrete foundation	m	20	
PAP-03	Steel Fence w/concrete foundation	m	120	
PAP-03(2)	Steel Fence	m	477	
PAP-04	Gas Station (Roof and Petrol Pump)	式	1	
PAP-05	Fuel Storage Tank	式	1	
	2 Story building	m^2	2,304	1 Nos
	Brick Building	m^2	106.2	3 Nos.
	Cement square	m^2	54.6	
	Removable Concrete Panel	M	117	
	Steel Fence w/concrete foundation	m	26	
	Wooden Garage	m^2	1100	1 Nos.
PAP-06	Warehouses for vegetable storage pit	m^2	2,138	3 Nos.
	Removable Concrete Panel	M	220	
PAP-08	Office Building	m^2	1206.6	1 Nos.
	Shelter (corrugated-roof)	m^2	12.6	1 Nos.
	Cement square	m^2	124.5	
	Fountain	Nos.	1	
	Steel Fence w/concrete foundation	M	235	
PAP-09	2 story building for office	m^2	829	1 Nos.
	Guard Post	m^2	62	2 Nos.
	Cement square	m^2	135	
	Wooden fence／wire net	M	210	
PAP-10	Removable concrete panel	M	65	
	Steel Fence w/concrete foundation	M	16	
PAP-11	Concrete Block Building	m^2	15	1 Nos.
	Latrine	Nos.	1	
	Steel Fence w/concrete foundation	M	176	
PAP-12	Removable Concrete Panel	M	44	
PAP-13	Building	m^2	245.6	1 Nos.
	Pre-fabricated building	m^2	1000	1 Nos.
	Bick Building	m^2	50	1 Nos.
	Garage (Brick)	m^2	72.5	1 Nos.
	Cement square	m^2	120	
	Iron shed for high-voltage facilities	Nos.	1	
	Latrine	Nos.	1	
	Water kiosk	Nos.	1	
	Steel Fence w/concrete foundation	M	320	
PAP-14	Pre-fabricated building	m^2	133	1 Nos.
	Brick building	m^2	36	1 Nos.
	Green House	m^2	288	2 Nos.
	Latrine	Nos.	1	
	Removable Concrete Panel	M	244	
PAP15	Wooden Fence	M	37	
PAP-16	Wooden Building	m^2	52	2 Nos.

	Latrine	Nos.	1	
	Wooden Fence	M	53	
PAP-17	Steel Fence w/concrete foundation	m	150	

3.4 Affected Entities to be relocated

According to the proposed project design and drawings, three entities residing on the plots of PAP-11, PAP-13 and PAP-14 will be physically displaced by losing all or 71.2% of the total land holdings. Physically displaced entities will be compensated based on the entitlements shown in Table 6 in Chapter 5.

3.5 Affected Businesses

Some of the affected entities use the affected land for storing heavy machinery and heavy trucks used for mining, coal transportation, and construction in winter, when mining activity and civil works experience a temporary shutdown. The permanence of business activities will be ensured through helping them to find a relocation site equivalent to the old site or similar facilities to rent till the affected entities re-establish the affected structures on the remaining land. Some of them use their affected land for manufacturing products such as windows or to improve containers, while some use it to protect major railway objects and civilians from fire in an area with a radius of around 5 km. However, some affected entities will experience a temporary loss in business income during relocation and construction of the Ajilchin Flyover.

A total of five affected entities (PAP-04, PAP-06, PAP-07, PAP-11, PAP-13[5], PAP-14 and PAP-16) will experience lost income during relocation and civil work. Business losses will be compensated on the basis of income during the interruption period.

Resettlement impacts identified in LARP preparation need to be updated and reaffirmed at the project implementation stage of the Detailed Engineering Design. Moreover, LARP needs to be updated in accordance with the Land Expropriation Law if the law is endorsed by the Parliament of Mongolia. In case compensation strategy is significantly changed during Detailed Engineering Design stage, the revised LARP has to be checked and agreed by JICA prior to implementation.

[5] Business loss of this PAP does not include loss from a factory making foam-like materials that had only just started operations.

CHAPTER 4 CONSULTATION AND ENGAGING PAPS FOR PREPARATION AND IMPLEMENTATION OF LARP

PAPs must be fully informed, closely consulted, and encouraged to participate in any decision making pertinent to land acquisition and resettlement, including the final design of the flyover, preparation of contractual agreements, determination of prices for assets to be transferred, selection of replacement plots and the restoration of livelihoods and business.

Disclosure of information to and consultation with PAPs at an early stage ensures that they can express their opinions, apprehensions and objections. Project proponents, including government stakeholders, can address the issues raised and, upon careful consideration, incorporate them in the final design and LARP, in so far as they are compatible with applicable local law and the JICA Guidelines. In this way, delays in implementation due to unforeseen conflicts can be avoided.

During disclosure of the draft and final LARP, their rights and entitlements, shall be fully explained to the PAPs. The final LARP will be presented to PAPs, and endorsed by the Ulaanbaatar City Government.

The consultation and public disclosure process for the Project involve the following steps:

- Individual consultations with PAPs during and after the census and socio-economic survey and notification of individual PAPs as well as cut-off date.
- Public consultation meeting with all PAPs to disclose the draft LARP, including eligibility and entitlements, grievance procedures and monitoring, and to discuss changes and other concerns of the PAPs and other stakeholders.
- Continued individual consultations to prepare contract negotiations and address individual concerns.
- Individual negotiations of contract terms with affected PAPs.
- Public consultation meeting with all PAPs to disclose and discuss revised draft LARP.
- Public consultation meeting with all PAPs to disclose Approved LARP and to announce the date, venue, and time of the payment of agreed property transfer prices and other compensation or entitlements.
- Additional individual and public consultation meetings will be held throughout the planning and implementation of the LARP as required if any issues arise.
- Attendance lists of all public consultations will be kept and attached to the LARP and subsequent monitoring reports.

Two public meetings to prepare the PAPs for land acquisition and to disclose and discuss the draft LARP were held in July and November 2012. The preference regarding consultation about compensation was also discussed with PAPs and the relevant information was collected. Record of the meetings are shown in Appendix 2.

CHAPTER 5 COMPENSATION STRATEGY AND LIVELIHOOD REHABILITATION MEASURES

The application of policies, laws and regulations pertaining to IR eligibility and compensation and rehabilitation entitlements for this Project are summarized in the Entitlement Matrix in Table 6 below.

Not all the types of losses covered by the IR policy will necessarily be experienced by households affected by the Project. Further, each PAP may experience a different combination of the losses indicated in the first column. Each case must be investigated and determined carefully so that all possible losses of the PAP are covered.

All PAPs will be eligible for compensation and rehabilitation entitlements irrespective of their property status, including unlicensed occupants of land, and of the type of use of their property (residential, commercial).

Affected possessors, in case of partial loss of under 50 percent of their land, will transfer their license for the affected plot to the GOM and retain the possessor license for the remaining plot. Their possessor licenses will not be cancelled or subject to automatic expiration. In case of a full loss of land they will be provided with a replacement plot and licenses with state registration.

Affected land will be compensated either at replacement cost based on market rates for comparable land or the applicable government compensation tariff, whichever is higher, or, in the case of full loss of a plot of land, with replacement land, including land preparation and restoration of utility services (electricity, water etc.), as applicable. The loss of 50 percent or more of a plot is considered a full loss eligible for compensation for the entire plot, if the AP so desires.

For the Project, replacement cost of the affected land has been estimated according to the government compensation tariff which is 26,400 MNT per square meter of owned land based on the following justification.

- No actual market value based on integrated data on market rates and/or information on land transactions between organizations and individuals is available since no land for business use is traded in Ulaanbaatar.
- According to the Cabinet Resolution № 103 dated 2003 which stipulates the valuation of land cost, the land cost should be estimated by computing basic cost (440,000 MNT/m^2) multiplied by the Zone Factor. The Zone Factor of the Project site is defined as 0.2 to 1.0 in accordance with the land use and site condition. The zone factor can be assumed to be “0.6” on average for the project, so that the land cost of the Project site will be 26,400 MNT/m^2.
- Figures ranging from 13,200 to 21,600 MNT/m^2 have been adopted for five (5) road construction projects financed by the ADB since 2009.
- According to the “Cadastral valuation on Urban Land Use” 2012, Ms. O. Nyamsuren[6], the price of 1 m^2 of land fluctuates between 3,300 and 121,000 MNT when dividing the yurt

[6] A cadastral price survey of lands in the yurt area was conducted in 2010. The valuation template for the yurt area parcel has been developed using a cadastral valuation based on market value. This can be used for various activities including determining the amount of taxes and payments, value of immovable properties, initial auction price of property sale and

area of Ulaanbaatar into 15 zones, and defines the base price of the zone. The market rate of the yurt area of land near the Khan–Uul and Bayangol Districts, which is the Project location, was almost the same as the government compensation tariff.

- No procurement cost is required for land possession except for a commission charge of the application for Mongolian citizens. Proof of creditworthiness shall be attached to the application for land possession.

Affected structures will be compensated for at replacement cost based on the prevailing market rates for comparable types of structures without deducting depreciation. Materials may also be salvaged by the PAPs.

Any temporary impact outside the Right of Way (ROW) due to construction disturbances will be handled through establishing temporary property servitude (easement) by the government over the temporarily affected land based on an agreement with the PAPs regarding the purpose (removal of fence, construction activity for laying of pipelines and restoration of the land and fences), duration (construction period at specific site) and compensation fee.

Loss of income will be compensated for through short-term financial compensation equivalent to the loss, i.e., for the period of interruption of business or employment.

All relocation, transfer and transaction expenses (fees and duties) will either be waived by the government or included in the contract price of the affected properties.

A detailed account of the LAR impact and compensation of losses for each individual PAP's s presented in Table 7.

banks' loan amount, compensation for taking back lands for state use and providing individuals, government and non-government organizations with information as well as insurance.

Table 6. Entitlement Matrix

Type of Loss	Eligibility	Compensation Entitlements	Implementation Issues	Responsible Organization
Land (commercial, for full loss or in case the remaining land becomes economically unviable)	Possessor	The PAP may choose between the following alternatives: • Replacement land for land lost through provision of replacement plot of comparable size, value, location, and utility as lost plot. Possession license extended for longer periods up to 60 years as stated in Land Law. • At their choice or if equivalent replacement land is unavailable, cash compensation at replacement rates or the government compensation tariff, whichever is higher, based on contractual agreement. • Assistance to find replacement land.	• Consult with relevant PAPs. • Identify the exact size of affected land and facilities. • Estimate the compensation amount and prepare the replacement land. • Prepare LARP. • Approve LARP. • Disclose the contents of LARP. • Make contract for land acquisition and its compensation. • Pay compensation amount to relevant PAPs.	PIU/WG for land acquisition
Land (commercial, for partial loss or in case the remaining land plot is economically viable)	Possessor	• Cash compensation for the portion acquired at replacement rates or the government compensation tariff, whichever is higher, based on contractual agreement. • If land is located in areas of the City Approved to allocate land for ownership in the land management plans, ownership certificate on the remaining land. • If land is not identified for land allocation for ownership, possession certificate on the remaining land.	Same as the above.	PIU/WG for land acquisition
Structures (commercial) (this includes acquisition of a portion of land where the residual land is no longer viable)	Possessor	Cash compensation for lost part of structure and reconstruction of remaining structure at replacement cost based on market rates or the government tariff used for budgeting public works (Cabinet Resolution 336, 2010), whichever is higher, without deduction of depreciation, based on contractual agreement.	Same as the above.	PIU/WG for land acquisition
Livelihood Rehabilitation Measures/Enterprise-based Income	All business entities so affected	• For temporary business loss with or without physical displacement due to land acquisition or construction activities by the Project, cash	• Consult with relevant PAPs. • Conduct socio-economic survey on relevant PAPs.	PIU/WG for land acquisition

		compensation equal to net income lost during interrupted period. • For permanent closure, compensation shall include any costs required for physical and financial re-establishment of business. If the business needs to be relocated, the business entities affected may choose between the following alternatives: (i) replacement land prior to relocation; or (ii) if an acceptable plot of land cannot be found, rehabilitation measures including outright cash payment for a limited time while the owner shifts to a new enterprise. The maximum cash payment will be equivalent to the net income of the enterprise for 1 year.	• Estimate income loss. • Pay compensation to relevant PAPs.	
Livelihood Rehabilitation Measures/Employment	All employees so affected.	• For temporary employment loss due to land acquisition or construction activities, cash compensation for lost wages for the period of interruption of employment. • For permanent employment loss, cash indemnity of 3 months wages. In addition, skills development training and assistance to arrange new employment will be provided.	• Consult with relevant PAPs. • Conduct socio-economic survey on relevant PAPs. • Estimate wage loss. • Pay compensation to relevant PAPs.	PIU/WG for land acquisition
Relocation Assistance	All DPs that are physically displaced, permanently or temporarily.	• The following items on actual cost basis at current market rates will be provided. • Cost of developing residential resettlement sites; • Cost of transporting affected people and their assets to the resettlement sites. • Any transfer fees, taxes or other administrative costs; • Costs of identifying new housing or land. • Cost of consultation with the host community. • Any expense for temporarily and physically sheltering DPs between the time of displacement and the time of relocation.	• Consult with relevant PAPs. • Estimate amount of relocation assistance. • Pay relocation assistance to relevant PAPs.	PIU/WG for land acquisition

Table 7. List of affected entities and assets with compensation strategy

	Total licensed land (m^2)	Affected land (m^2)	Affected land as proportion of total land (%)	Total compensation for land (MNT)	Type of affected structure(s)	Total compensation of affected structures (MNT)	Days of business loss	Compensation of business loss (MNT)
PAP-01	1,506	N/A	N/A	No compensation	Fence	2,250,000	—	—
PAP-02	1,000	63.2	6.32%	1,668,480	Fence	1,734,240	—	—
PAP-03	58,546	375.6	0.6%	9,915,840	Fence	10,357,920	—	—
PAP-03 (2)		3410		90,024,000	Fence	41,499,000	—	—
PAP-04	600	N/A	N/A	No compensation	Gas station	100,000,000	30	2,250,000
PAP-05	15,207	1,919.1	12.68%	50,664,240	Fence, 3 buildings, garage, warehouse, gas station, cement square	3,933,624,059	—	—
PAP-06	15,149	4,701.8	31%	124,127,520	Fence, 3 vegetable pits	1,171,266,160	180	76,200,000
PAP-07	2,000	512.4	25.6%	13,527,360	—	6,763,680	30	4,500,000
PAP-08	4,559	1,890.0	41.5%	49,896,000	Fence, building, shelter, fountain, cement square	658,048,970	—	—
PAP-09	28,215	1,786.4	6.3%	47,160,960	Fence, 2 guard posts, building, cement square	1,175,354,592	—	—
PAP-10	26,887	687.5	2.6%	18,150,000	Fence, water reserve tank	65,482,500	—	—
PAP-11	1,311	797.6	60.8%a	21056640	Fence, shed, container, yurt	9,441,000	90	45,000,000-
PAP-12	10,918	147.7	1.4%	3,899,280	Fence	5,799,640	—	—
PAP-13	2,797.2	2,797.2	100%	73,846,080 or replacement plot	Fence, 2 buildings, garage, warehouse, water kiosk, iron shed, latrine, cement square, container	814,950,462	180	240,000,000
PAP-14	1,727.5	1,230	71.2%	32,472,000 or replacement plot	Fence, 1 building, 2 greenhouses, warehouse, container, wagon, yurt	135,875,796	180	60,000,000
PAP-15	1,000	400.0	40%	10,560,000	Fence	6,390,000	—	—
PAP-16	1,124	488.2	43.4%	12,888,480	Fence, 2 buildings, guard post, container	29,056,672	90	7,500,000
PAP-17	17,285	559.6	3.2%	14,773,440	Fence	14,136,720	—	—

Compensation for business losses

PAP-04 will experience a business loss due to the construction work. During the re-construction of the affected facility, 30% of their income might be reduced. In this regard, the business loss shall be compensated for as a 3.0-month income loss which is equivalent to 2.25 million MNT.

PAP-06: Out of 78 employees, 6 full-time employees who are paid from the income generated by the rent and unloading services will lose their work at least for 6 months due to land acquisition. Therefore 18 million MNT, which is 6 months' salary (500,000 MNT/month) for these 6 full-time employees and 58.2 million MNT which is the income generated from rent and unloading services, making for a total of 76.2 million MNT shall be paid by the project to cover the losses.

PAP-07's access to entrance and exit to and from the main road shall be obstructed. However it can be accessed from the other side (apartment complex side). The branch shall be accessed from only one side during the construction work, which may increase the probability of reduced revenue. According to a preliminary calculation, the branch shall be closed for 30 days during the exit and entrance maintenance and 4.5 million MNT (54 million MNT × 1/12) will be paid to cover the business losses.

PAP-11: Most of their land will be affected by the Project so that they have to move their equipment and facilities. Income for three (3) months (45 million MNT) needs to be compensated as business loss.

PAP-13: Monthly income is over 100 million MNT. The activities that are carried out inside the affected structures account for around 40% of all income and equal 40 million MNT. Therefore, business loss due to physical displacement and restoration at new location after the relocation is calculated to require 6 months, and thus 240 million MNT will be paid for compensation.

PAP-14: Monthly income from all operations comes to about 50 million MNT and most income comes from geological exploration. Income that comes from activities in the affected plot is estimated to account for 20% (10 million MNT) of all income. Due to physical displacement and interruption, a business loss is calculated to be worth 6 months of income, and thus 60 million MNT will be paid for compensation.

PAP-16[7] earns 2.5 million MNT per month from his business in the affected plot. Due to relocation to the new boundary within the plot, it will be impossible to run a business for 3 months while demolishing and re-building the buildings inside the fence; thus 7.5 million MNT will be paid to cover the business losses during this period.

[7] Compensation for structures of this PAP does not include valuation of bricks that were placed in the plot for an unknown purpose.

CHAPTER 6 GRIEVANCE REDRESSING MECHANISM

The Khoroo Governor as Vice Chairman of the WG will be the initial recipient of any grievance and log it in the specialized format, tentatively named as the Grievance Action Form (GAF). The GAF will be signed by the Khoroo Governor and the AP, who will receive a signed copy. All GAFs shall be consolidated by the Khoroo Governor and presented to the WG for deliberation and appropriate action, on a weekly basis. Grievances unresolved at the WG level within two weeks shall be referred to the respective District Governor for resolution within one week. Recommendations of the Governor will be referred to the Citizens' Representative Khural for approval and final action. If there are still unresolved grievances after another week, a case may be filed by the claimant in the appropriate courts.

Table 8. Grievance Redress Procedure

Item No.	Procedures	Period
PAP lodges grievance with Khoroo Governor		
1	Khoroo Governor prepares GAF and initiates WG meeting	2 weeks or less
	The WG addresses grievance, informs PAP and initiates action	
If grievance is not resolved		
2	WG submits grievance to District Governor	1 week or less
	District Governor addresses grievance, informs PAP and proposes resolution to District Citizens Representative Khural	
	District Citizens Representative Khural initiates action for resolution	1 week or less
If grievance is not resolved		
3	Grievance is referred to court system	Open

CHAPTER 7 INSTITUTIONAL ARRANGEMENTS AND LARP IMPLEMENTATION SCHEDULE

Organization and administrative arrangements for the effective preparation and implementation of the resettlement plan will be identified and put in place prior to the commencement of the process; this will include the provision of adequate human resources for supervision, consultation, and monitoring of land acquisition and rehabilitation activities (Table 9).

The WG, which includes representatives of the Property Relations Agency and Road Department, is responsible for identifying the owners and occupants of affected land and valuing the properties of PAPs. The PIU of the Project is responsible for updating the LARP.

As the LARP is implemented, the WG ensures resettlement safeguard compliance prior to any land acquisition or resettlement. Overall, however, it is PIU and the LAD who are responsible for adequately supervising the implementation of project LARP. The PIU will be responsible for reporting the progress in implementing the LARP to the Ministry of Road and Transportation (MRT). Monitoring of compliance with the LARP and the LARF during implementation is carried out by PIU and an external monitoring agency (EMA). Members of WG for land acquisition are as follows:

i) Governor of Bayangol District (Chairman)
ii) Governor of Khoroo (Vice Chairman)
iii) Land acquisition specialist of UB City (Member)
iv) Representative from the UB City Road Department (Member)
v) Representative from the UB City Property Relations Department (Member)
vi) Representatives of the PAPs (Member)
viii) Representative from a CBO or NGO registered by the government (Member), if available.

Table 9. LARP Implementation Schedule

Work Items	1st Year				2nd Year				3rd Year				4th Year				5th Year				6th Year			
	1	2	3	4	1	1	2	3	4	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Detailed engineering design																								
Bidding and construction work																								
Public consultation																								
Cadastral survey																								
Identification of affected plot and buildings																								
Review of Land Acquisition and Resettlement Plan																								
Valuation of compensation cost																								
Disclosure of compensation framework to PAPs																								
Endorse the LARP																								
Processing of payment																								
Securing land for relocation																								
Restoration of affected structures on the remaining land and/or replacement land																								
Implementation of livelihood rehabilitation measures																								
Internal monitoring																								
External monitoring																								
Formation of WG																								

CHAPTER 8 RESETTLEMENT BUDGET

Table 10 presents the budget for LAR in the Ajilchin Flyover, based on the compensation strategy discussed in Chapter 5. It provides the unit rates, the number of units affected and the compensation, costs for rent, relocation, and transaction. The contingency cost, at 10 percent of the cost of items 1 to 7, is intended to cover unanticipated impacts and costs arising during LARP implementation. Costs for compensation and rehabilitation, as well as costs for transaction and relocation for each PAP are covered in the Project cost.

Table 10. Budget for Land Acquisition and Resettlement

Asset type	Unit	Unit rate (MNT)	No. of units	Cost (MNT)
1. Land				
Possessed	m^2	26,400	21,766	574,622,400
Subtotal				**574,622,400**
2. Structures				
Petrol station with three gas pumps and six columns	item	100,000,000	1	100,000,000
Petroleum gas station	item	200,000,000	1	200,000,000
Two-story building	m^2	1,350,000	3,133	4,229,550,000
Building (office)	m^2	619,270	1206.6	747,211,182
Building (prefab)	m^2	509,800	1133	577,552,420
Building (brick)	m^2	380,316	244.2	92,873,167
Greenhouse	m^2	50,000	288	14,400,000
Garage (wooden and clay)	m^2	509,800	1100	560,780,000
Garage (brick)	m^2	380,316	72.50	27,572,910
Shelter	m^2	50,000	12.60	630,000
Shed	m^2	45,000	15.00	675,000
Guard post	m^2	380,316	62.00	23,579,592
Vegetable pit	m^2	509,800	2,138	1,089,952,400
Cement square	m^2	195,000	434.1	84,649,500
Fountain	item	2,500,000	1	2,500,000
Iron shed for high-voltage facilities	item	15,000,000	1	15,000,000
Latrine	item	246,000	4	984,000
Water kiosk	item	6,000,000	1	6,000,000
Moveable concrete panels	m	87,500	690	60,375,000
Moveable iron fence	m	87,000	477	41,499,000
Iron/wooden fence	m	30,000	300	9,000,000
Moveable iron with concrete foundations	m	45,000	1113	50,085,000
Subtotal				**7,934,869,171**

3. Business loss				
Business loss PAP-04	Month	2,250,000	3.0	13,500,000
Business loss PAP-06	Month	12,700,000	6.0	76,200,000
Business loss PAP-07	Month	4,500,000	1.0	4,500,000
Business loss PAP-11	Month	15,000,000	3.0	45,000,000
Business loss PAP-13	Month	40,000,000	6.0	240,000,000
Business loss PAP-14	Month	10,000,000	6.0	60,000,000
Business loss PAP-16	Month	2,500,000	3.0	7,500,000
Subtotal				**446,700,000**
4. Transaction costs				
Notary fees (contracts MNT 1 to 10 million)	Lump sum	10,000	6	60,000
Notary fees (contracts MNT 10 and 25 million)	Lump sum	25,000	2	50,000
Notary fees (contracts MNT 25 and 50 million)	Lump sum	50,000	1	50,000
Notary fees (contracts MNT 50 to 100 million)	Lump sum	100,000	2	200,000
Notary fees (contracts MNT 100 and 500 million)	Lump sum	200,000	1	200,000
Notary fees (contracts MNT up 500 million)	Lump sum	300,000	5	1,500,000
Cadastral map survey	Lump sum	50,000	17	850,000
Service fee	Lump sum	5,000	17	85,000
Property rights registration fee	Lump sum	12,000	17	204,000
Subtotal				**3,199,000**
5. Relocation assistance				
Container, iron shed	Nos.	250,000	55	13,750,000
Steel Wagon	Nos.	350,000	1	350,000
Yurt	Nos.	100,000	2	200,000
Transportation for physically displaced PAPs (PAP 11, 13 and 14)	Lump sum	5,000,000	3	15,000,000
Subtotal				**29,300,000**
6. Rent				
Renting garage PAP-08	Days	30,000	180	5,400,000
Subtotal				**5,400,000**
GRAND TOTAL				**8,994,090,571**

The PIU will allocate 100 percent of the cost of compensation at replacement cost and allowances to PAPs before LARP implementation for disbursement together with the respective LADs' accountant.

The PIU will work with the Land and Property Department (LPD) of Bayangol District to manage the process of formal contractual agreements with PAPs and disbursement of compensation. Payment of 75 percent of compensation will be made within 1 month of the time of conclusion of contractual agreements. The remaining 25 percent will be paid at the time of vacating of the affected assets. No land will be acquired by the government or handed over to the PIUs for commencing construction work without full payment of the compensation due to the PAPs.

CHAPTER 9 MONITORING AND EVALUATION

Land acquisition shall be monitored in compliance with the LARP during implementation by PIU as well as by an external monitoring agency (EMA), that has been engaged by the PIU. EMA can be an independent person with the required skills.

a) Internal Monitoring

Internal monitoring is implemented to ensure: (i) proper execution of responsibilities of key stakeholders; (ii) protection of the rights of PAPs; (iii) adequate and prompt payment of compensation; and (iv) timely grievance redress. The WG conducts its own internal monitoring of land acquisition and submits monthly reports to the PIU. The PIU compiles such information in its quarterly reports to MRT. Upon completion of land acquisition activities in the Project, the WG will prepare a resettlement completion report for submission to MRT.

In addition, the State Professional Inspection Agency (SPIA) will independently audit and monitor the agencies involved in the land acquisition and resettlement process, based on the relevant laws and regulations. Table 11 provides the format for the monthly LAR monitoring reports.

Table 11. Internal Monitoring Form (Sample)

Land acquisition and resettlement activities	Planned total	Unit	Progress in Quantity			Progress in %		Expected Completion Date	Responsible Organization
			During the quarter	Till the last quarter	Up to the quarter	Till the last quarter	Up to the quarter		
Preparation Stage									
Employment of consultants		Man-Month							PIU/WG
Implementation of Census Survey (incl. Socioeconomic Survey)									PIU/WG
Public Consultation (1st)		Date							PIU/WG
Finalization of LARP		Date							PIU/WG
Finalization of PAPs List		No. of PAPs							PIU/WG
Public Consultation (2nd)		Date							PIU/WG
Implementation Stage									
Progress of Compensation Payment									
PAP-		No. of entities							PIU/WG
PAP-		No. of entities							PIU/WG
PAP -		No. of entities							PIU/WG
PAP -		No. of entities							PIU/WG
Progress of Land Acquisitions									
PAP -		ha							PIU/WG
PAP -		ha							PIU/WG
PAP -		ha							PIU/WG
PAP -		ha							PIU/WG
Progress of Livelihood Rehabilitation Measures/ Enterprise-based Income									
PAP -		No. of entities							PIU/WG
PAP -		No. of entities							PIU/WG
PAP -		No. of entities							PIU/WG
PAP -		No. of entities							PIU/WG
Progress of Relocation Assistance									
PAP -		No. of entities							PIU/WG
PAP -		No. of entities							PIU/WG
PAP -		No. of entities							PIU/WG
PAP -		No. of entities							PIU/WG
Times in Grievance Ajustment									
PAP -		responded / received							WG
PAP -		responded / received							WG
PAP -		responded / received							WG
PAP -		responded / received							WG

b) External Monitoring and Evaluation

The main objectives of external monitoring are to: i) assess the effectiveness, impact and sustainability of land acquisition and resettlement measures; ii) determine whether safeguard compliance has been met; and iii) learn strategic lessons for future policy formulation and planning. The PIU has to establish an External Monitoring Agency (EMA), which will investigate and assess the land acquisition process for the Project. Over three years, the EMA will conduct the monitoring and submit monitoring reports to the PIU. External monitoring consists of the following activities:

- Review and verification of the internal monitoring reports submitted by PIU;
- Review and augmentation of the socio-economic baseline surveys, if necessary;
- Assess the contents of compensation for land acquisition and business losses;
- Assess adequacy for measure to PAPs and living standards/incomes of PAPs before and after the Project;
- Assess PAP's satisfaction level towards resettlement implementation;
- Assess compliance level regarding relevant laws and guidelines; and
- Assess the process of consultation with local stakeholders

The EMA (independent monitoring agency/person) has to be engaged in LAR activities through competitive tenders for the external monitoring and evaluation. The Consultant will have experience with land acquisition and resettlement monitoring and evaluation according to the JICA Guidelines.

The M&E services will be required for a period of 3 years. During implementation of the LARP, external monitoring by the Monitor will be undertaken every six (6) months at the project site for an input of five (5) days, totaling 25 days for 5 inputs. Two annual evaluations will be conducted for the project after completion of LARP. The timing of these investigations may be staggered depending upon the progress of project. The total input of the Monitor will amount to 25 days of domestic consultancy.

Monitoring Schedule

Inputs and Tasks	Timing	Report Due
1. Baseline Surveys	Start of LARP implementation	Within 3 months of start of each input
2. Monitoring of Implementation	Month 7 of LARP implementation	
3. Monitoring of Implementation	Month 13 of LARP implementation	
4. Evaluation	1 year after completion of LARP implementation	
5. Evaluation	2 years after completion of LARP implementation	

Budget for the Monitor

Professional fees, survey assistants, domestic travel,	MNT

reporting and miscellaneous costs for 25 days	
Lump sum per day	300,000
Totaling for 25 days	7,500,000

The monitoring reports will be prepared every six months during the implementation of the LARP. After completion of resettlement, the Monitor will conduct annual evaluations for two years.

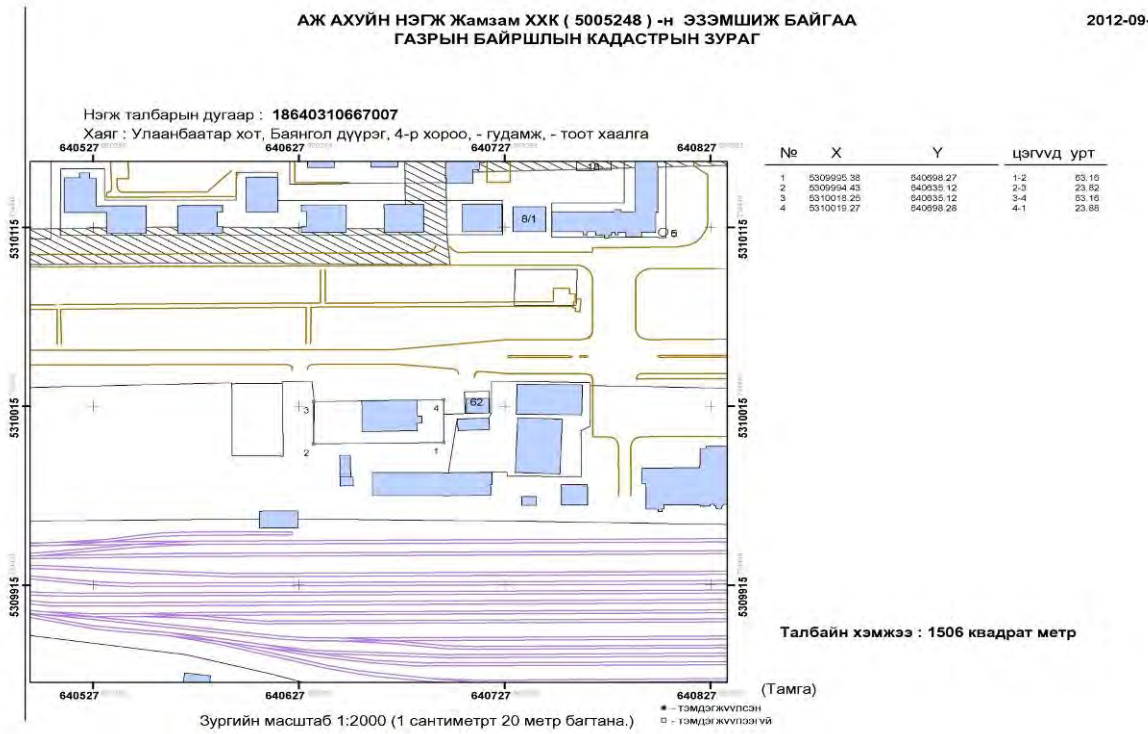
The costs for the external monitoring and evaluation will be borne by MRT in the administration cost for the Project.

Appendix 1: Asset Inventory

PAP-01: Jamzam LLC

Picture 1: Part of land to be acquired

Picture 2: Iron fence to be moved



Picture 3: Cadastral MAP AP-01

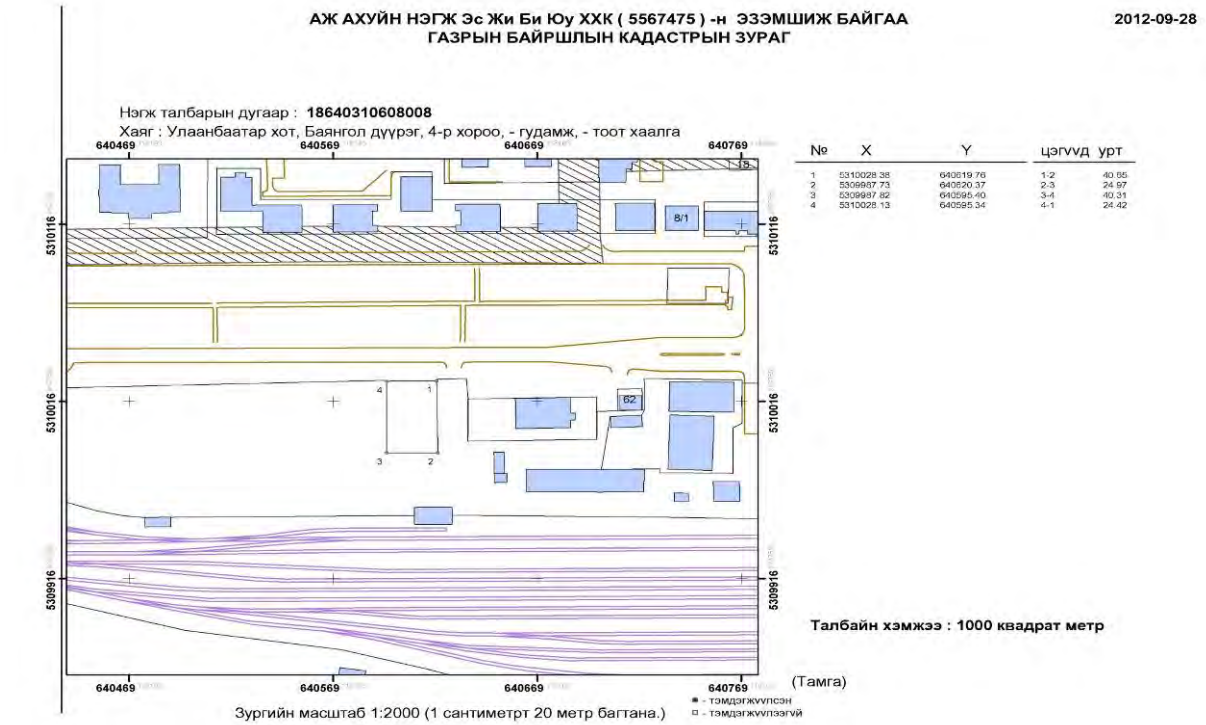
Affected assets and replacement/compensation costs

ID	Asset type	Description and characteristics	Activity	Unit	Q'ty	Unit rate (MNT)	Cost (MNT)
PAP-01	Land	Possessed & unlicensed for commercial use	Acquire unlicensed land partially	m^2	n/a	n/a	n/a
	Fence	Iron bar panels, attached to land on concrete foundation, in good condition	Move to the remaining land	m	50	45,000	2,250,000
						Total	**2,250,000**

PAP-02: "SJBU" LLC

Picture 1: Part of land to be acquired

Picture 2: Iron fence to be moved



Picture 3: Cadastral MAP PAP-02

Affected assets and replacement/compensation costs

ID	Asset type	Description and characteristics	Activity	Unit	Q'ty	Unit rate (MNT)	Cost (MNT)
PAP-02	Land	Possessed for commercial use	Acquire land partially	m^2	63.2	26,400	1,668,480
	Fence	Moveable iron fence and swing gate	Move to the remaining land	m	20	**45,000**	**900,000**
						Total	**2,568,480**

PAP-03: "Ulaanbaatar Railway" Mongolian – Russian Joint Venture

Picture 1: Part of land to be acquired

Picture 2: Iron fence to be moved

Affected assets and replacement/compensation costs

ID	Asset type	Description and characteristics	Activity	Unit	Q'ty	Unit rate (MNT)	Cost (MNT)
AP-03	Land	Possessed for commercial use	Acquire land partially	m^2	375.6	26,400	9,915,840
	Fence	Moveable iron fence	Move to the remaining land	m	120	45,000	5,400,000
						Total	**15,315,840**

PAP-**03(2): Public Garden**

Picture 1: Part of land to be acquired

Picture 2:Iron fence and trees to be restored

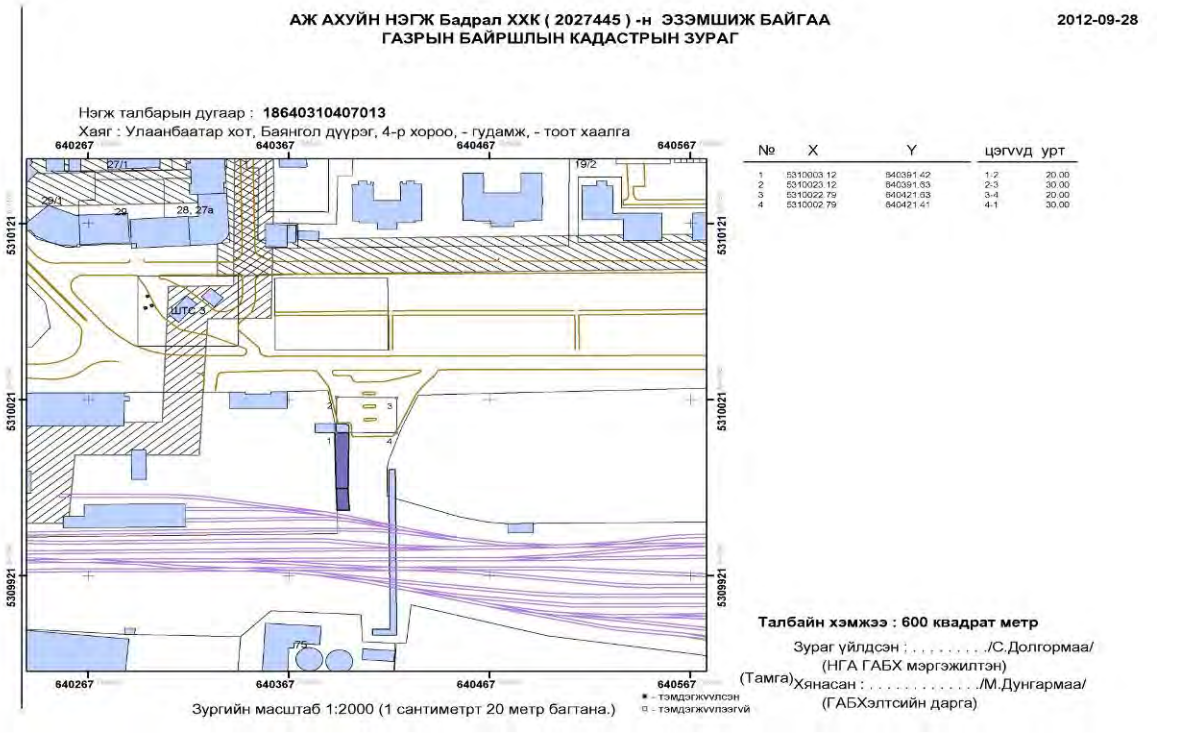
Affected assets and replacement/compensation costs

ID	Asset type	Description and characteristics	Activity	Unit	Q'ty	Unit rate (MNT)	Cost (MNT)
AP-03(2)	Land		Acquire land partially	m^2	3,410	26,400	90,024,000
	Fence	Moveable iron fence	Move to the remaining land	m	**477**	87,000	41,499,000
						Total	**131,523,000**

PAP-04: "Badral" Petrol Filling Station

Picture 1: Part of land to be acquired

Picture 2: Gas station to be relocated



Picture 3: Cadastral MAP PAP-04

Affected assets and replacement/compensation costs

ID	Asset type	Description and characteristics	Activity	Unit	Q'ty	Unit rate (MNT)	Cost (MNT)
PAP-04	Land	Possessed & unlicensed for commercial use	Acquire unlicensed land partially	m^2	n/a	n/a	n/a
	Gas station	Petrol station with 3 gas station and 6 columns	Relocated on the remaining land	item	1	100,000,000	100,000,000
						Total	**100,000,000**

PAP-05: "Railway Auto Garage"

Picture 1: Part of land to be acquired

Picture 2: Brick house for staffs` cloak room to be relocated

Picture 3: Garage or warehouse to be relocated

Picture 4: Small house to be relolaced

Picture 5: Concrete panels to be moved

Picture 6: House for toilet and storage with sewerage tank

Picture 7: Cement square for pediatric

Picture 8: Cement square for transport

Picture 9: Iron fence, warehouse, gas station

Picture 10: Road to the reservoirs to me moved

Affected assets and replacement/compensation costs

ID	Asset type	Description and characteristics	Activity	Unit	Q'ty	Unit rate (MNT)	Cost (MNT)
PAP-05	Land	Possessed for car and truck storage	Acquire land partially	m^2	1,919.1	26,400	50,664,240
	House	Brick house for staffs` cloak room	Dismantle and rebuild on the remaining land	m^2	2,304	1,350,000	3,110,400,000
	Garage	Wooden and clayed for garage	Dismantle and rebuild on the remaining land	m^2	1100	509,800	560,780,000
	House	Small brick house	Dismantle and rebuild on the remaining land	m^2	44.4	380,316	16,886,030
	Fence	Concrete panels with rolling iron gate	Move to the remaining land	m	117	87,500	10,237,500
	House	Small brick house for toilet and storage with sewerage tank	Move to the remaining land	m^2	43.8	380,316	16,657,841
	Cement square	Total cement area to be destroyed	Remove	m^3	54.6	195,000	10,647,000
	Fence	Iron fence that blocks gas station	Move to the remaining land	m	26	45,000	1,170,000
	Warehouse	Brick house for storage	Move to the remaining land	m^2	18	380,316	6,845,688
	Gas station	Underground petrol reservoirs	Move to the remaining land	Item	1	200,000,000	200,000,000
						Total:	**3,984,288,299**

PAP-06: Railway Auto Garage 3

Picture 1: Part of land to be acquired

Picture 2: Vegetable storage pit 1 to be relocated

Picture 3: Vegetable storage pit 2 to be relocated

Picture 4: Vegetable storage pit 3 to be relocated

Picture 5: Concrete panels to be moved

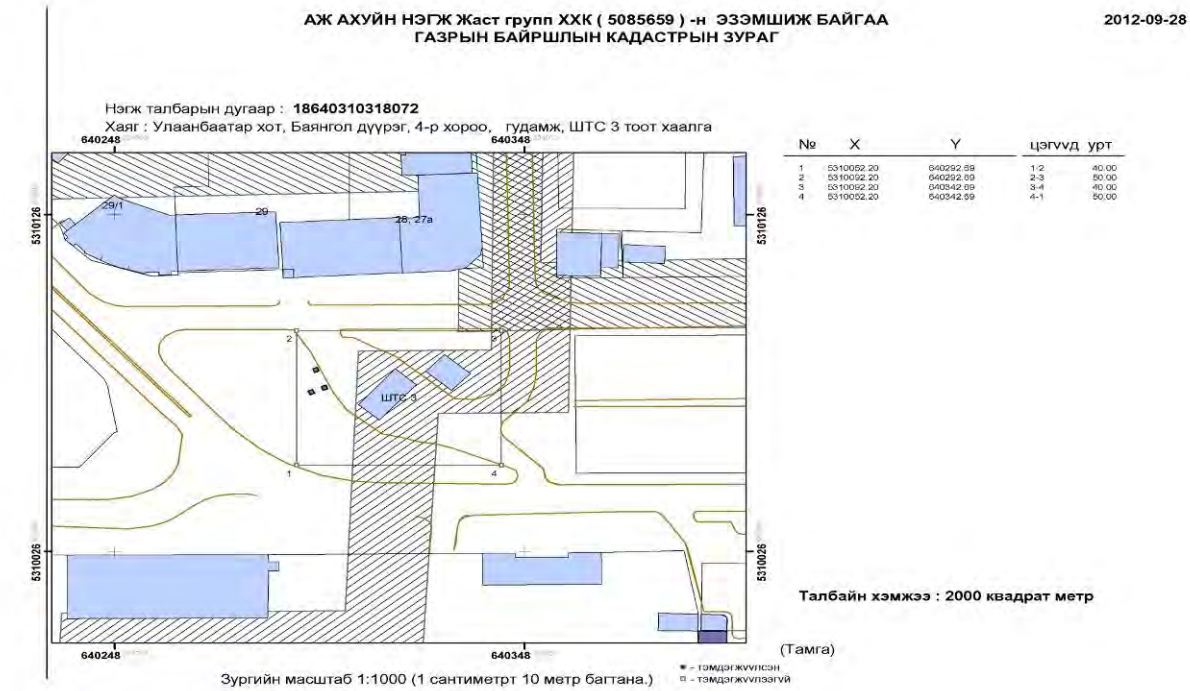
Affected Assets And Replacement/Compensation Costs

ID	Asset type	Description and characteristics	Activity	Unit	Q'ty	Unit rate (MNT)	Cost (MNT)
PAP-06	Land	Possessed land for warehouse and cellar	Acquire land partially	m^2	4,701.8	26,400	124,127,520
	Warehouse	Underground vegetables storage pit	Dismantle and rebuild on the remaining land	m^2	1,006	509,800	512,858,800
	Warehouse	Underground vegetables storage pit	Dismantle and rebuild on the remaining land	m^2	150	509,800	76,470,000
	Warehouse	Underground vegetables storage pit	Dismantle and rebuild on the remaining land	m^2	982	509,800	500,623,600
	Fence	Concrete panels with moveable iron gate	Move to the remaining land	m	220	87,500	19,250,000
						Total:	**1,233,329,920**

PAP-07: "Just Oil" Petrol Filling Station

Picture 1: Part of land to be acquired

Picture 2: Photo of Just Oil Petrol Filling Station



Picture 3:Cadastral MAP PAP-07-PAP-09

Affected assets and replacement/compensation costs

ID	Asset type	Description and characteristics	Activity	Unit	Q'ty	Unit rate (MNT)	Cost (MNT)
PAP-07	Land	Possessed for commercial use	Acquire land partially	M^2	512.4	26,400	13,527,360
						Total	**13,527,360**

PAP-08: "Railway Fire Station"

Picture 1: Part of land to be acquired

Picture 2: Brick and clayed house to be relocated

Picture 3: Brick and clayed house from front side to be relocated

Picture 4: Brick house/garage in side

Picture5: Smal shelter and iron fence to be moved

Picture 6: Fountain to be relocated

Picture 5: Cement square to be rebuilt

Picture 6: Iron fence to be relocated

Affected assets and replacement/compensation costs

ID	Asset type	Description and characteristics	Activity	Unit	Q'ty	Unit rate (MNT)	Cost (MNT)
PAP-08	Land	Possessed for storage of firefighting apparatuses use	Acquire land partially	m^2	1,890	26,400	49,896,000
	House	Brick and clayed structure	Dismantle and rebuild on the remaining land	m^2	961	619,270	595,118,470
	Shelter	Small shelter with iron bar and roof	Dismantle and rebuild on the remaining land	m^2	12.6	50,000	630,000
	Fountain	Improvement with iron gate	Dismantle and rebuild on the remaining land	item	1	2,500,000	2,500,000
	Cement square	Cement squares for transport and parade	Dismantle and rebuild on the remaining land	m^3	124.5	195,000	24,277,500
	Fence	Iron bar panels, attached to land on concrete foundation, concrete block in good condition and rolling iron gate	Move to the remaining land	m	235	45,000	10,575,000
						Total	**682,996,970**

PAP-09: "UB Railway Transport Service Center"

Picture 1: Part of land to be acquired ***Combined. Totally 1786.4m2***

Picture 2: Petroleum reserve storage to be relocated

Picture 3: Brick house for guard post of petrol station to be moved

Picture 4: Cement square of petrol station to be moved

Picture 5: Brick house for office

Picture 6: Brick house for guard post of the center and cement squares to be moved

Picture 7: Iron fence to be moved

Affected assets and replacement/compensation costs

ID	Asset type	Description and characteristics	Activity	Unit	Q'ty	Unit rate (MNT)	Cost (MNT)
PAP-09	Land	Possessed for petroleum reserve use	Acquire land partially	m^2	1,786.4	26,400	47,160,960
	Guard post	Brick house for guards of petrol station	Relocate to the remaining land	m^2	20	380,316	7,606,320
	Cement square	Squares in petrol station and in front of office, gate	Rebuild	m^3	135	195,000	26,325,000
	House	2-storey brick house for office	Dismantle and rebuild on the remaining land	m^2	829	1,350,00	1,119,150,000
	Guard Post	Brick house for guard post	Dismantle and rebuild on the remaining land	m^2	42	380,316	15,973,272
	Fence	Moveable iron fence with swing gate	Move to the remaining land	m	210	30,000	6,300,000
						Total	**1,222,515,552**

PAP-10: "Khuvsgul Trade" LLC

Picture 1: Part of land to be acquired

Picture 2: Underground water reserve tank to be relocated

Picture 3: Iron fence to be moved

Affected assets and replacement/compensation costs

ID	Asset type	Description and characteristics	Activity	Unit	Q'ty	Unit rate (MNT)	Cost (MNT)
PAP-10	Land	Possessed for commercial use	Acquire land partially	m^2	687.5	26,400	18,150,000
	Fence	Iron bar panels, attached to land on concrete foundation, in moderate condition	Move to the remaining land	m	16	45,000	720,000
		Concrete panels	Move to the remaining land	m	65	87,500	5,687,500
						Total	**24,557,500**

PAP-11: "Tsuurden" LLC

Picture 1: Full of land to be acquired

Picture 2: Small block shed and container to be relocated

Picture 3: Block wall to be relocated

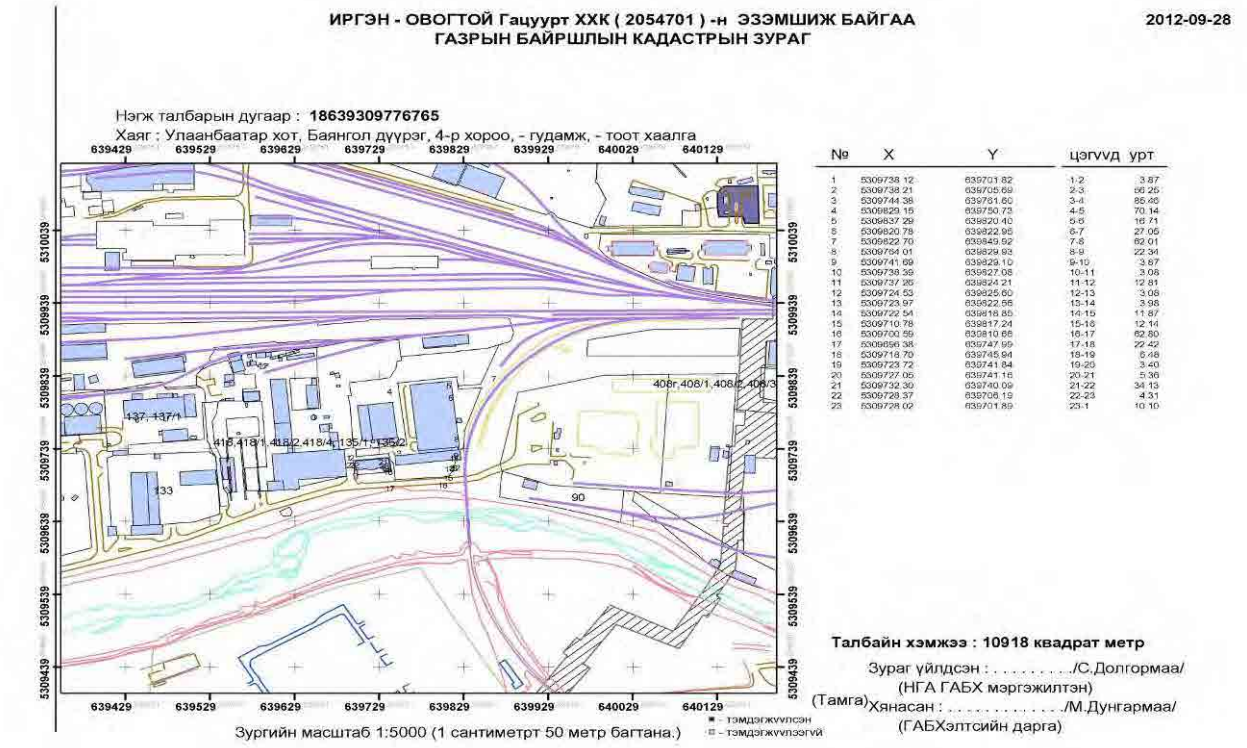
Affected assets and replacement/compensation costs

ID	Asset type	Description and characteristics	Activity	Unit	Q'ty	Unit rate (MNT)	Cost (MNT)
PAP-11	Land	Unlicensed for commercial use	Acquire unlicensed land fully	M^2	797.6	26,400	21,056,640
	Shed	Small block shed	Dismantle and rebuild on the replacement land	M^2	15	45,000	675,000
	Container	Moveable iron container	Move to the replacement land	item	2	250,000	500,000
	Fence	Concrete block with iron rolling gate	Dismantle and rebuild on the replacement land	M	176	45,000	7,920,000
	Ger	Ger for the guard	Dismantle and rebuild on the replacement land	item	1	100,000	100,000
	Latrine	Wooden	Dismantle and rebuild on the replacement land	Item	1	246,000	246,000
						Total	**30,497,640**

PAP-12: "Gatsuurt" LLC

Picture 1: Part of land to be acquired

Picture 2: Concrete panels to be moved



Picture 3: Cadastral MAP PAP-10, 12

Affected assets and replacement/compensation costs

ID	Asset type	Description and characteristics	Activity	Unit	Q'ty	Unit rate (MNT)	Cost (MNT)
PAP-12	Land	Possessed for commercial use	Acquire land partially	m^2	147.7	26,400	3,899,280
	Fence	Moveable concrete panels	Dismantle and move to the remaining land	m	44	87,500	3,850,000
						Total	**7,749,280**

PAP-13: "NOTS" LLC

Picture 1: Full of land to be acquired

Picture 2: Brick house to be relocated

Picture 3: Sandwich structures for office, vacuum window factory and water kiosk to be relocated

Picture 4: Brick house for toilet and garage to be relocated

Picture 5: Concrete panels to be relocated

Picture 6: Water kiosk

Picture 7: Containers to be moved to the replacement land

Picture 8: Cement square

Affected assets and replacement/compensation costs

ID	Asset type	Description and characteristics	Activity	Unit	Q'ty	Unit rate (MNT)	Cost (MNT)
PAP-13	Land	Possessed for commercial use	Acquire land fully	m^2	2,797.2	26,400	73,846,080
	House	Brick house for office	Dismantle and rebuild on the replacement land	m^2	245.6	619,270	152,092,712
	House	Sandwich structures for office, vacuum window factory	Dismantle and rebuild on the replacement land	m^2	1000	509,800	509,800,000
	Garage	Brick garage	Dismantle and rebuild on the replacement land	m^2	72.5	380,316	27,572,910
	Warehouse	Brick warehouse and toilet	Dismantle and rebuild on the replacement land	m^2	50	380,316	19,015,800
	Fence	Moveable concrete and iron panels	Dismantle and rebuild on the replacement land	m	320	45,000	14,400,000
	Water kiosk	Small brick house with pump	Dismantle and rebuild on the replacement land	item	1	6,000,000	6,000,000
	Iron shed	Shed for high voltage	Dismantle and rebuild on the replacement land	item	1	15,000,000	15,000,000
	Latrine	Wooden	Dismantle and rebuild on the replacement land	Item	1	246,000	246,000
	Cement square		Dismantle and rebuild on the replacement land	m^3	120	195,000	23,400,000
	Container	Movable iron containers	Move to the replacement land	item	42	250,000	10,500,000
						Total	**851,873,502**

PAP-14: Zorigtbaatar N. ("MonCarotage" LLC)

Picture 1: Full of land to be acquired ***Totally 1229.3m2***

Picture 2: Sandwich warehouse to be relocated

Picture 3: Concrete panels to be elocated

Picture 4: Brick house for generator to be relocated

Picture 5: Container and ger to be moved

Picture 6: Waggon on concrete foundation to be relocated

Picture 7: Iron shed to be moved

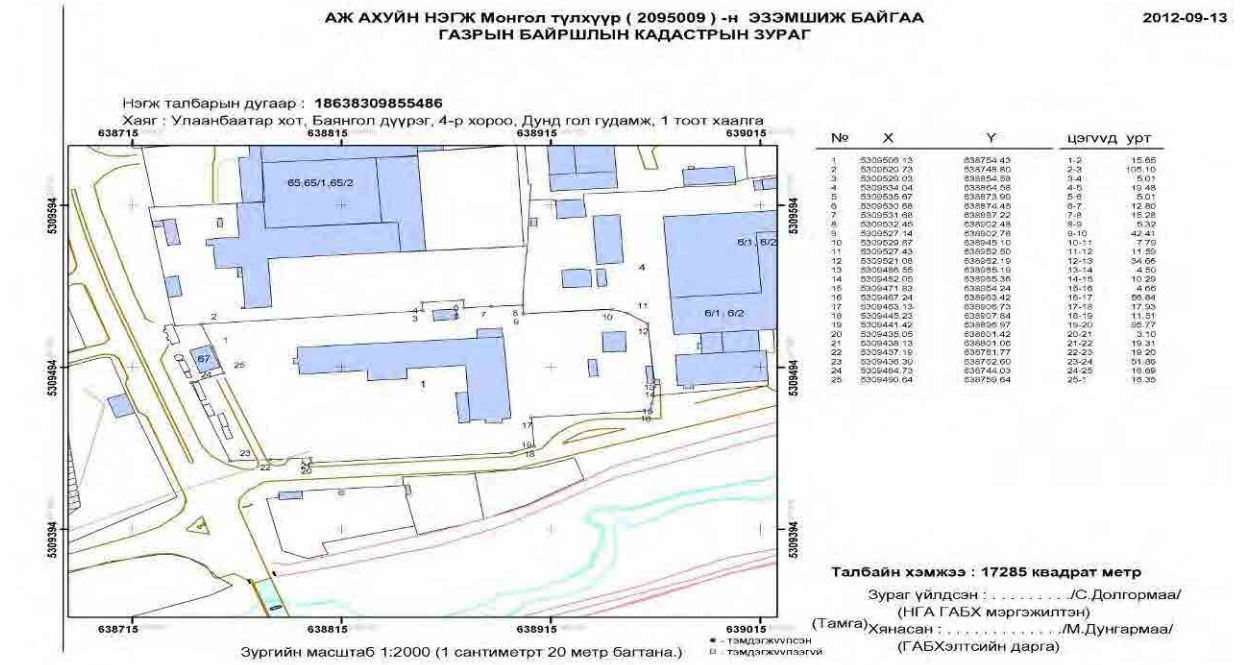
Affected assets and replacement/compensation costs

ID	Asset type	Description and characteristics	Activity	Unit	Q'ty	Unit rate (MNT)	Cost (MNT)
PAP -14	Land	Possessed for commercial use	Acquire land fully	m^2	1,230	26,400	32,472,000
	Warehouse	Sandwich warehouse	Dismantle and rebuild on the replacement land	m^2	132.9	509,800	67,752,420
	Greenhouse	Greenhouse	Dismantle and rebuild on the replacement land	m^2	144	50,000	7,200,000
	Greenhouse	Greenhouse	Dismantle and rebuild on the replacement land	m^2	144	50,000	7,200,000
	Fence	Moveable concrete panels	Dismantle and rebuild on the replacement land	m	244	87,500	21,350,000
	House	Brick house for generator	Dismantle and rebuild on the replacement land	m^2	36	380,316	13,691,376
	Container	Movable structures including 1 iron shed	Move to the replacement land	item	7	250,000	1,750,000
	Wagon	Moveable structure on concrete foundation	Move to the replacement land	item	1	350,000	350,000
	Ger	Ger for the guard	Dismantle and rebuild on the replacement land	item	1	100,000	100,000
	Latrine	Wooden	Dismantle and rebuild on the replacement land	Item	1	246,000	246,000
						Total	**152,111,796**

PAP-15: Erdenebaatar D**.**

Picture 1: Part of land to be acquired

Picture 2: Wooden fence to be relocated



Picture 3: Cadastral MAP AP-13-AP17

Affected assets and replacement/compensation costs

Asset type	Description and characteristics	Activity	Unit	Q'ty	Unit rate (MNT)	Cost (MNT)
Land	Possessed for commercial& residential use	Acquire land partially	m^2	400	26,400	10,560,000
Fence	Wooden fence with poor condition	Dismantle and rebuild on the remaining land	m	37	30,000	1,110,000
					Total	**11,670,000**

PAP-16:Erdenebayar D.

Picture 1: Part of land to be acquired
Size of land needs to be changed!!! Totally 2124m2.

Picture 2: Sandwich house for office and storage

Picture 3: Guard post to be moved

Picture 4: Small building to be relocated

Picture 5: Containers to be moved

Picture 3: Wooden fence to be moved

Affected assets and replacement/compensation costs

ID	Asset type	Description and characteristics	Activity	Unit	Q'ty	Unit rate (MNT)	Cost (MNT)
PAP -16	Land	Possessed for commercial & residential use	Acquire land partially	m^2	488.2	26,400	12,888,480
	House	Sandwich house for office	Dismantle and rebuild on the remaining land	m^2	40	380,316	15,212,640
	Guard post	Iron shed on wooden fence	Dismantle and rebuild on the remaining land	item	1	250,000	250,000
	Small house	Wooden and clayed small shop not operated	Dismantle and rebuild on the remaining land	m^2	12	380,316	4,563,792
	Fence	Wooden fence with poor condition	Dismantle and rebuild on the remaining land	m	53	30,000	1,590,000
	Container	Movable	Remove to the remaining plot	Item	3	250,000	750,000
	Latrine	Wooden	Dismantle and rebuild on the replacement land	Item	1	246,000	246,000
						Total	**35,500,912**

PAP-17: "Mongol Tulkhuur" LLC

Picture 1: Part of land to be acquired

Picture 2: Iron fence to be moved

Affected assets and replacement/compensation costs

ID	Asset type	Description and characteristics	Activity	Unit	Q'ty	Unit rate (MNT)	Cost (MNT)
PAP -17	Land	Possessed for commercial use	Acquire land partially	m^2	559.6	26,400	14,773,440
	Fence	Iron fence with concrete fence	Dismantle and rebuild concrete base and move iron fence to the remaining land	m	150	45,000	6,750,000
						Total	**21,523,440**

Appendix 2: Record of 1st Public Meeting

Meeting place: Meeting room of Suuri LLC, Industrial Road, Bayangol District Ulaanbaatar city.

Meeting date: 2 PM, 27 July 2012.

Meeting started at 2 PM and ended 4 PM.

Meeting participants:

1. N. Erdenesaikhan, director of consulting company Environ LLC, team leader of Environmental and social survey.
2. G. Hasbaatar, specialist of UB Road department
3. O. Enkhtuya, specialist, Resettlement Division, UB Land department
4. D. Chinzorig, engineer, UB Railway Joint Venture
5. Ch. Erdenedalai, State inspector, Department of Railway
6. B. Munkhzul, representative, Mongolian Association for Conservation Nature NGO
7. B. Tumenjargal, representative, Environment and Security Center of Mongolia NGO
8. O. Chimeddorj, vice director, Khuvsgul Trade LLC
9. B. Davaadulam, manager, Global Shariin Gol LLC
10. B. Ulambayar, engineer, Tsuurden LLC
11. B. Otgonbayar, engineer, NRTS LLC
12. E. Chgnaasuren, manager, Suuri LLC
13. B. Solongo, lawyer, Gobi LLC
14. J. Khorloo, Advisor to Director, Suuri LLC
15. J. Demberel, manager, Wagner Asia LLC
16. Ts. Ganbaatar, manager, Mon Karotage LLC
17. D. Erdenebaatar, manager, Metal Trade LLC
18. Kh. Ariunzaya, spokesperson, Suuri LLC
19. P. Tuvdendorj, lawyer, Environ LLC
20. G. Undralbat, EIA manager, Environ LLC
21. D. Lhamsuren, manager, San Industrial LLC
22. D. Munkhbayar, resident, Gobi 88
23. D. Erdenebaatar, resident, Gobi 88
24. Kh. Munguntuya, resident, Gobi 88
25. T. Munkhbold, resident, Gobi 88
26. M. Ganbat, supervisor, CTI engineering LLC

Protocol was made by Tuvdendorj, lawyer of Environ LLC.

Mr. Erdenesaikhan opened meeting and thanked all participants for their coming and introduced purpose and agenda of the meeting. The purpose of the meeting was to introduce about the start of Flyover project's environmental and social studies, which would provide pros and cons of the project in terms of surrounding environment and residents and entities located within and nearby project. With this, all participants have an opportunity to express their views upon receiving all information related to this project. He explained that this project is implemented by the UB Road department and Environ was hired to conduct the EIA and resettlement studies. JICA supports the current studies.

Mr. Hasbaatar made a short presentation on policy and programs of UB road department to improve road network and reduce traffic jams. He briefed about UB plan on proposed flyover bridges in the 7 intersections, including Ajilchin Flyover project.

Mr. Erdenesaikhan made a short presentation on environmental and social studies to be take place in conjunction with Ajilchin Flyover project and introduced about EIA and Resettlement plans. He also explained the Right of Way of project, based on recently acquired blueprint and about the affected households and entities.

He emphasized all current studies focused to identify possible negative and positive changes in surrounding environment and social elements during construction and exploitation of Flyover project and elaborate ways to reduce the negative changes and to disseminate and share all findings with all stakeholders including residents and economic entities located in and around project site.

Ms. Enkhtuya briefly introduced about the UB Land department policies on resettlement issues related with ongoing and planned infrastructure projects.

Question and answer session:

Demberel Wagner Asia LLC: regarding the RoW picture, you would need to have a very clear delineation of affected objects and nearby objects in the picture. When this info will be available?

Erdenesaikhan: as soon as we get the detailed RoW, we will visit each affected entities and households and explain to relevant persons and identify the size and impacts.

Erdenedalai, Railway inspector: why road width while intersecting with the Railway?

Hasbaatar: there is in and out road traces to flyover bridge and therefore it is looks wide. We have reviewed several routes before reaching the consensus with all decision makers in our department and consultants.

Chinzoring, Railway Joint Venture: As current railway organization is joint venture of Russia and Mongolia, we cannot solve this issue (meaning that several infrastructures and buildings of this organization are affected by the project) without negotiation with our partner. Also, we kindly request you to make presentation in our organization so that relevant people get more clear picture of Ajilchin Flyover project.

Erdenesaikhan: We plan to make the public meeting 2 times and one public meeting on resettlement plan. We will discuss about your request and let you known soon.

Khorloo, Suuri LLC: As this is very important project, those, who plan to do this project need to have a long term perspective so that all current and possible future problems are solved within this project. Meaning that make double passes, allow heavy trucks to use this flyover, use of land beneath Flyover Bridge etc.

Enkhtuya, Land department: Existing legal environment is not suitable to current situation on resettlement and compensation. For example, we use outdated rate of land resettlement compensation of government on 2005, which is MNT13,200 per square meter of land and which does not reflect current market price. Also, I recommend to review certificates/licenses of your immovable properties and land if these are legal and or meet legal requirements etc. if everything is legal, then, it is easier for affected person.

Munguntuya, resident: is government going to change current decree on land valuation?

Enkhtuya, Land dept: we are discussing about a draft law on resettlement. If this law passes via parliament, the government would be changing the valuation rate.

Demberel, Wagner Asia: I would like to thank organizers of this meeting. From my previous experience, those who implements project, worked forcefully without taking permission from affected people. I appreciate your approach to introduce first about the start of study to be taken place before the Flyover project. This gives opportunity for possible affected people to make changes on their plans or postpone the decision, if someone starts to invest on land.

Hasbaatar, UBRD: Can you provide Railway authority view on possible two routes of railway via UB?

Chinzorig, UB railway: yes, we have provided all relevant info to JICA study team. Our request is not to cross the future road with railway. Again remind, we will be very happy if your project makes a presentation about the Flyover project among our Railway decision makers. One would need to understand that railway is joint venture of two countries.

Hasbaatar, UBRD: yes, we understand this situation. Let's agree on timing for making presentation via communication.

Erdenesaikhan thanked all participants for their visit and active participation and provided contact address in case of info request and comments.

Appendix3: Record of 2nd Public Meeting

MINUTES OF MEETING

Date: 16 November 2012

Venue: Conference room of Suuri LLC, 4th Khoroo, Bayangol District, Ulaanbaatar city

Names of participants:

1. Mr. Munkhchuluun, manager, Khuvsgul Trade LLC
2. Mr. Enkhmend, Director, Tsuurden LLC
3. Ms. Batsuren, accountant, Tsuurden LLC
4. Mr. Gayabazar, manager, Wagner Asia LLC
5. Mr. Khasbaatar, officer, Ulaanbaatar city Road Department
6. Ms. Enkhtuya, officer in charge of resettlement, UB Land Administration Department
7. Mr. Altan ochir, Deputy director, Badral LLC
8. Mr. Erdenebayar, manager, Metal trade LLC
9. Mr. Erdenebaatar, inhabitant of 4th khoroo Bayangol district
10. Mr. Badrakh, manager, Suuri LLC
11. Mr. Altansoyombo, manager, Just Oil LLC
12. Mr. Gan Od, lawyer, Just Oil LLC
13. Mr. Zorigtbaatar, Director, Mon karotage LLC
14. Mr. Erdenesaikhan, Director, Environ LLC
15. Mr. Sainbold, Director, SJBU LLC
16. Mr. Rinchendorj, manager, NOTS LLC
17. Mr. Sanjaa, manager, Badral LLC
18. Mr. Tsendsuren, human resource manager, Suuri LLC
19. Mr. Tumurbaatar, public relations officer, Environment and Health NGO
20. Mr. Purev, inhabitant, of 4th khoroo Bayangol district
21. Ms. Undraltsetseg, EIA manager, Environ LLC
22. Ms. Munkhbayasgalan, resident of Gobi 88, 3rd Khoroo, Khan uul district
23. Ms. Tumenjargal, chairwomen, Blue Planet NGO
24. Mr. Dorjsuren, inhabitant of household living on the shore of Dundgol River
25. Mr. Tuvdendorj, social study expert, Environ LLC

Issues for Discussion:

Disclosure of information to public on the study of Environmental Impacts of Proposed Ajilchin Flyover Bridge

Disclosure of information to public on the study of Land Acquisition and Resettlement

The opening of the information disclosure was made by Mr. Erdenesaikhan. He introduced that this is the second time we invited people from the area, where Flyover bridge project is proposed. In first meeting, we introduced about the necessities of Flyover Bridge and that it is included into the General Development Plan of Ulaanbaatar City. We met with all potentially affected entities and citizens and provided related info and in turn gathered info from them. We appreciated cooperation from those who provided info.

As per our plan of studies on DEIA and LARP, which were shared with you in our first meeting, the study teams have worked for three months to identify all potential negative and positive impacts on surrounding environment and society and to develop possible actions to eliminate all identified negative impacts, if not possible then to mitigate and minimize. We are going to share with you the results of these studies and get your comments and feedback. I would like to emphasize that the main purpose of LARP study is to fully compensate all affected entities and citizens so that no one is worsened off and everyone benefits because of the project.

As in the meeting agenda, Mr. Khasbaatar, specialist of Ulaanbaatar Road Department made a short speech.

In accordance with City Development Plan, there are 8 flyover bridges will be built and among them Ajilchin Flyover. The feasibility study has been done and within which, Environ conducts studies on DEIA and LARP and nearing completion. There are three alternatives on Flyover bridge direction have been studied and east –west direction was selected as the most suitable and less cost one. The main reason for selecting this direction was to link industrial zone with residential zones of Ulaanbaatar and to reduce the heavy traffic volume created currently. In addition, it will be very necessary for development of satellite cities and balancing the traffic volumes.

Mr. Erdenesaikhan introduced results of DEIA study: air, water, soil quality, lab results of surface and underground water and soil samplings; noise and vibration levels, wildlife, aquatic life, plants and impacts and the proposed actions to reduce impacts and environmental management and monitoring plans to follow, when project progresses.

Question and Answers:

Mr. Altanochir (Badral LLC): from my observation, air pollution is not due to concentration of vehicles as Erdenesaikhan stated but, too much concentration of too many construction factories and markets that sell construction materials in this area. These need to be moved out of city. With this, I am not agree with your proposal to reduce traffic volume through affecting our business and taking part of our land. If you like to build, why you do not build road along and above Dundgol River? Once river is polluted as your study discovers, then one can construct columns along both sides of shore and make road. It does not need make too broad road and impact person's property.

Mr. Erdenesaikhan: I understand your concern. It was not decision of only this study. A feasibility study for various alternatives for reducing the traffic volume was done and many road and traffic experts are involved and various factors have been analyzed and that resulted in a final route.

Zorigtbaatar (Mon Karotage LLC): can you show whose objects are affected and how much are those affected?

Mr. Tuvdendorj (Social study expert on LARP) shared the results of LARP: introduced the ultimate goal of LARP, legal environment of Mongolia and JICA guidelines, resettlement impacts: affected entities, citizens and properties; compensation and livelihood restoration measures; grievance redress mechanism and LARP implementation arrangements, M&E of LARP.

Ms. Enkhtuya (Land Administration Department): with introducing impacts of project to population and entities, we officially announce the Cut -of- Date for receiving compensation and or any other assistance for resettlement. Cut -of- Date means no one/entity will be allowed by the Land

Administration department to newly settle in this area and extend their land. Also no one from today who moved to this place will be able to receive any assistance for resettlement.

Altansoyombo (Just Group LLC): Who defines this Cut-of-Date? Is there any provision in regulation?

Enkhtuya: there is no definition on this in regulation but once there is no regulation, we follow international best practices and JICA guidelines. It is essentially means to restrict those people, who tries to make profit on others issues.

Mr. Altanochir (Badral LLC): Mongolia has very bad regulatory basis for land resettlement. In addition to this, recently there was road expansion in front of our entity. Why talking another expansion?

Mr. Tuvdendorj: Yes, we agree that we have a weak regulation on land acquisition and resettlement. Existing legal gaps are complemented by regulatory measurements on this project, which JICA and World Bank have been applying successfully for many countries. Moreover, a draft law on Land Acquisition and Resettlement is being discussed publicly and if this passes through the Parliament, the legal environment will be much improved.

Ms. Enkhtuya: there was not many practice before for this type of public projects to inform all people, study impacts and disseminate related results as with this project. We appreciate the project proponents. I understand your concerns on your property and land, but you have to conscious about your citizen's duty. Public interest is also essential.

Ms. Enkhmend (Tsuurden LLC): I understood from the study that there is no clear info on our company's land permission license. We have a land permission license until 2013.

Mr. Tuvdendorj: We have all official info on land license from Land Administration Department and we have not found license info on your company. We have been requesting related info several times, but it resulted in no info. It is in your interest to provide all necessary info to the study team.

Mr. Munkhchuluun (Khuvsgul trade LLC): ROW line passes through a water reservoir of 200 m3 located to the northwest corner of our company. Is it possible not to dismantle the reservoir?

Mr. Erdenesaikhan: the part of Flyover Bridge will be constructed on air along your portion of land. I am not quite sure if the bridge columns will be created exactly on your land. Even if columns will not be in your land, it will be impacted by construction process.

Mr. Zorigtbaatar (Mon Karotage LLC): to the north of my company, there is garden area of Mongol Tulkhuur LLC. Can't you move ROW to this garden area instead of passing through my entire land area? I am not against of improving the road. Regarding the property compensation, you should be aware while making valuation that costs will be changed with passing years.

Mr. Erdenesaikhan: regarding compensation and livelihood restoration strategy, affected person's living condition should not be reduced with project implementation. I would like to re-emphasize Tuvdendorj's introduction of resettlement results. As was explained, every affected person/entity

will receive compensation/assistance differently according to the provisions indicated in the entitlement matrix.

Mr. Altansoyombo: Once Ulaanbaatar city will not be moved to another location, the responsible organizations should make a good planning so that traffic volumes are adjusted and coordinated in roads between the flyover bridges. Otherwise, with building a flyover it shifts traffic jam into another roads.

Gayabazar (Wagner Asia LLC): I very much appreciate that study team policy on resettlement supplements gaps in Mongolian legislation and it ensures that affected people will be suffered with construction of Flyover Bridge.

Tumurbaatar (NGO): When the construction of flyover will be started?

Mr. Khasbaatar: Once the loan agreement on flyover construction will be established between Mongolian and Japanese governments. If very optimistic, we anticipate agreement may be in 2014, otherwise in 2016 or after.

Thank you for coming and providing comments and feedback.

Meeting ends.

Appendix-11

Terms of Reference for Construction Services for Detarild Design, Tender Assistance and Construction Supervision of Ajilchin Flyover Project

TERMS OF REFERENCE FOR CONSULTING SERVICES FOR DETAILED DESIGN, TENDER ASSISTANCE AND CONSTRUCTION SUPERVISION OF AJILCHIN FLYOVER PROJECT

(DRAFT)

1. INTRODUCTION

1.1 Background of the Project

In Ulaanbaatar City, the capital of Mongolia where more than 40% of the population is concentrated, vehicle traffic volume has been rapidly increasing over the past few years in response to economic growth and the trend is expected to be maintained in the future.

In that situation, "The Study on City Master Plan and Urban Development Program of Ulaanbaatar City" was executed in 2007 through 2009 as a Technical Assistance of JICA. The result of the study is compiled in so-called the "JICA Master Plan", which proposes establishment of new road networks and public transportation system by 2030 to accommodate the progress of urbanization in greater-than-expected speed.

Following peruse and modification of the JICA Master Plan, the Construction Urban Development and Planning Department of Ulaanbaatar City has prepared "The Ulaanbaatar City Master Plan". The Government of Mongolia has been implementing development of road networks and improvement of major intersections with the construction of flyovers in accordance with the Ulaanbaatar City Master Plan.

In this connection, the Government of Mongolia requested the Government of Japan to conduct the preparatory survey for realization of the Ajilchin Flyover Construction Project (hereinafter referred to as "the Project"). In compliance with the Minutes of Meeting between the Japan International Cooperation Agency (JICA) and the Government of Mongolia dated 07 December 2011, JICA dispatched the Survey Team in March 2012, and the Feasibility Study for the Project including the related survey was executed until April 2013.

The study results have revealed that the Project is feasible enough in terms of traffic demand, economic efficiency, and thus shall be one of the highest priority projects that will eliminate the missing link as well as contribute to significant mitigation of traffic congestion in the center of Ulaanbaatar City.

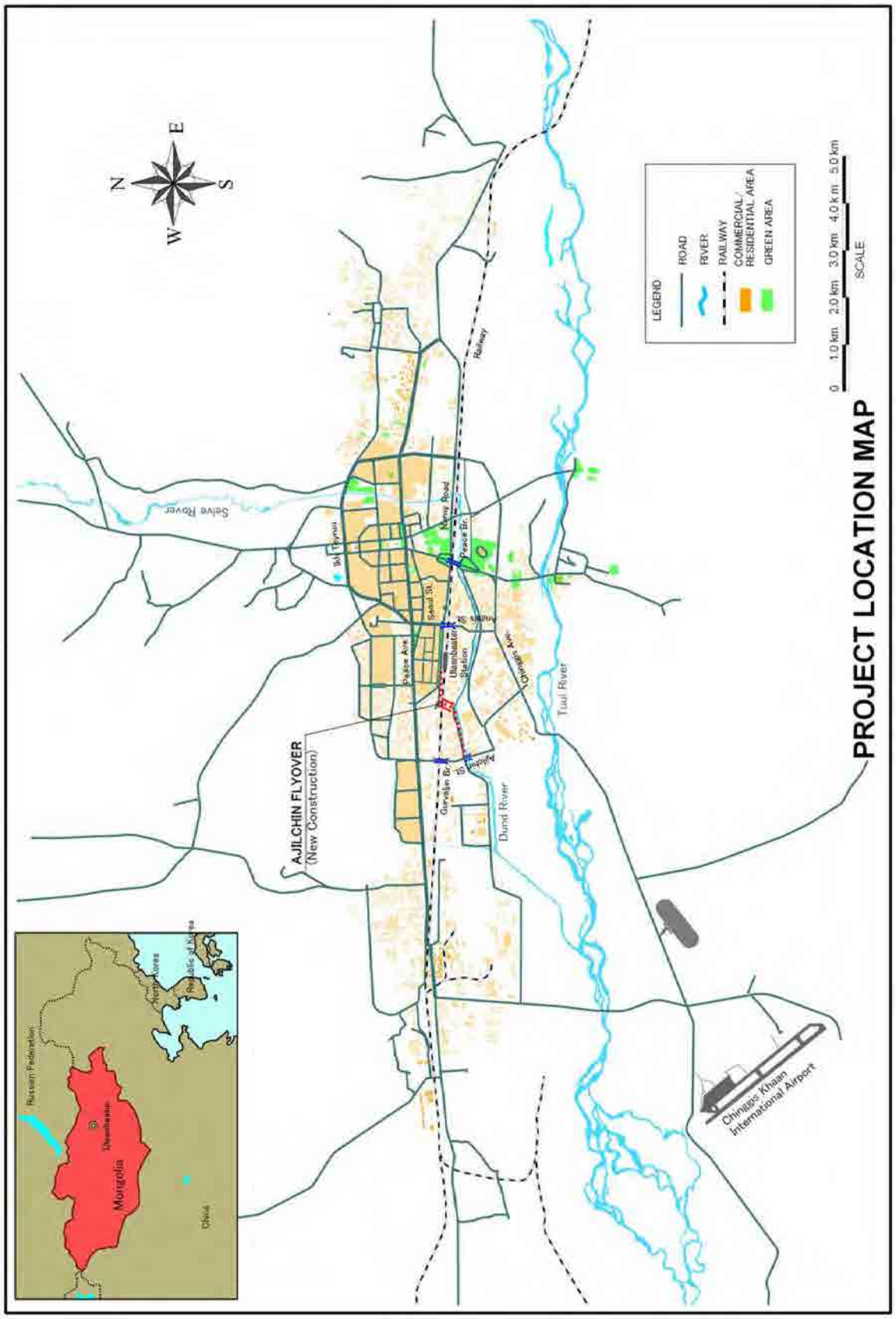
1.2 Objectives of the Project

The objectives of the Project are:

- To provide essential infrastructure to alleviate the critical missing link connecting north and south regions of Ulaanbaatar City;
- To achieve effective and significant improvement of road network for safe and smooth vehicular traffic in the active industrial/commercial zone of Ulaanbaatar City;
- To reduce critical traffic congestion derived from high density developments and remarkable increment of mobiles; and
- To improve quality of social life of one (1) million residents in Ulaanbaatar City.

2. PROJECT DESCRIPTION

2.1 Location of the Project



2.2 Project Works

The Project works are summarized as below.

Section/Item		The contents of the facility and renovation
1. Bridge Section		
	Superstructure	<No.1 Bridge> 4 span continuous multi box steel girder (L=189m, W=8.89m, Each lane separated structure) <No.2 Bridge> 4 span continuous multi box steel girder (L=245m, W=8.89~17.2m, Each lane separated structure) <No.3 Bridge> 3 span continuous multi box steel girder (L=141m, W=8.89m, Each lane separated structure) <No.4 Bridge> 6 span continuous steel I girder (L=253m, W=8.89m, Each lane separated structure) <ON Ramp> 3 span continuous steel box girder (L=150.9m, W=6.39m) <OFF Ramp> 3 span continuous steel box girder (L=123.6m, W=6.39m)
	Deck Slab	Steel Concrete Composite Slab (A=18,150 m^2)
	Erection Method	Crane vent method and Launching erection method (Above railway tracks)
	Substructure	Abutment: Reversed T Abutment, n=4 (Main bridge: n=2, Ramp: n=2) Pier: (P1~P5, P9~P16) Cylindrical Pier (with Beam), n=30 (Main bridge: n=26, Ramp: n=4), Pier: (P6~P8) Frame rigid with cylindrical pier, n=6 Foundation: (A1~P10) Rotary Penetration Steel Pipe Pile (φ1000, t=14mm, n=167, L=897m) (P11~A2) Spread Foundation, n=12
	Accessory	Road lighting, Drainage, Heat insulating plate, Guard fence, Unseating prevention device
2. East Approach Road		
	Road Length	Main road: 515m <With earth wall: 167m, Without earth wall: 348m>、 Side road: 700m <North side: 350m, South side: 350m> Service road: 510m
	Other Facility	Drainage, Guard fence, Road marking, Street lighting, Anti-skid pavement, Gravity retaining wall, Reinforced earth wall
3. West Approach Road		
3.1 Approach Road		
	Road Length	1,000 m (with earth wall: 167m, without earth wall：833m)
	Other Facility	Drainage, Road marking, Street lighting
3.2 River Dike Construction		
	Length	915m (Crown width: 3.0m, Slope Gradient: 1:2.0)

Section/Item		The contents of the facility and renovation
	Other Facility	Concrete covering slope, Ramp way to Dundogol River
3.3 West Industrial Road		
	Road Length	1,370m
	Other Facility	Drainage, Guardrail, Road marking, Street lighting
4. Intersection:		
	Location	5 locations: Beginning of this project, Connect with west industrial road, Crossing with railway feeder line, Under grade separation at Narny road, End of this project
	Other Facility	Drainage, Road marking, Street lighting, Traffic Signal, ITS devices.

3. PROJECT IMPLEMENTATION SCHEDULE

The total duration of the Project will be sixty eight (68) months followed by twelve (12) months of defects liability period. The implementation schedule expected is as shown in the table below.

Key Activities	Date	Duration
Detailed Design and Preparation of Bid Documents	1 March 2014 through 28 February 2015	12 months
Prequalification Process	1 August 2014 through 31 December 2014	5 months
Bidding Process	1 January 2015 through 31 December 2015	12 months
Civil Works	1 January 2016 through 31 December 2019	48 months
Defect Liability Period	1 January 2020 through 31 December 2021	24 months

4. SCOPE OF CONSULTING SERVICES

4.1 Objectives of Consulting Services

The consulting services shall be provided by an international consulting firm (hereinafter referred to as "the Consultant") in association with national consultants in compliance with “Guidelines for the Employment of Consultants under Japanese ODA Loans (April 2012)”.

The objective of the consulting services is to achieve the efficient and proper preparation and implementation of the Project through the following works:

- Detailed Design and Preparation of Bid Documents;
- Assistance in ROW Acquisition;
- Assistance in Bidding and Contract Negotiation;
- Construction Supervision; and
- Technology Transfer.

4.2 General Scope of Consulting Services

The Consultant shall provide professional engineering services required for the detailed engineering design, tender assistance and construction supervision of the Project and should include detailed design of the improvement of the adjoining intersections by conducting the necessary studies, surveys, testing and preparation of detailed engineering plans and specifications, cost estimates, prequalification, bidding and contract documents, utility and Right-of-Way acquisition plans required for the implementation and construction of the Project.

4.3 Specific Scope of Consulting Services

4.3.1 Detailed Design

The Consultant shall:

a. Review and verify all available primary and secondary data collected during the JICA’s preparatory survey for the Project;
b. Carry out all the required engineering surveys and investigations such as topographical survey, hydrological survey, geotechnical survey, material availability survey, etc., as applicable to the concerned project components;
c. Prepare detailed work plan, progress reports and implementation schedule for the Project to ensure effective monitoring and timely project outputs, and regularly update the same; and
d. Prepare the detailed design of the Project in sufficient detail to ensure clarity and understanding by PIU and the Executing Agency and other relevant stakeholders. All the design should be in conformity with the Mongolian Standards (if available), or with the appropriate international standards. The detailed design will, as a minimum, include construction drawings, detailed cost estimates, necessary calculations to determine and justify the engineering details for the Project, associated contract documentation to include detailed specifications, bill of quantities (BOQ), and implementation schedule for the Project. Such detailed specifications will contain those in relation to i) quality control of materials and workmanship, ii) safety, and iii) protection of the environment. The detailed design shall be prepared in close consultation with, and to meet the

requirements of PIU and the Executing Agency, and will be incorporated into the detailed design report to be submitted for approval of PIU and the Executing Agency.

In addition to the above the Consultants shall carry out the following specific tasks.

(1) Establishment of Design Criteria and Standards

The following design criteria and standards shall be established in close consultation with PIU and the Executing Agency and related agencies.

- Geometric design criteria and standards
- Pavement design criteria and standards
- Drainage design criteria and standards
- Structural design criteria and standards
- Miscellaneous facilities design criteria such as guide and regulatory sign boards, pavement markings and traffic safety facilities

(2) Topographical Survey

The Consultant shall undertake the following surveys to promote the topographic map and all other necessary data for the detailed design.

- Establishment of horizontal and vertical control monuments
- Center-line staking-out survey
- Profile survey along the center line
- Cross section survey at twenty (20) meter interval
- Topographic survey to reflect all natural changes and man-made structures with contour lines
- River center-line and profile survey / River cross section survey at fifty (50) meter interval

(3) Geotechnical Investigations and Construction Material Survey

a. Determination of the subgrade materials through auger boring shall be conducted along the road centerline in accordance with the standard requirements of the Guidelines in Mongolia.
b. At the proposed bridge site, deep drilling with standard penetration test (SPT) shall be conducted at each abutment and pier. Minimum depth is 10 meters unless bedrock is encountered at a shallower depth. Drilling can be stopped after 5 meters penetration into hard rock or sand gravel layer of which N value is more than fifty (50).
c. At proposed materials sources, two (2) test pits shall be made and sufficient samples should be taken for laboratory testing.
d. The Consultant shall perform analysis and testing on disturbed and undisturbed soil samples, pavement samples as well as on construction materials samples. This analysis and testing shall be performed in accordance with AASHTO and ASTM standards.
e. In particular, the soil samples for pavement design will be tested for:
   - Grain size distribution and classification according to the AASHTO method; and
   - Atterberg limits, natural moisture content, dry density/moisture content relationship and determination of bearing capacity by the CBR test on representative samples of the different soil types.
f. The soil samples for foundation design will be tested for the determination of the

main characteristics (grain size distribution and classification, moisture content, Atterberg limits, shear strength, compressibility, shrinkage, etc.) and analyzed for liquefaction potential.

g. The Consultant shall identify the sources of borrow aggregates and other construction materials required by the Project after a thorough evaluation of the alternative sources as preliminary established during the feasibility study stage. The construction materials samples will be tested where necessary for, but not limited to, the following:
   - Grain size distribution and plasticity characteristic;
   - Unit weight and water absorption;
   - Los Angeles abrasion;
   - Chemical water analysis;
   - Soundness; and
   - Sand equivalent

h. The Consultant shall show (with photographs) the location of auger boring, drilling and test pitting.

i. Geological structure, especially active faults which might traverse the area, should be delineated and potential mass movement areas should be identified.

j. Plate Load Test in accordance with ASTM D1194-94 shall be carried out to examine the bearing capacity at the prospective location of spread foundation.

(4) Hydrological/Hydraulics and Drainage Surveys

a. All available data (physical and geological maps of the territory, climatology reports, hydrological reports and maps, Ulaanbaatar City drainage master plan and local drainage system plans, flood control project plans, etc.) related to the Project will be collected and examined by the Consultant who shall integrate such data with information collected directly on site and from local authority/ies offices (trend of recent water course, stream velocity and maximum flood levels, flood prone areas, existing drainage system characteristics and conditions, and design discharge;

b. The extent and nature of the catchment basin of the different water courses will be determined by examining available topographical and geological maps as well as by means of direct investigation;

c. Design discharge of the Dondgol River shall be examined to estimate food water level for the design of river dike; and

d. Hydrologic/hydraulic Reports shall be reviewed and evaluated in conformity with Standards and Technical Requirements of Mongolia.

(5) Bridge Structure Design

Structural design shall be made in accordance with the established design/criteria and standards. For bridges, possible alternative types shall be evaluated to select the most feasible type in terms of technical, economic and environmental viewpoints.

The Consultant shall make use of the data gathered and collected from the existing sources and the information obtained directly on the site.

(6) Highway and Pavement Design

The detailed design of the highway including service roads, access road and intersecting roads shall be prepared in accordance with the established design criteria and standards. All necessary drawings shall be prepared bases on which the civil work shall be undertaken.

Access road connection to west-side of the Bridge shall be designed as arterial road for through traffic as isolated from existing West Industrial Road.

Intersection of Narny road and new road shall be designed as grade separation. Frontage road connecting to the intersection shall be provided beside the flyover at Narny Road section.

(7) Intersection Design (Geometric Design)

The Consultant shall prepare designs on major intersections based on Traffic, Physical, Economic and Human factors in close coordination with the agency/office responsible in the installation of traffic signals including intersection improvements and the Ministry of Roads and Transportation (MRT) prior to the establishment of Structural Design Standards.

(8) Drainage Design

Detailed drainage design for surface water shall be carried out by the Consultant on the basis of the hydrological and drainage survey study results and taking into proper consideration general and particular problems such as minimum pipe diameter to be used to ensure satisfactory execution of drainage maintenance, drainage problems of the Project roads, etc.

(9) Design of River Dike

River dike along the Dondogol River shall be designed by the Consultant based on the Hydrologic/hydraulic Reports. The Consultant shall estimate design discharge in accordance with existing flood control plan prepared agreed with Ulaanbaatar City.

(10) Ancillary Works

The Consultant shall undertake the detailed design of ancillary works such as street lighting, pavement markings, traffic signs, landscaping, special detour roads, miscellaneous structures, if necessary, etc. Moreover, the Consultant shall coordinate with the Utility Owners regarding their proposed plans/projects and implementation schedule to prevent complication in the future.

(11) Utility Maps

a. The Consultant shall prepare utility maps showing all water, electric, telephone, sewer, etc., lines that cross or fall within the proposed right-of-way.
b. The utility maps shall be provided at the earliest date possible so that the utility lines can be relocated prior to the construction or upgrading of the Project road.
c. The utility maps shall indicate which lines will be affected by the new construction and the extent that they will have to be relocated.

(12) Right-of-Way Maps, Parcellary and Lot Plans

The Consultant shall define the extent of the road right-of-way limit and prepare the right-of-way plans acquisition costs based on design standard/construction requirement and/or local ordinance.
The right-of-way maps shall list all permanent structures that exist on each individual property. The parcellary and lot plans shall contain a description and size of each property

to be acquired including property owners.
The parcellary survey shall consist of the following:

- Research work on the technical description of the lots affected from existing Certificates of Title and their aggregated approved Subdivision Plan and cadastral maps of the area. These shall be authenticated by the authorized government agencies.
- Preparation of subdivision plans of the affected lots based on the existing Certificate of Title and approved Subdivision Plan.
- Monumenting of all corners with standard cylindrical concrete monument with the size agreed by the Client.
- The Ministry of Roads and Transportation shall be furnished original copies of the approved parcellary/ subdivision plans and technical descriptions.
- If relocation of squatters is involved, the site of relocation area shall be identified and the cost of development of the area including relocation cost shall be estimated.

(13) Preparation of Construction Execution Plan

The construction execution plan shall be prepared covering, among others, construction procedures, construction schedule, location and size of construction camp and equipment motor pool/workshop, safety measures, methods to mitigate environmental impacts, possible dumping sites of solid wastes and unsuitable materials, materials sources, material traffic routes and traffic control measures along the transport routes and environmental monitoring systems based on DEIA as Environmental Management Plan.
The Consultant shall prepare the Traffic Management Plan during construction to avoid or at least mitigate traffic congestion, traffic accidents, traffic disturbance to school children, commuters, local business, etc. The traffic Management Plan shall be specified in the special provisions of the contract.

(14) Review of Environmental Management Plan

The Consultant shall:

a. Review EMP as appropriate; incorporate necessary technical specifications with design and contract documentation;
b. Assist the Employer in dissemination and explanation of additionally confirmed and identified environmental issues to public including holding public consultations; and
c. During the preparation of bidding documents, clearly identify environmental responsibilities as explained in the DEIA and EMP.

(15) Assistance in ROE Acquisition

The Consultant shall assist in:

a. Updating and/or preparation of RAP as necessary based on detailed design in accordance with the agreed resettlement framework, including entitlement matrix and compensation plan; coordinate with various agencies in preparing the procedures for timely land acquisition and disbursement of compensation to project affected persons (PAPs);
b. Monitoring the land acquisition and compensation activities being undertaken by PIU and Ulaanbaatar City and/or competent authorities, and report the results in monthly progress reports;
c. Procurement of External Monitoring Agency (EMA);
d. Establishment of grievance redress mechanism including formation of Grievance

Redress Committee; and

e. Ensuring that the PAPs are fully aware of the grievance redress procedure and the process of bringing their complaints, investigate the veracity of the complaints, and recommends actions/measures to settle them amicably, fairly and transparently before they go to the redress committee or the courts of law.

(16) Quantity Calculation

The Consultant shall calculate the quantities of the different types of work to be carried out. In particular, the quantities of each work item shall be calculated and a Bill of Quantities shall be prepared.
A quantity take-off report shall be prepared and submitted to PIU and the Executing Agency.

(17) Unit Price Analysis

The Consultant shall draw up a unit price analysis of each of the main work items. The unit price of each of the main work items shall include:

a. Direct Costs
   - cost of materials (cost at sources, transport, handling, storage, miscellaneous expenses and allowance for wastage);
   - cost of construction plant and equipment including depreciation or rental rates, wages of operators, fuel, oil lubricants and maintenance; and
   - cost of labor, including salaries, wages, cost of living allowance and all fringe benefits.

b. Indirect Cost
   - overheads;
   - profit; and
   - taxes.

Each unit price analyzed shall be broken down into foreign currency, local currency and tax component.

(18) Plans and Drawings

The Consultant shall prepare drawings in conformity with the quality of plans approved by PIU and the Executing Agency for the Project.

(19) Special Provisions

Prepare specifications for specific items of work or methods of construction, measurement and payment which are not covered by Mongolian Standard Specifications.

(20) Government Estimate

Prepare one (1) copy of the Government Estimate of construction costs for Contract utilizing the quantities and unit prices. The Estimate should be accompanied by a construction schedule. An overview of expected quarterly expenditures shall also be prepared consisting of a Network diagram of construction activities, a bar chart with S-curve, equipment deployment schedule, manpower deployment schedule and cash flow schedule.

(21) Prequalification, Bidding and Contracting Documents

The Consultant shall prepare the following prequalification, bidding and contract documents appropriate for competitive bidding.

a. Pre-qualification documents and its evaluation criteria
   - Define technical and financial requirements, capacity and/or experience for PQ criteria taking into consideration technical feature of the Project.
   - Prepare PQ documents in accordance with the latest version of Standard Prequalification Documents under Japanese ODA Loans.

b. Bid Documents
   - The Consultant shall prepare bidding documents in accordance with the latest version of Standard Bidding Documents under Japanese ODA Loans for Procurement of Works together with all relevant specifications, drawings and other documents.
   - The bidding documents shall include the clauses to have Contractor comply with the requirement of the Environmental Management Plan (EMP) and JICA Guidelines for environmental and social considerations (April 2010) (JICA Environmental Guidelines).
   - Bidding Documents shall be prepared to include, but not limited to, the followings:

Section I.	Instructions to Bidders
Section II.	Bid Data Sheet
Section III.	Evaluation and Qualification Criteria
Section IV.	Bidding Forms
Section V.	List of Eligible Countries
Section VI.	Scope of Works
Section VI (a)	General Specifications / Special Technical Specifications
Section VI (b)	Drawings
Section VI (c)	Addenda and Supplemental (if any)
Section VII.	General Conditions of Contract
Section VIII.	Particular Conditions
Section IX.	Annex to the Particular Conditions – Contract Forms

Any variation in the prequalification, bidding and contract documents agreed upon with PIU and the Executing Agency shall be made by the Consultant during the revision of the draft documents and included in the final edition. The final prequalification, bidding and contract documents shall be submitted to PIU and the Executing Agency.

(22) Technical Reports

The Consultant shall prepare ten (10) copies of technical reports for the work prepared to include, but not limited to, the following;

- Topographical Surveys;
- Highway/Geometric Design;
- Geotechnical Surveys;
- Soils, pavement and materials survey;
- Hydrological/Hydraulic study and drainage design;
- Pavement design;
- Bridge structure design;
- Street lighting;
- Traffic signals;
- Traffic signs and road markings;

- Other ancillary works;
- Study of traffic impact during construction;
- Utility maps;
- Right-of-way maps;
- Quantity Calculations;
- Price analysis; and
- Cost estimate.

4.3.2 Tender Assistance

(1) Assistance in Pre-Qualification (PQ)

The Consultant shall;

a. Assist PIU and the Executing Agency in PQ announcement, addendum/corrigendum, and clarifications to the applicants' queries;
b. Evaluate PQ applications in accordance with the criteria set forth in PQ documents; and
c. Prepare a PQ evaluation report for approval of the PQ evaluation committee.

(2) Assistance in the Bidding Stage

The Consultant shall;

a. Assist PIU and the Executing Agency in issuing bid invitation, conducting pre-bid conferences, issuing addendum/corrigendum, and clarifications to bidders' queries;
b. Evaluate bids in accordance with the criteria set forth in the bidding documents. In such evaluation, the Consultant shall carefully confirm that bidders' submissions in their technical proposal including, but not limited to, site organization, mobilization schedule, method statement, construction schedule, safety plan, and EMP have been prepared in harmony each other and will meet such requirements set forth in applicable laws and regulations, specifications and other parts of the bidding documents;
c. Prepare a bid evaluation report for approval of the bid evaluation committee;
d. Assist PIU and the Executing Agency in contract negotiation by preparing agenda and facilitating negotiations including preparation of minutes of negotiation meeting; and
e. Prepare a draft and final contract agreement.

4.3.3 Construction Supervision

The Consultant shall perform his duties during the construction period in accordance with the contracts to be executed between the Employer and the Contractors. FIDIC MDB Harmonized Edition (2010) complemented with the Specific Provisions as included in the Standard Bidding Documents under Japanese ODA Loans for Procurement of Works will be applied to the civil works of the Project.

(1) Primary Role of the Consultant

In the course of construction stage, the Consultant shall:

a. Act as the Engineer to execute construction supervision and contract administration services in accordance with the power and authority to be delegated by the Employer;
b. Provide assistance to the Employer concerning variations and claims which are to be ordered/issued at the initiative of the Employer;

c. Perform the inspection of the works and to issue certificates such as the Taking-Over Certificate, Performance Certificate as specified in the civil works contract;
d. Supervise commissioning and carry out testing during commissioning;
e. Prepare and submit reports to PIU and the Executing Agency, which are detailed in Chapter 6 (Reporting) in relation to the implementation of the Project;
f. Furnish for the use of the Contractor all necessary ground and topographic data;
g. Furnish timely assistance and direction to the Contractor in all matters related to the interpretation of the contract document, ground survey control, quality control testing, and other matters relating to contract compliance arid progress of the project;
h. Organize the supervision of the works with proper allocation of responsibilities to the individual inspectors and supervise their work in order to ensure it is effectively executed;
i. Give notice to the Contractor, through PIU and the Executing Agency, of any defects and deficiencies and recommend appropriate action;
j. Assist in settling disputes between PIU and the Executing Agency and the Contractor;
k. Coordinate with the agencies concerned relative to the implementation of the Project;
l. Coordinate the works among different contractors employed for the Project as appropriate;
m. Review and approve all contractors working drawings, shop drawings, erection drawings, and drawings for temporary works;
n. Make recommendation to PIU and the Executing Agency on all claims of the Contractor for payment of work accomplished; time extension and other similar matters;
o. Examine and make recommendations to PIU and the Executing Agency on all claims from the Contractor for time extension, extra compensations, work or expenses or other similar matters;
p. Supervise the preparation of reproducible As-Built drawings and plans;
q. Liaise with the appropriate authorities to ensure that all the affected utility services are promptly relocated;
r. Modify the designs, technical specifications and drawings, relevant calculations and cost estimates as may be necessary in accordance with the actual site conditions, and issue variation orders (including necessary actions in relation to the works performed by other contractors working for other projects, if any);
s. Propose and present to PIU and the Executing Agency for approval any changes in the plans he may deem necessary for the completion of works including information or any affect the changes may have on the contract amount and the time of completion of the project, and prepare all necessary change orders including altering plans and specifications and other details; and
t. Prepare the necessary work orders, change orders and supplemental agreement, if necessary, including revision of plans and specifications and assist in the negotiation of new or revised unit prices, if called for.

(2) Preparatory Stage of the Construction Work

In particular during preparatory work for the Construction, the Consultant shall:
a. Issue the commencement order to the Contractors;
b. Provide recommendation to the Employer for acceptance of the Contractor Performance security, advance payment security and required insurances;
c. Review and approve the proposals submitted by the contractors which include work program, method statements, material sources, manpower and equipment deployment.

In light of Section 3.03 of Guidelines for the Employment of Consultants under Japanese ODA Loans, April 2012, the Consultant shall pay attention, in particular, to whether such proposals will meet the safety requirements set forth in the applicable laws and regulations, the specifications or other parts of the contract;

d. Explain and/or adjust ambiguities and/or discrepancies in the Contract Documents and issue any necessary clarifications or instructions;
e. Review and recommend for approval the Contractors work schedule or revision thereto and any such plans or programs that the Contractor is obligated to furnish for the Engineer's approval. Prepare and submit to PIU and the Executing Agency a disbursement schedule;
f. Assess the adequacy of all input such as materials and labor provided by the Contractor and his methods of work in relation to the required rate of progress and when required, takes appropriate action in order to expedite progress. Keep and regularly update a list of the Contractors equipment (and its condition) to ensure compliance with the list of equipment which the Contractor provided in his bid;
g. Perform verification surveys of the Contractors stake-out surveys for the centerline alignment, structures location surveys, and vertical control bench marks;
h. Make sure that the following requirements will fully be met.
    - The safety requirements in accordance with the laws and regulations in GOM and relevant international standards (including guidelines of international organization), if any, shall be clearly stipulated in the contract.
    - Bidders shall furnish a safety plan to meet the safety requirements stipulated in the bidding documents.
    - The personnel for key positions to be proposed by bidders shall include an accident prevention officer.
i. Review the safety plans submitted by the bidders.

(3) Routine Activity during Construction Stage

As routine work during the Construction Stage, the Consultant shall:

a. Review, verify and further detail the design of the works, approve the Contractors' working drawings and, if necessary, issue further drawings and/or give instructions to the Contractor;
b. Carry out field inspections on the contractor's setting out to ensure that the works are carried out in accordance with drawings and other design details;
c. Regularly monitor physical and financial progress against the milestones as per the contract so as to ensure completion of contract in time;
d. Supervise the works so that all the contractual requirements will be met by the contractors, including those in relation to i) quality of the works, ii) safety and iii) protection of the environment. In light of Section 3.03 of Guidelines for the Employment of Consultants under Japanese ODA Loans, April 2012, the Consultant shall confirm that an accident prevention officer proposed by contractor is duly assigned at the project site and that construction works are carried out according to the requirements set forth in the applicable laws and regulations, the specifications or other parts of the contract;
e. Supervise field tests, sampling and laboratory test to be carried out by the contractors;
f. Inspect the construction method, equipment to be used, workmanship at the site, and attend shop inspection and manufacturing tests in accordance with the specifications;
g. Inspect and evaluate all Contractors' installation, housing, shop and warehouse and other accommodations to ensure compliance with the term and conditions of contract

documents;

h. Carry out timely reporting to PIU and the Executing Agency for any inconsistency in executing the works and suggesting appropriate corrective measures to be applied;
i. Survey and measure the work output performed by the contractors to certify and make recommendations to PIU and the Executing Agency on the Contractors monthly payment certificate;
j. Prepare and submit reports to PIU and the Executing Agency periodically as required on the progress of work, the Contractors performance, quality of works, and the projects financial status and forecasts;
k. Maintain a representative at the Project site at all times to supervise the contractors work and to issue instruction as required;
l. Prepare and maintain inspection and engineering reports and records to adequately document the progress and performance of the work;
m. Assure the receipts of, and maintain as per permanent records, all warrants required under terms of the contract documents for materials and equipment accepted and incorporated in the project;
n. Inspect works and check materials including testing requirements;
o. Inspect quarries and borrow pits and crushing plants to ensure adherence to specifications;
p. Check and certify as-built drawings for the parts of the works designed by the contractors, if any;
q. Confirm that an accident prevention officer proposed by the contractor is duly assigned at the project site and that the construction work is carried out according to the safety requirements stipulated in the contract. If consultants recognize any questions regarding the safety measures including the ones mentioned above, the consultants shall require the contractors to take appropriate remedies; and
r. Conduct the safety patrol of the construction site daily to keep the construction work safe during the supervision of construction works.

(4) Traffic Control Plan

As for traffic management & re-routing plans during construction stage, the Consultant shall perform the following:

a. Assess the effectiveness and suitability of the recommended traffic management during the actual construction and recommend necessary adjustment to suit actual conditions;
b. The disturbance to traffic flow during construction will likely cost public protest unless steps are taken explaining the situation through Public Information Campaign. Warning in advance (through newspapers, radio and television) that particular sections/segments will be partially close, restricted, or close at certain times and provide guidance in the use of possible one-way system of parallel roads;
c. The implementation of the traffic management scheme shall pay attention to the following:
    - Protection to the extent possible to the needs of the affected local residents and business;
    - Access for emergency vehicles must be guaranteed; and
    - Minimize disruption to pedestrians and public transport users.

(5) Facilitation of implementation of Environmental Management Plan (EMP)

The Consultant shall:

a. Assist PIU and the Executing Agency to review the Construction Contractor's Environmental Program to be prepared by the contractor in accordance with EMP, relevant plans and JICA Environmental Guidelines and to make recommendations to PIU and the Executing Agency regarding any necessary amendments for its approval;
b. Assist PIU and the Executing Agency to implement the measures identified in the EMP;
c. Monitor the effectiveness of EMP and negative impacts on environment caused by the construction works and provide technical advice, including a feasible solution, so that PIU and the Executing Agency can improve situation when necessary;
d. Assist PIU and the Executing Agency in monitoring the compliance with conditions stated in EMP and JICA Environmental Guidelines;
e. Assist PIU and the Executing Agency in preparation of the answer to the request from JICA's advisory committee for environmental and social considerations if necessary;
f. Assist PIU and the Executing Agency in the capacity building of PIU and the Executing Agency's staff on environmental management through on-the-job training on environmental assessment techniques, mitigation measure planning, supervision and monitoring, and reporting;
g. Update and/or prepare RAP as necessary based on detailed design in accordance with the agreed resettlement framework, including entitlement matrix and compensation plan; coordinate with various agencies in preparing the procedures for timely land acquisition and disbursement of compensation to project affected persons (PAPs);
h. Assist PIU and the Executing Agency in identifying the eligible PAPs, and in preparation/updating of the list of eligible PAPs and 'Payment Statement' for individual eligible PAPs. The places where each eligible PAPs will relocate to are necessary to be recorded so that PIU and the Executing Agency could implement monitoring on income and living conditions of resettled persons;
i. Assist PIU and the Executing Agency in conducting social assessment during early stage of the detailed design stage and review the existing income restoration plan and special assistance plan for vulnerable PAPs and revise/update the contents of the plans if necessary based on priorities identified with support of relevant government agencies and Non-Governmental Organizations (NGOs). The following contents should be included in the plans;
    - Skills Training
    - Project related Job Opportunities
    - Provision of social welfare grant
    - Provision of Agricultural Extension Services
    - Provision of the special allowance to vulnerable PAPs
j. Assist PIU and the Executing Agency to implement the measures identified in the revised RAP.
k. Monitor land acquisition and compensation activities being undertaken by PIU and the Executing Agency and/or competent authorities, and report the results in monthly progress reports;
l. Assist in procurement of Implementation NGO (INGO) and external monitoring agency (EMA).;
m. Assist PIU and the Executing Agency in facilitating stakeholder's participation (including focus group discussions for vulnerable PAPs) and providing feedback their comments on RAP;
n. Assist PIU and the Executing Agency in establishment of grievance redress mechanism including formation of Grievance Redress Committee;

o. Assist PIU and the Executing Agency to ensure that the PAPs are fully aware of the grievance redress procedure and the process of bringing their complaints, investigate the veracity of the complaints, and recommends actions/measures to settle them amicably, fairly and transparently before they go to the redress committee or the courts of law; and
p. Provide technical services with grievance redress committee for keeping and updating records when necessary.

4.3.4 Technology Transfer

Throughout the execution of the services, the Consultant shall make a full effort to carry out the technology transfer by means of on-the-job training as an important aspect in design and supervision works. The Consultant shall provide the opportunity to PIU, MRT UBC and other related agencies' officers and staffs to be involved in the working team of the Consultant during the design, contract administration and supervision works for their capacity building wherever possible.

If requested by PIU, MRT, UBC and other related agencies, the Consultant shall brief and demonstrate the survey and design procedure, the construction supervision and contract management process and procedures. The Consultant shall assist the Employer and its staff to build their capacity as a part of on-the-job training under the Project.

5. EXPECTED STAFFING

5.1 Total Input of International and National Experts

For ultimate execution of the consulting services, fourteen (14) International Experts (Professional A) and ten (10) National Experts (Professional B) listed below will be engaged for sixty eight (70) months duration of the consulting services.

(1) International Experts (Professional A)

No	Position	Person-months
A-01	Team Leader / Senior Highway Engineer	72
A-02	Steel Structure Engineer (1)	41
A-03	Steel Structure Engineer (2)	9
A-04	Steel Structure Engineer (3)	9
A-05	Sub Structure & Foundation Engineer (1)	36
A-06	Sub Structure & Foundation Engineer (2)	6
A-07	Sub Structure & Foundation Engineer (3)	6
A-08	Highway & Pavement Engineer	41
A-09	Traffic Engineer	3
A-10	Cost Estimate & Construction Planner	10
A-11	Tender Document Specialist	10
A-12	Hydrologist / Drainage Engineer	5
A-13	Material / Geological Engineer	5
A-14	Safety & Quality Control Engineer	25
Total		278

(2) National Experts (Professional B)

No	Position	Person-months
B-01	Deputy Team Leader / Document Specialist	72
B-02	Highway Engineer	40
B-03	Bridge Engineer	39
B-04	Structure Engineer	31
B-05	Hydrologist / Drainage Engineer	5
B-06	Material / Pavement Engineer	33
B-07	Electrical Engineer	6
B-08	Environmental Specialist	8

B-09	Quantity Engineer & Cost Estimator	34
B-10	Field Engineer	29
Total		297

5.2 Requirements for Qualification of Expertise

Expected qualifications required to key experts for the Project are summarized below.

(1) Professional A [International Experts]

No	Position	Expected Qualification
A-01	Team Leader / Senior Highway Engineer.	• Bachelor degree in Civil Engineering or equivalent • 20 years working experience as consultant for overseas project • 5 projects experiences as Team Leader and/or Deputy Team Leader in similar foreign funded project • Preferably, 3 or more projects experiences in Japanese ODA project • Preferably, 2 similar projects experience in Mongolia
A-02 A-03 A-04	Steel Structure Engineer (1) (2) (3)	• Bachelor degree in Civil Engineering or equivalent • 15 years working experience as consultant for overseas project • 5 projects experiences as Steel Bridge Engineer in similar project including 3 or more in foreign funded project
A-05 A-06 A-07	Sub Structure & Foundation Engineer (1) (2) (3)	• Bachelor degree in Civil Engineering or equivalent • 15 years working experience as consultant for overseas project • 5 projects experiences as Bridge Sub Structure & Foundation Engineer in similar project including 3 or more in foreign funded project
A-08	Highway & Pavement Engineer	• Bachelor degree in Civil Engineering or equivalent • 15 years working experience as consultant for overseas project • 5 projects experience as Highway & Pavement Engineer in similar project including 3 or more in foreign funded project
A-09	Traffic Engineer	• Bachelor degree in Civil Engineering or equivalent • 10 years working experience as consultant for overseas project • 3 project experiences as Traffic Engineer in similar project including 2 or more in foreign funded project
A-10	Cost Estimate and Construction Planner	• Bachelor degree in Civil Engineering or equivalent • 15 years working experience as consultant for overseas project • 5 projects experience as Cost Estimate / Construction Planner in similar project including 3 or more in foreign funded project
A-11	Tender Document Specialist	• Bachelor degree in Civil Engineering or equivalent • 15 years working experience as consultant for overseas project

		• 5 projects experience as Tender Document Specialist in similar project including 3 or more in foreign funded project
A-12	Hydrologist / Drainage Engineer	• Bachelor degree in Civil Engineering or equivalent • 10 years working experience as consultant for overseas project • 3 projects experience as Hydrologist / Drainage Engineer in similar project including 2 or more in foreign funded project
A-13	Material / Geological Engineer	• Bachelor degree in Civil Engineering or equivalent • 15 years working experience as consultant for overseas project • 5 projects experience as Material / Geological Engineer in similar project including 3 or more in foreign funded project
A-14	Safety & Quality Control Engineer	• Bachelor degree in Civil Engineering or equivalent • 15 years working experience as consultant for overseas project • 5 projects experience as Safety & Quality Control Engineer in similar project including 3 or more in foreign funded project

(2) Professional B [National Experts]

No	Position	Expected Qualification
B-01	Deputy Team Leader & Document Specialist	• Bachelor degree in Civil Engineering or equivalent • 20 years working experience as consultant • 10 years working experience in similar projects • 3 projects experiences as Team Leader and/or Deputy Team Leader in foreign funded projects
B-02	Highway Engineer	• Bachelor degree in Civil Engineering or equivalent • 15 years working experience as consultant • 7 years working experience in similar projects • 3 projects experience in foreign funded project
B-03	Bridge Engineer	• Bachelor degree in Civil Engineering or equivalent • 15 years working experience as consultant • 7 years working experience in similar projects • 3 projects experience in foreign funded project
B-04	Structure Engineer	• Bachelor degree in Civil Engineering or equivalent • 15 years working experience as consultant • 7 years working experience in similar projects • 3 projects experience in foreign funded project
B-05	Hydrologist / Drainage Engineer	• Bachelor degree in Civil Engineering or equivalent • 10 years working experience as consultant • 5 years working experience in similar projects

B-06	Material / Pavement Engineer	• Bachelor degree in Civil Engineering or equivalent • 15 years working experience as consultant • 7 years working experience in similar projects • 3 projects experience in foreign funded project
B-07	Electrical Engineer	• Bachelor degree in Civil Engineering or equivalent • 10 years working experience as consultant • 5 years working experience in similar projects
B-08	Environmental Specialist	• Bachelor degree in Civil Engineering or equivalent • 10 years working experience as consultant • 5 years working experience in similar projects • 3 projects experience in foreign funded project • Preferably, 1 projects experience under Japanese ODA project
B-09	Quantity Engineer & Cost Estimator	• Bachelor degree in Civil Engineering or equivalent • 10 years working experience as consultant • 5 years working experience in similar projects • 3 projects experience in foreign funded project
B-10	Field Engineer	• Bachelor degree in Civil Engineering or equivalent • 10 years working experience as consultant • 5 years working experience in similar projects

5.3 Major Tasks and Duties

Major tasks and duties of key experts for the Project are summarized below.

(1) Professional A [International Experts]

No	Position	Major Tasks and Duties
A-01	Team Leader / Senior Highway Engineer.	1) Lead the consultant team and ensure all deliverables are prepared in accordance with quality and time constraints. 2) Administer and supervise the detailed design, tender assistance, constructions and documentation activities for civil works contracts. 3) Identify appropriate design codes and standards. 4) Supervise whole aspects of civil works in the Project. 5) Give notice to the contractor of any defect and deficiencies and recommend appropriate action. 6) Prepare necessary work orders, change orders and supplemental agreement. 7) Measurement and computation of quantities of work accomplished. 8) Checking and certifying contractor's periodic billing. 9) Assist the Mongolian Government in settling disputes with the contractor.

		10) Recommendation to PIU on claims of contractor for payment of work accomplished, time extension, etc. 11) Prepare documents for acceptance of work done by the contractor. 12) Advice PIU on matters pertaining to efficient prosecution of Project. 13) Represent interest of the Mongolian Government vis-à-vis contractor. 14) Furnish use of contractor on necessary ground & topographic data. 15) Review & recommend approval of contractor's work schedule. 16) Ensure that deliverables comply with relevant the Mongolian Government's technical requirements, Bank conditions and the terms of the assumptions in the cost benefit analysis. 17) Assist the PIU for PQ process and prepare PQ evaluation reports for approval of the Government of Mongolia (GOM) and JICA. 18) Assist PIU and the Executing Agency in the preparation of invitation for bids, evaluation of bids received, and award of civil works contracts. 19) Assist PIU evaluates the capacity of contractor. 20) Prepare a final report, which will be a compilation and condensation of the data presented in regular monthly progress reports, together with copies of as-built drawings within two (2) months from the issuance of the defects liability certificate. 21) Prepare a final report for the Project. 22) Overall direction, supervision and coordination of all activities by the consultant team. 23) Liaise with PIU and other government agencies concerned. 24) Assist PIU during the coordination meeting with private agencies of underground utilities affected by the Project. 25) Coordinate all inputs to all reports as required for their timely preparation. 26) Hold regular meetings with PIU, consultant's staff and other concerned agencies to discuss problem areas and progress of activities. 27) As a Senior Highway Engineer, responsible for design of major intersections based on traffic, physical, economic and human factors in close coordination with the Executing Agency. 28) Preparation of operation and maintenance manuals for all facilities of the Project. 29) Carry out the necessary inspection, specify and supervise any remedial works to be carried out and when completed, recommend the Executing Agency to finalize the inspection and acceptance of the Project before the issuance of the Certificate of Completion.
A-02	Steel Structure	1) Specifically, the Steel Structure Engineer (1) will decide, with approval of

	Engineer (1)	the Client, on the type of bridge structure to be adopted taking into consideration the required span length, vertical clearance, width, the size of abutments and piers. 2) Review the F/S and be responsible for detailed engineering design of the steel bridge structure sections in terms of type, condition of bridge and its accessory such as bearings, expansion joints and so forth. 3) Receive, assess and approve the contractor's implementation work plans and programs. 4) Ensure that the works are executed in accordance with all the provisions of the contract, including those concerning standards of workmanship, and other safety provisions and protection of the environment. 5) Maintain regular estimates of the cost to completion and time to completion for the project. 6) Assess time and cost claims submitted by the contractor and advise PIU for actions to be taken. 7) Ensure that as-built drawings are prepared for the works. 8) Supervise construction work for grade separated structures. 9) Inspect works and check materials. 10) Give notice to the contractor of any defects and deficiencies and recommend appropriate action. 11) Prepare documents for acceptance of work done by the contractor. 12) Supervise preparation of reproducible "as built" drawing & plans. 13) Preparation of operation and maintenance manuals for all facilities of the Project
A-03	Steel Structure Engineer (2)	1) Specifically, the Steel Structure Engineer (2) will i) establish design standard for bridge super structure, ii) examine and analyze the bridge super structure under the instruction by Steel bridge Engineer (1) during Detailed Design stage. 2) Review the F/S and assess approach road/bridge sections for detailed engineering design, including the type and condition of bridge. 3) Prepare drawing and specification of steel bridges and related structures. 4) Coordinate with sub structure & foundation engineers to formulate design loads for substructure induced by the super structure.
A-04	Steel Structure Engineer (3)	1) Specifically, the Steel Structure Engineer (3) will i) establish design standard for bridge super structure, ii) examine and analyze the bridge super structure under the leading of Steel bridge Engineer (1) during Detailed Design stage. 2) Review the F/S and assess approach road/bridge sections for detailed

		engineering design, including the type and condition of bridge. 3) Prepare drawing and specification of steel bridges and related structures.
A-05	Sub Structure & Foundation Engineer (1)	1) Specifically, the Sub Structure & Foundation Engineer (1) will lead to decide, with approval of GOM, on the type of bridge substructures to be adopted taking into consideration the required span length, vertical clearance, width, the size of abutments and piers. 2) Review the F/S and assess for detailed engineering design, including the type and condition of bridge substructure and foundation. 3) Receive, assess and approve the contractor's implementation work plans and programs. 4) Ensure that the works are executed in accordance with all the provisions of the contract, including those concerning standards of workmanship, and other safety provisions and protection of the environment. 5) Maintain regular estimates of the cost to completion and time to completion for the project. 6) Assess time and cost claims submitted by contractors and advise PIU for actions to be taken. 7) Ensure that as-built drawings are prepared for the works. 8) Supervise construction work for grade separated structures. 9) Inspect works and check materials. 10) Give notice to the contractor of any defects and deficiencies and recommend appropriate action. 11) Coordinate with agencies concerned to the Project implementation. 12) Prepare documents for acceptance of work done by the contractor.
A-06	Sub Structure & Foundation Engineer (2)	1) Specifically, the Sub Structure & Foundation Engineer (2) will i) establish design standard for bridge substructure, ii) examine and analyze the piers, abutment and foundations under the leading of Sub Structure & Foundation Engineer (1) during Detailed Design Stage. 2) Review the F/S and assess approach road/bridge sections for detailed engineering design, including the type and condition of bridge. 3) Coordinate with Bridge Engineer to formulate design loads for substructure induced by the superstructure. 4) Prepare drawing and specification of substructures and related structures of the bridges.
A-07	Sub Structure & Foundation Engineer (3)	1) Specifically, the Sub Structure & Foundation Engineer (3) will i) establish design standard for bridge substructure, ii) examine and analyze the piers, abutment and foundations under the leading of Sub Structure & Foundation Engineer (1) during Detailed Design Stage.

		2) Review the F/S and assess approach road/bridge sections for detailed engineering design, including the type and condition of bridge. 3) Coordinate with Bridge Engineer to formulate design loads for substructure induced by the superstructure. 4) Prepare drawing and specification of substructures and related structures of the bridges.
A-08	Highway & Pavement Engineer	1) Prepare detailed engineering designs and bills of quantities, and calculate detailed cost estimates for civil works, broken down into foreign (direct and indirect) and local components as well as taxes and duties. 2) Prepare practical and cost-effective pavement designs on the basis of condition surveys, road alignment, soils, projected traffic levels, pavement structure studies, and axle load considerations, as determined from above activities and previous studies. 3) Investigate the suitability of locally available construction materials, and where necessary, locate new quarries and borrow pits and assess the quality and quantity of materials and hauling distance. 4) Prepare the plan of road surface drainage system and calculate discharge and capacity to determine the drainage structure. 5) Prepare contract drawings for the road works; including road plans, longitudinal profiles, cross sections, etc. Road plans shall include all existing features and expected land-take based on plotted earthwork limits if so required. 6) Perform necessary subsoil investigations on representative sections of the road, with samples to be taken at appropriate intervals for laboratory tests. 7) Ensure that the works related to highway design are executed in accordance with all the provisions of the contract, including those concerning standards of workmanship, and other safety provisions and protection of the environment. 8) Maintain regular estimates of the cost to completion and time to completion for the project. 9) Assess time and cost claims submitted by the contractor and advise PIU for actions to be taken. 10) Ensure that as-built drawings are prepared for the works. 11) Develop the specifications for highway construction in collaboration with PIU. 12) Assist PIU to prepare construction schedules showing anticipated progress of works by contract package. The schedules should reflect seasonal climatic effects at the work sites.

		13) Preparation of operation and maintenance manuals.
A-09	Traffic Engineer	1) Analyze and evaluate the present and future traffic flow and traffic data. 2) Carry out additional traffic surveys, if necessary, for the finalization of the geometric design standards for the project road and typical cross-section and intersection and pavement design. 3) Prepare the traffic management and re-routing plans for construction to attain a minimum inconvenience to the riding public. 4) Prepare the Traffic Management Plan during construction to avoid or at least mitigate traffic congestion, traffic accidents, traffic disturbance to school children, commuters, local business etc., that is to be specified in the special provisions of the construction contract. 5) Conduct the daily visual survey to confirm the traffic situation, and consider and implement the mitigation measures of the traffic congestion during the construction works near the existing road.
A-10	Cost Estimate and Construction Planner	1) Identify and quantify such cost factors as time, materials and expenses. 2) Establish practical and realistic construction plan and schedule to secure ultimate project implementation under strict budgetary constraints. 3) Gathering of data from on-going projects in Ulaanbaatar City and from any other approved sources for the preparation of the unit prices. 4) Execute unit price analysis for the respective pay items in the Project. 5) Coordinate with design team to finalize bill of quantities in the proper form and in accordance with the construction plan/schedule based on the detailed engineering design drawings and technical specifications. 6) Prepare a project cost estimate (Engineer's Estimate) taking into consideration contingency requirements against possible risk factors. 7) Prepare annual financing schedules according to the construction schedule with breakdown of foreign and local currency portions.
A-11	Bid Document Specialist	1) Tender Document Specialist will be responsible for the full contract documentation and project specification requirements. 2) Assist PIU to design, administer and monitor all procurement activities to ensure compliance with agreed procurement frameworks. 3) Assist in the preparation of pre-qualification (PQ) documents in compliance with procurement guidelines of JICA and GOM. PQ documents will be prepared for ICB for the whole works. 4) Assist PIU for PQ process and prepare PQ evaluation reports for approval of GOM and JICA. 5) Assist in the preparation of bid documents in compliance with JICA and GOM procurement guidelines. Tender documents will be prepared for

		ICB for the whole. 6) Assist PIU and the Executing Agency in the preparation of invitation for bids, evaluation of bids received, and award of civil works contracts.
A-12	Hydrologist / Drainage Engineer	1) Data collection and establishment of hydrological model to estimate of flood water level of Dondogol river for design of river dike. 2) Evaluate the efficiency and condition of existing drainage facilities. 3) Establishment of criteria of drainage design such as rainfall intensity and concentration time. 4) Detailed design of drainage system in the Project area.
A-13	Material / Geological Engineer	1) Provide Team Leader, Highway & Pavement Engineer and Structure Engineer with the results of the geotechnical survey investigations. 2) Conduct the geological mapping of the sub-surface soil strata in the design of bridge foundations and sub-structures. 3) Prepare all geological and geotechnical investigation results to be submitted for review and evaluation of PIU and the Executing Agency. 4) Assist Highway & Pavement Engineer in quantity estimation based on the detailed engineering design drawings and technical specifications. 5) Assist Pavement Engineer in reviewing the unit rates in the F/S and assist PIU in developing unit rates of construction for road construction, including taxes and duties, taking into account the bid and completion costs of similar works recently undertaken in Mongolia or its neighbor countries in the case of ICB. 6) Assist the Pavement Engineer in preparation of bills of quantities by contract package for ICB. 7) Inspect works and check materials. 8) Give notice to the contractor of any defects and deficiencies and recommend appropriate action. 9) Inspect quarries, borrow pits, and crushing plant. 10) Measurement and computation of quantities of work accomplished.
A-14	Safety & Quality Control Engineer	1) Ensure that the contractor provides sufficient safety measures and devices for own safety as well as safety of general traffic and pedestrian. 2) Inspect the safety aspects of the construction and improvement work methods and procedures to ensure that every reasonable measure has been taken to protect life and property. 3) Conduct the safety patrol of the construction site daily to keep the construction work safe during the supervision of construction works. 4) Make sure that the following requirements when preparing or

		reviewing bidding documents for procurement of works and those for procurement of supply and installation of plant. - The safety requirements in accordance with the laws and regulations in GOM and relevant international standards (including guidelines of international organization), if any, shall be clearly stipulated in the contract. - Bidders shall furnish a safety plan to meet the safety requirements stipulated in the bidding documents. - The personnel for key positions to be proposed by bidders shall include an accident prevention officer. 5) Review the safety plans submitted by the bidders. 6) Confirm that an accident prevention officer proposed by the contractor is duly assigned at the project site and that the construction work is carried out according to the safety requirements stipulated in the contract during the supervision of the construction work. If consultants recognize any questions regarding the safety measures, the consultants shall require the contractors to take appropriate remedies. 7) Advice Environmental Specialist to undertake environmental monitoring and take necessary actions. 8) Provide close supervision of the setting-up, organization and layout of the contractor's field laboratory and monitoring of the mobilization of the testing equipment, to ensure that the laboratory is adequately equipped and capable of performing all the specified testing requirements for the contract. 9) Provide close supervision of the setting up the contractor's stone crusher and asphalt mixing plant to ensure that the specified requirements for such equipment are fully met. 10) Provide daily supervision of all testing work carried out by the contractor for the purposes of materials or workmanship quality control and immediate notification in writing to the Team Leader or any deficiencies in the testing procedures used and any defects in materials or workmanship quality. 11) Analyze all quality control test data and also the contractor's proposed mix recipes for asphaltic material and concrete, and formulate and submit to the Team Leader written recommendation regarding the approval or rejection of materials, workmanship a job mix formulae. Supervise all pavement test coring carried out by the contractor, to ensure that the number of core taken is not less than the specified

		minimum requirement and is sufficient to enable a meaningful statistical evaluation of the overlay thickness achieved. 12) Check all materials delivered to the site to ensure that they conform to the specification. 13) Ensure that the contractor's site laboratory technicians are fully conversant with the specified method of asphalt mix design and trial mix testing, and that the standardized laboratory personnel in appropriate asphalt technology and the associated testing methodology.

(2) Professional B [National Experts]

No	Position	Major Tasks and Duties
B-01	Deputy Team Leader & Document Specialist	1) Assist the Team Leader in carrying out the following tasks; 2) Ensure all deliverables are prepared in accordance with quality and time constraints. 3) Administer and supervise the detailed design, tender assistance, constructions and documentation activities for civil works contracts. 4) Identify appropriate design codes and standards. 5) Review/Prepare Recommendations. 6) Supervise whole aspects of civil works in the Project. 7) Give notice to the contractor of any defect and deficiencies and recommend appropriate action. 8) Prepare necessary work orders, change orders and supplemental agreement. 9) Measurement and computation of quantities of work accomplished. 10) Checking & certifying contractor's periodic billing. 11) Assist GOM in settling disputes with the contractor 12) Recommendation to PIU on claims of the contractor for payment of work accomplished, time extension, etc. 13) Prepare documents for acceptance of work done by the contractor. 14) Advice PIU on matters pertaining to efficient prosecution of the Project. 15) Represent interest of GOM vis-à-vis Contractor. 16) Furnish use of the contractor on necessary ground &topographic data. 17) Review & recommend approval of the contractor's work schedule. 18) Ensure that deliverables comply with relevant GOM's technical requirements, bank conditions and the terms of the assumptions in the cost benefit analysis. 19) Assist in the preparation of pre-qualification (PQ) documents in

		compliance with procurement guidelines of JICA and GOM. PQ documents will be prepared for ICB for the whole works. 20) Assist PIU for PQ process and prepare PQ evaluation reports for approval of GOM and JICA. 21) Assist PIU and the Executing Agency in the preparation of invitation for bids, evaluation of bids received, and award of civil works contracts. 22) Prepare a final report, which will be a compilation and condensation of the data presented in regular monthly progress reports, together with copies of as-built drawings within two months from the issuance of the defects liability certificate. 23) Prepare a final report for each and all contracts. 24) Liaise with PIU and other government agencies concerned. 25) Assist PIU during the coordination meeting with private agencies with underground utilities affected by the project. 26) Hold regular meetings with PIU, Consultant's staff and other concerned agencies to discuss problem areas and progress of activities. 27) Full contract documentation and project specification requirements. 28) Assist PIU to design, administer and monitor all procurement activities to ensure compliance with agreed procurement frameworks. 29) Carry out the necessary inspection, specify and supervise any remedial works to be carried out and when completed, recommend the Executing Agency to finalize the inspection and acceptance of the Project before the issuance of the Certificate of Completion.
B-02	Highway Engineer	1) During the services, he/she will coordinate as closely as possible with the Highway & Pavement Engineer and Hydrologist/Drainage Engineer for the selection of the best road alignment. 2) Determine the typical roadway section including super elevation and design of horizontal and vertical alignment. 3) Execute pavement design. 4) Supervise whole aspects of road and pavement works in the Project. 5) Supervise preparation of reproducible "as built" drawing & plans 6) Review & recommend approval of contractor's work schedule. 7) Carry out necessary topographic surveys for design and documentation works. Establish control points, benchmarks and reference beacons as required to prepare detailed engineering design that would enable calculation of construction quantity with reasonable accuracy (+/- 10%). 8) Prepare practical and cost-effective pavement designs on the basis of condition surveys, road alignment, soils, projected traffic levels, pavement

		structure studies, and axle load considerations, as determined from above activities and previous studies. 9) Prepare contract drawings for the road works; including road plans, longitudinal profiles, cross sections, etc. Road plans should include all existing features and expected land-take based on plotted earthwork limits if so required.
B-03	Bridge Engineer	1) During the services, he/she will coordinate as closely as possible with the Structure and Steel Structure Engineers of their given tasks. 2) Supervise construction work for grade separated structures. 3) Inspect works and check materials. 4) Give notice to the contractor of any defects and deficiencies and recommend appropriate action 5) Supervise preparation of reproducible "as built" drawing & plans.
B-04	Structure Engineer	1) Assist expatriate Structure Engineer in the following tasks; 2) Review the F/S and assess approach road/bridge sections for detailed engineering design, including the type and condition of bridge foundation, and road/bridge drainage and retaining structures. 3) Receive, assess and approve the contractors' implementation work plans and programs. 4) Ensure that the works are executed in accordance with all the provisions of the contract, including those concerning standards of workmanship, and other safety provisions and protection of the environment. 5) Maintain regular estimates of the cost to completion and time to completion for the project. 6) Ensure that as-built drawings are prepared for the works. 7) Supervise construction work for grade separated structures. 8) Inspect works and check materials. 9) Give notice to the contractor of any defects and deficiencies and recommend appropriate action. 10) Coordinate with agencies concerned to the implementation of the Project.
B-05	Hydrologist / Drainage Engineer	1) Assist expatriate Hydrologist/Drainage Engineer. 2) Evaluate the efficiency and condition of existing drainage facilities. 3) Submit a hydrologic and hydraulic report for review of PIU and related agencies. 4) Give notice to the contractor of any defects and deficiencies and recommend appropriate action. 5) Supervise preparation of reproducible "as built" drawing & plans. 6) Furnish use of contractor on necessary ground & topographic data.

B-06	Material / Pavement Engineer	1) Assist expatriate Highway & Pavement Engineer in quantity estimation based on the detailed engineering design drawings and technical specifications. 2) Assist expatriate Highway & Pavement Engineer in reviewing the unit rates in the F/S and assist the PIU in developing unit rates of construction for road construction, including taxes and duties, taking into account the bid and completion costs of similar works recently undertaken in Mongolia or its neighbor countries in the case of ICB. 3) Assist expatriate Highway & Pavement Engineer in preparation of bills of quantities by contract package for ICB. 4) Inspect works and check materials. 5) Give notice to the contractor of any defects and deficiencies and recommend appropriate action. 6) Inspect quarries, borrow pits, and crushing plant. 7) Measurement and computation of quantities of work accomplished. 8) Coordinate with agencies concerned to the Implementation.
B-07	Electrical Engineer	1) Specifically, the Electrical Engineer shall be responsible for the design and planning of all electrical facilities for the proposed road/interchange. He/She will coordinate closely with the Traffic Engineering Office of the MRT regarding the proposed traffic signal lighting facilities. 2) Give notice to the contractor of any defects and deficiencies and recommend appropriate action. 3) Responsible for the supervision of all electrical works.
B-08	Environmental Specialist	1) Study the environmental effects of the proposed bridge/road to the surrounding vicinity with respect to air pollution, noise and aesthetic viewpoints. 2) Establish actual environmental management and monitoring plans at the beginning of project implementation. 3) Supervise and monitor whether the contractor takes the required measures specified in the EMP and provide instructions as required. 4) Review on Land Acquisition and Resettlement Action Plan (LARAP) 5) At the completion of the Project, - Undertake final environmental monitoring and evaluation against the set indicators; - Evaluate sustainability of environmental benefits associated with road improvement, taking into account both positive and negative impacts associated with roads; and - Prepare an evaluation report for the Project.

B-09	Quantity Engineer & Cost Estimator	1) Assist his Expatriate counterpart in their assigned responsibilities. 2) The Quantity Engineer & Cost Estimator will coordinate fully with all key staff assigned for the project. 3) Gathering of data from on-going MRT and/or UBC projects and from any other approved sources for the preparation of the unit prices. 4) Prepare a project cost estimate and see to it that the bills of quantities are in the proper form and in accordance with the schedules. 5) Measurement and computation of quantities of work accomplished.
B-10	Field Engineer	1) Measure the day-to-day quantities at site and confirm with the foreman or site supervisor of the contractor. 2) Keep and maintain full and detailed measurement records, which will include quantity measurement data, site diaries and other records. 3) Assist the Team Leader for managing quantity and cost. 4) Assist the PIU and Team Leader for assessing contractor's claims. 5) Undertake day-to-day field supervision, quality control and quantity measurements at the site. 6) Keep full and detailed permanent site records, which will include site correspondence, survey data, quality acceptance data, day work records, site diaries, measurement and other field records. 7) Prepare data presented in regular monthly progress reports. 8) Provide measurement and inspection data required for interim payments. 9) Provide the contractor with all necessary survey data and reference for setting out the works. 10) Ensure that the civil works are executed in accordance with all the provisions of the contract, including those concerning standards of workmanship, and other safety provisions and protection of the environment. 11) Ensure that the laboratory of the engineer is equipped in accordance with the technical specifications. 12) Attend and supervise so that all day-to-day field and laboratory quality tests are conducted in accordance with the technical specifications and instruction of the engineer's representative. 13) Approve or disapprove the materials to be used by the contractors in accordance with the contract and technical specifications. 14) Approve or disapprove the works executed by the contractors in accordance with the contract and technical specifications. 15) Keep and maintain full and detailed permanent site and laboratory records, which will include test data, quality acceptance data, site diaries

		and other quality-related data. 16) Assist in preparing quality assurance reports to be submitted monthly or attached to the interim certificates, if so required.

5.4 Expertise Input Schedule

Total input of expertise consists of two hundred seventy eight (278) person-months for International Experts (Professional A) and two hundred ninety seven (297) person-months for National Experts (Professional B).

Expected allocation of person-months (P/M) of International and National Experts required for the consulting services in the respective stages, i.e. detailed design (D/D), tender assistance (T/A) and construction supervision (C/S), are as follows.

	D/D	T/A	C/S	Total (P/M)
International Experts	105	22	151	278
National Experts	69	10	218	297
Total	174	32	367	575

5.5 Supporting Staff

Expected allocation of person-months (P/M) of Supporting Staff in the respective stages, i.e. detailed design (D/D), tender assistance (T/A) and construction supervision (C/S), are as follows.

	D/D	T/A	C/S	Total (P/M)
Supporting Staff	84 *1	30 *2	244 *3	358

*1 : Office Manager 1, Bilingual Secretary 2, CAD Operator 3 and Computer Operator 1 for 12 months

*2 : Office Manager 1, Bilingual Secretary 1 and Computer Operator 1 for 12 months

*3 : Office Manager 1, Bilingual Secretary 1, CAD Operator 2 and Computer Operator 1 for 48 months

6. REPORTING

The Consultant shall prepare and submit the reports and documents listed below to the PIU and any organizations at the request by the Ministry of Roads and Transportation. The Consultant shall provide electronic copy of each of these reports.

Category	Type of Report	Timing	No. of Copies
Consultancy Services	Inception Report	Within 1 month after commencement of the services	10
	Monthly Progress Report	Every month	10
	Quarterly Progress Report	Every quarter	10
	Completion Report	At the end of services	10
Detailed Engineering Design	Project Definition Report	Within 4 months	10
	Engineering Design Report	Within 12 months	10
	Detailed Design Drawings	Within 12 months	As required
	Engineer's Cost Estimate	Within 12 months	5
Prequalification of Contractors	PQ Documents	Within 7 months	10
	PQ Evaluation Report	Within 12 months	5
Bidding Documents	Bidding Documents (Instructions to Bidders, Conditions of Contract, Bill of Quantities, Drawings, Technical Specifications, & others	Within 12 months	10
	Bid Evaluation Report	Within 1 month after bidding	5
Construction Supervision	Interim Payment Certificates	Every month	5
	Quality Control Report	Every month	10
	Final Statement	At the end of the Project	5
	Operation and Maintenance Manuals	At the end of the Project	5
	Completion Report and As-built Drawings	At the end of the Project	5
Training	Training Plan	At appropriate timing in accordance with the Inception Report	10
	Training Execution and Evaluation Report	Within 1 month after training	10
Environment and Social Safeguard	Environmental Monitoring Report	Every quarter	10
	Land Acquisition and Resettlement Monitoring Report	Every month	10
	Environmental and Social Safeguard Evaluation Report	At the end of the Project	10

Other Reports	Technical Report	As required or upon request	As required

Contents to be included in the major reports are as follows:

(1) Monthly Progress report and Inception Reports

a) **Inception Report**: To be submitted within one (1) month after the commencement of the services, presenting the methodologies, schedule, organization, etc.

b) **Monthly Progress Report**: Describes briefly and concisely all activities and progress for the previous month by the 10th day of each month. Problems encountered or anticipated will be clearly stated, together with actions to be taken or recommendations on remedial measures for correction. Also indicates the work to be performed during the coming month.

(2) Detailed Engineering Design Reports

a) **Project Definition Report**: To be submitted by the end of the 4th month after the commencement of services, presenting the design criteria and standards.

b) **Draft Detailed Design Report**: To be submitted by the end of the 10th month after the commencement of services, presenting detailed engineering design.

c) **Engineer's Cost Estimate**: To be submitted by the end of the 12th month after the commencement of services, presenting detailed cost estimate.

d) **Final Detailed Design Report**: To be submitted by the end of the 12th month after the commencement of services, compiling all the items carried out during services.

e) **Final Design Report**: To be submitted by the end of the 12th month after the commencement of services, finalizing detailed design, cost estimate, bid plan, bid evaluation criteria, technical evaluation criteria and bidding documents through the incorporation of comments on the Draft Design Report, provided by and the Consultant.

(3) Tender Assistance

a) **Pre-qualification Document Report**: To be submitted by the end of the 6th month after the commencement of the services, presenting the pre-qualification documents and its evaluation criteria.

b) **Bidding Document Report**: To be submitted by the end of the 12th month after the commencement of the services, presenting the bidding documents and bid evaluation criteria.

c) **Pre-qualification Evaluation Report**: To be submitted by the end of the 9th month after the commencement of the services, presenting the results of the evaluation and to select the qualified applicants.

d) **Technical Evaluation Report**: To be submitted within one (1) month after bidding presenting the results of technical evaluation and to recommend the qualified applicants.

e) **Tender Evaluation Report**: To be submitted within one (1) month after opening of

financial proposal presenting the results of the tenders to select the most responsible contractors.

(4) Assistance in Environment and Resettlement Monitoring

a) **Environmental Monitoring Report**: To be submitted at every three (3) months after the commencement of the services, presenting the environmental impacts and implementation of environmental mitigation measures during and at the completion of the construction stage. Environmental monitoring forms attached as Appendix XX will be filled and attached to the Report.

b) **Land Acquisition and Resettlement Monitoring Report**: To be submitted at every month during land acquisition and resettlement implementation period. RAP monitoring form attached as Appendix XX will be filled and attached to the Report.

c) **Environmental and Social Safeguard Evaluation Report**: To be submitted by the end of the consulting services, presenting the EMP, EMoP and RAP prepared.

(5) Construction Supervision

a) **Quarterly Progress Report**: To be submitted at every three (3) months during construction, presenting the progress and disbursement status of the Project.

b) **Operation and Maintenance Manual**: Containing technical procedures for the appropriate operation and maintenance of all project facilities.

c) **Construction Completion Report**: To be submitted within three (3) month after completion of construction, which comprises a full size of as-built drawings for all the structures and facilities completed, and the final details of the construction completed together with all data, records, material tests results, field books.

7. OBILIGATION OF THE EXECUTING AGENCY

A certain range of arrangements and services will be provided by the Executing Agency to the Consultant for smooth implementation of the consulting services. In this context, the Executing Agency will take necessary measures as follows.

7.1 Report and Data

Existing reports and available data related to the Project shall be provided by the Executing Agency and other related organizations.

7.2 Office Space

The Executing Agency shall provide an office space in the Headquarters of the Executing Agency. However, the Consultant's requirement for office space including necessary equipment, furniture and utilities shall be stated clearly in the proposal with the cost for such office space for the case that the Executing Agency would be unable to provide such facilities. The office shall be equipped with electricity, communication facilities, water supply and necessary furniture.

7.3 Cooperation and Counterpart Staff

The Executing Agency shall appoint counterpart officials, agent and representative as may be necessary for effective implementation of the consulting services. Project Implementation Unit (PIU) for the Project shall be organized by the Executing Agency at the beginning of the consulting service to ensure management of the Project.

7.4 Assistance and Exemption

Use its best efforts to ensure that the assistance and exemption, as described in the Standard Request for Proposal issued by JICA, will be provided to the Consultant, in relation to:

a) work permit and such other documents;
b) entry and exit visas, residence permits, exchange permits and such other documents;
c) clearance through customs;
d) instructions and information to officials, agent and representatives of the Government of Mongolia;
e) exemption from any requirement for registration to practice their profession; and
f) privilege pursuant to the applicable law in Mongolia.

Appendix-12

<u>Commnets and Answer on Draft Final Report</u>

Japan International Cooperation Agency

May 14, 2013

Mr. Batzaya.B
State Secretary
Ministry of Roads and Transportation

RE: Comments on Draft Final Report of
The Construction of Ajilchin Flyover Project in Ulaanbaatar City

Dear Mr. Batzaya.B

In response to your letter Ref. No. 3/2379 dated April 23, 2013, we, JICA would like to submit the attached comments.

We would like to request you to kindly proceed with the necessary steps for the official request of the Project to JICA in cooperation with Ministry of Economic Development and Ulaanbaatar City. Also, I am pleased to inform you that the JICA is preparing to submit the Final Report by May 27, 2013 and to dispatch a Fact Finding Mission from May 29, 2013.

We are looking forward to discussing key issues in detail of the Project during the Fact Finding Mission.

Very truly yours,

Mutsumi SATO
Director, East Asia Division,
East and Central Asia and the Caucasus Department

C.C:
- Mr. Gantumur. N, Vice Mayor, Ulaanbaatar City
- JICA Mongolia Office

"Ажилчны гудамжны гүүрэн гарц барих төсөл"-ийн урьдчилсан судалгаа

Эцсийн тайлангийн төсөлтэй холбогдон гарсан санал болон авах хариулт

No	Байгууллага	Он сар өдөр	Гарсан саналын утга	Харнулт /төсөл/(JICA)
0	Зам,Тээврийн Яам	2013-4-23	Төслийн өртгийг бууруулах, ажлын хугацааг багасгах талаар судалж, холбогдох байгууллагуудын саналыг эцсийн тайланд тусгаж ажиллах	- Төслийн өртгийг бууруулах, хугацааг богиносгох талаар эцсийн тайланд (11-р бүлэг) нэмэлт оруулав. - Байгууллагуудаас өгсөн саналын талаархи хариултыг дор тусгав.
1	"УБТЗ" Хувь Нийлүүлсэн Нийгэмлэг	2013-1-8 / /2013-3-27 өмнө өгсөн санал 13/394	- Газар чөлөөлөлтийн зардал(барилгын ажил багтсан) ; -4.99 тэрбум төгрөг - ИШС-г шилжүүлэх болон шинэчлэх зардал ; 1.465 тэрбум төгрөг - Газрыг нөхөн олговроор бус газраар солих	- Эцсийн тайланд (8-р бүлэг) тусгав. Нийслэлтэй зөвшилцөж, дүнг эцсийн байдлаар шийдвэрлэж өгөхийг хүсэж байна. - Эцсийн тайлангийн төсөлд Хүснэгт 6.4.1-д тусгасан. - Эцсийн тайланд (8-р бүлэг)тусгав.
2	НЗДТГ-ын Санхүү төрийн сангийн хэлтэс	2013-4-16/1118	- УБ хотын ерөнхий төлөвлөгөөнд тусгагдсан гүүрэн гарц - Төслийн өртөг өндөр - Зөвлөхийн зардал болон нөөцийн сангийн ажлын зардлыг дахин хянах - Японы улсын эдийн засгийн түншлэлийн зээл нөхцлийн хувьд боломжтой	(Ойлгосон) - Төслийн өртгийг бууруулах, хугацааг богиносгох талаар эцсийн тайланд (11-р бүлэг) нэмж тусгав. - Тус төслийг санхүүжүүлэхэд STEP нөхцөл хамгийн тохиромжтой бөгөөд, нарийвчилсан зураг төслийн зардлыг Жайка –ын хөрөнгөөр санхүүжүүлэх тохиолдолд, Зөвлөхийн зардлын тодорхой хэсэг буурах боломжтой. Нөөц сангийн ажлын зардлын тухайд, 5% иар магадлашгүй ажлын зардал болон төсөл хэрэгжих хугацаан дахь үнийн өсөлтийг тооцсон. Эцсийн тайланд (11-р бүлэг) тусгав. - (Ойлгосон)
3	НЗДТГ-ын Стратегийн бодлого, төлөвлөлтийн хэлтэс	2013-4-5 5/1170	- Өндөр ач холбогдолтой гүүр, түргэн хугацаанд хэрэгжүүлэх - Төслийн өртөг өндөр - Төслийн нарийвчилсан зураг төслийг Японы улсын буцалтгүй тусламжаар хийх	-(Ойлгосон) - Төслийн өртгийг бууруулах, хугацааг богиносгох талаар эцсийн тайланд (Эцсийн тайлангийн 11-р бүлгийг үзнэ үү) нэмж оруулав. - STEP нөхцлөөр иений зээлээр хэрэгжүүлэх тохиолдолд нарийвчилсан зураг төслийн зардлыг Жайка –ын хөрөнгөөр санхүүжүүлэх бөгөөд, энэ талаарМонголын ЗГ болон Жайка

			- Газар чөлөөлөх, нөхөн олговрын талаар нарийвчлан судлах	хамтран ярилцаж шийдвэрлэнэ. - Эцсийн тайланд (8-р бүлэг) тусгав Гэвч, тасалбар болгох өдрийг зарласны дараа нөхөн олговрын дүн тодорхой болох тул яаралтай зарлах.
4	Нийслэлийн Ерөнхий төлөвлөгөөний газар	2013-4-4 6/674	- Инженерийн шугам сүлжээний байгууллагуудтай зөвшилцөх, ялангуяа дулаан, цахилгаан болон холбооны шугам	- Инженерийн шугам сүлжээний байгууллагуудтай зөвшилцсөн.
5	Нийслэлийн газрын алба	2013-4-4 10/1201	- Үл хөдлөх болон хөдлөх хөрөнгийн нөхөн олговрын зардлыг төслийн тойм зардалд тусгах	- Эцсийн тайланд (8, 11-р бүлэг) тусгав. Гэвч, тасалбар болгох өдрийг зарласны дараа нөхөн олговрын дүн тодорхой болох тул яаралтай зарлах. Мөн Ажилчны гудамжны гүүрэн гарцын төслийн хамрах нутаг дэвсгэрт өөрчлөлт хийхийг хориглосон (тасалбар болгох өдөр) мэдэгдлийг 5-р сарын 10-ны өдөр гэж ойлгосон, цаашид тухайн нутаг дэвсгэр рүү иргэдийн шилжилт хөдөлгөөн хийхийг хориглосон хэрэгсэл тавихыг хүсэж байна.(самбар босгож мэдээлэх зэрэг)
			- Нөхөн олговрын үнэлгээ бодитой байх - Эцсийн тайланг батлахаас өмнө нөлөөлөлд өртөж буй ААН, иргэдтэй газар чөлөөлөх тохиролцоо урьдчилсан байдлаар хийх	- Нөхөн олговрын үнэлгээг бодит үнэлгээн дээр үндэслэн тооцсон. - Газар чөлөөлөх ажиллагаатай холбогдох үндсэн зарчим, иргэдтэй уулзаж тайлбарлан, тэдний зөвшөөрлийг авах. Иргэд нэг бүртэй тохиролцлох ажилагааг, төсөл хэрэгжих шийдвэр гарсаны дараа, Нийслэл хот хэрэгжүүлнэ.
6	Нийслэлийн Зураг төслийн газар	2013-4-4 1/68	- УБ хотын ерөнхий төлөвлөгөөнд тусгагдсан тул тусгайчлан өгөх саналгүй. Дэмжиж байна	-(Ойлгосон)
7	Нийслэлийн Авто замын газар	2013-4-10 1/546	- УБ хотын ерөнхий төлөвлөгөөнд тусгагдсан чухал ач холбогдол бүхий гүүрэн гарц	-(Ойлгосон)
			- Энэ хугацаанд, гүүрийн төлөвлөгөө, технологийн шийдэлд саналаа өгч ирсэн тул нэмэлт саналгүй.	-(Ойлгосон)
			- Төслийн хугацааг бууруулах төслийн өртөг /барилгын ажлын болон бусад зардлыг судалж, эцсийн тайланд тусгах	- Төслийн өртгийг бууруулах, хугацааг богиносгох талаар эцсийн тайланд (Эцсийн тайлангийн 11-р бүлгийг үзнэ үү) нэмэлт оруулав.
8	УБ хотын ЗАА-ны Инженерийн байгууламжийн хэлтэс	2013-4-12 03/508	- Төсөл нь иений зээлээр санхүүжигдвэл, удирдлагын зардал, бэлтгэл ажлын зардал, бусад зардлуудыг нэг эх үүсвэрээр санхүүжүүлэх	- Нийтэд нь иенээр болон төгрөгөөр тооцсон зардлыг тусгав (Эцсийн тайлан (11-р бүлэг))。
			- Зөвлөх сонгох, зураг төсөл боловсруулах хугацааг 1,5 жилээр	- Зөвлөх сонгох + зураг төсөл боловсруулах хугацааг 18сар гэж тооцож

			багасгах - Инженерийн шугам сүлжээг шилжүүлэхэд газар хөдлөлтийг тэсвэрлэхүйц шинэ техник технологи ашиглах -Борооны ус зайлуулах, инженерийн бэлтгэл ажлыг сайтар төлөвлөх	байгаа боловч, STEP нөхцлөөр хэрэгжих тохиолдолд Зөвлөх сонгох хугацааг багасгах боломжтой. - Инженерийн шугам сүлжээг шилжүүлэхэд бүх шугам сүлжээний газруудтай зөвшилцөж, одоо ашиглагдаж буй материалаар төлөвлөж байгаа бөгөөд шилжүүлэх зардлын тухайд ч холбогдох байгууллагуудаар нягталж, магадлуулсаи болно. - Нарийвчилсан зураг төслийн үед ус зайлуулах төсөллөгөөг нарийвчлан шалгахаар эцсийн тайланд анхаарч ажиллах нэмэлт ажил хэмээн тусгав(Эцсийн тайлангийн 16-р бүлэг)
9	УБ хотын Замын хөдөлгөөний удирдлагын төв	2013-3-26 1/226	- Төслийг дэмжиж байна - Гэрлэн дохио, замын хөдөлгөөний хяналтын камер, хөдөлгөөний хурд мэдрэгч суурилуулах - Шилэн кабелиар холбох	- (Ойлгосон) - Тоног төхөөрөмж, түүнийг суурилуулах зардалд ойролцоогоор 500 сая төгрөг шаардлагатай бөгөөд энэхүү тоног төхөөрөмжийн зардлыг эцсийн тайланд тусгав (7 болон 11-р бүлэг)
10	“УБ Дулааны шугам сүлжээ” ХК	2013-2-262/238	- Дулааны шугамыг нягтлан үзэх, хамгаалалтын зурвасыг баримтлах - Нэвтрэх сувагт оруулах ажлын зардлыг тусгаж, гүйцэтгүүлэх - Ажлын зардлыг төслийн зардалд тусгаж, ажлыг гүйцэтгүүлэх	- 1ø1000мм, 2 ø 800мм-н голчтой 7а магистрал шугамыг шилжүүлэхгүйгээр зураг төслийг төлөвлөж байгаа(Зураг No.144)тул нэвтрэх суваг хийх шаардлагагүй. - SOT-3 зүүн урд талд Дундгол дээгүүр гарч байгаа ø 400мм-н голчтой дулааны шугамын тухайд ДШС-ээс ирүүлсэн шилжүүлэлтийн зардлаар тооцож байна.(6-р бүлэг) - ИШС-г шнлжүүлэх зардлыг (6-р бүлэг)тусгав.
11	“УБ Цахилгаан түгээх станци” ХК	2012-12-24	- Цахилгааны шугамыг шилжүүлэх ажлын төлөвлөгөө, тойм төсөвт өртгийг хүргүүлсэн	- Бидэнд ирүүлсэн шилжүүлэх ажлын зардлыг тусгав (Эцсийн тайлангийн, 6-р бүлгийг үзнэ үү)
12	“Мэдээлэл Холбооны Сүлжээ” ТӨХК	2012-11-6 1/1052 өмнө өгсөн санал 2013-3-5 1/230	- Холбооны шугамыг шилжүүлэх ажлын үнийн саналыг С798/2012 тоот техникийн нөхцлөөр хүргүүлсэн - Гүүрний их биеийн дагуу холбооны сувагчлал суурилуулах	- Бидэнд ирүүлсэн шилжүүлэх ажлын зардлыг тусгав(Эцсийн тайлангийн 6-р бүлгийг үзнэ үү) - Одоогийн байдлаар гүүрний их биеийн дагуу холбооны сувагчлал хийх төлөвлөгөө байхгүй ч, нарийвчилсан ажлын зураг төслийг боловсруулах үед тухайн шаардлагад нийцүүлэн эцсийн тайланд анхаарч ажиллах нэмэлт ажил хэмээн тусгав(6-р бүлгийг үзнэ үү)
13	“Усны барилга байгууламж” ХК	2013-3-28 48тоот	- Дундголын 2013 оны хамгаалалтын далангийн шинэчлэлтийн ажлын төлөвлөөгөөтэй уялдуулах	- Далангийн ажлын төлөвлөгөөг Дундголын далангийн шинэ ажлын төлөвлөөгөөнд тусгасан урсацын хэмжээтэй адил төсөллөсөн.(Эцснйи тайлангийн 7-р бүлгийг үзнэ үү)Нарийвчилсан зураг төслийн шатанд

				шинэ далангийн ажлын төлөвлөөтэй уялдуулан ажиллах талаар дахин шалгаж, эцсийн тайланд анхаарч ажиллах нэмэлт ажил хэмээн тусгав(16-р бүлгийг үзнэ үү)
14	Ус сувгийн удирдах газар	2012-11-7 1/1406 өмнө өгсөн санал 2013-4-1 1/485	- Туул-1 Бохир усны коллекторын анхны зураг өөрчлөгдсөн тул дахин судалж үзэх	- Өөрчлөлт орсон байршлыг нягталж үзээд, төслийн хүрээний байршилтай холбогдохгүй болохыг нягталсан.(Бусад бохирын шугамыг шилжүүлэх ажлын зардлыг тайлангийн 6-р бүлгээс үзнэ үү)

Appendix-13

Discussion with Authorities Concerned

Contents of Discussion with Authorities Concerned

Contents of discussion and the focal person of the authorities concerned with the Project are as follows. Utility relocation plans and its costs were discussed and confirmed with them based on drawing of the relocation plan as attached to “Annex-Drawings” of this report.

Authorities	Person in charge	Contents of Discussion
Mongolian-Russian Joint Stock Company Ulaanbaatar Railway	• Mr. Erdeneburgan (Head of Department of Technical Policy and Design) • Mr. Gombosuren SEREENEN DORJ (Chief Engineer, Department of Technical Policy and Design) • Mr. D. Chinzorig (Engineer Department of Technical Policy and Design)	• Window Time（time for temporary operation adjustment ） can be secured for 6 hours in main truck and more than 6 hours in feeder line. • Location of Piers and foundations in the premise of the railway and vertical clearance under the flyover. • Bridge Erection Plan above railway truck. • Utility relocation plan and its cost for the Project.
UB City Heating Network Company	• Sh.MUNKHJARGAL(Chief Engineer) • Mr. D.BYAMBAOCHIR (Engineer) • Mr. BAYARSAIKHAN (Engineer)	• Relocation plan of heating pipes and its cost. • Identification of the heating pipes administrate by UB City Heating Network Company and UB Railway.
UB City Electricity Distribution Network Company	L.Tserendamba (Project Div.) B.Erdenebat (Design Div.) T. Battsetseg (Technical Policy Dep.)	• New project and exact location of ongoing project which establish new power substation and allocation of high voltage line financed by WB. • New high-voltage (35kVA) cable construction connected to new building.]
Ulaanbaatar Water Supply and Sewage Authority (USUG)	Ms. L.Dungarmaa (USUG, Engineer) Mr.S.Baatar (Engineer) Mr.T.Gantulga	• Administration boundary of water pipes between USUG and Railway Authority.. • Construction route of new sewage trunk (φ1200 Colgate Pipe)
ICT Network Company	Ms. T. Narmandakh (Engineer) Mr. Naranhishigt (Engineer)	• Relocation plan of existing underground communication cable and its cost. • Cable space attached to new flyover in the future was requested (to be discussed during DD stage.).