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付属資料-1

**Minutes of Discussion on Preparatory Survey for The Construction of  
Ajilchin Flyover Project In Ulaanbaatar City**



**MINUTES OF DISCUSSION**  
**ON**  
**PREPARATORY SURVEY**  
**FOR**  
**THE CONSTRUCTION OF AJILCHIN FLYOVER PROJECT**  
**IN ULAANBAATAR CITY**  
**BETWEEN**  
**JAPAN INTERNATIONAL COOPERATION AGENCY**  
**AND**  
**MINISTRY OF FINANCE OF MONGOLIA,**  
**MINISTRY OF ROAD, TRANSPORTATION, CONSTRUCTION AND URBAN**  
**DEVELOPMENT OF MONGOLIA,**  
**ULAANBAATAR CITY GOVERNMENT**

Ulaanbaatar, 7 December, 2011

The Japan International Cooperation Agency (hereinafter referred to as “JICA”) exchanged views and had a series of discussions with Ministry of Finance of Mongolia (hereinafter referred to as “MOF”), Ministry of Road, Transportation, Construction and Urban Development of Mongolia (hereinafter referred to as “MRTCUD”), and Ulaanbaatar City Government (hereinafter referred to as “UBC”) on the draft implementation plan of JICA Preparatory Survey for the Construction of Ajilchin Flyover Project in Ulaanbaatar City (hereinafter referred to as “the Project”).

JICA and MOF, MRTCUD, UBC hereby agreed upon the draft implementation plan of the Preparatory Survey of the Project as per Annex, subject to the approval by the competent higher authorities of both sides.

It should be noted that implementation of the Preparatory Survey does not imply any decision or commitment by JICA to extend its loan for the Project at this stage.

Annex: Draft Implementation Plan

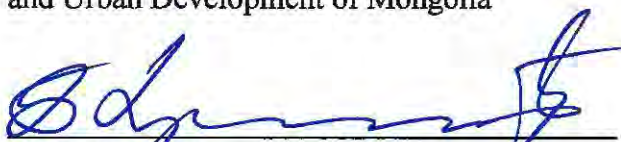


Jadamba Bat Erdene  
State Secretary  
Ministry of Road, Transportation, Construction  
and Urban Development of Mongolia

*for*



Teshinori Isogai  
Chief Representative  
Japan International Cooperation Agency in  
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Khurenbaatar Baavgai  
Director General Department of Development  
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Ministry of Finance of Mongolia



Munkhbaatar Begzjav  
Vice Mayor,  
Ulaanbaatar City Government

**DRAFT IMPLEMENTATION PLAN  
ON  
JICA PREPARATORY SURVEY  
FOR  
THE CONSTRUCTION OF AJILCHIN FLYOVER PROJECT  
IN ULAANBAATAR CITY**

## **1. Background**

Currently, the population in Ulaanbaatar City (UB) accounts for more than 40 percent of population of Mongolia, and the south 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 the Dund River flowing east to west divide the city into two parts, the north and south, which aggravate traffic congestion and constrain economic activity and livelihood. Therefore in order to mitigate the traffic congestion and promote economic activity, it is vital to construct a new bridge over the railway and the Dund River to link the north and the south.

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

Based on the situation stated above and the result of mutual discussions with the authorities concerned of Mongolia, JICA decided to conduct the Preparatory Survey on the Construction of Ajilchin Flyover Project in Ulaanbaatar City (hereinafter referred to as “the Survey”).

## **2. Outline of the Survey**

### **(1) The Area covered by the Survey**

The area covered by the Survey is shown in Appendix-1

### **(2) Implementation Structure**

The responsible agency for executing the Survey is the Ministry of Road, Transportation, Construction and Urban Development of Mongolia (MRTCUD)

The executing agency is Road Agency of MRTCUD, the Governor’s Office and the Road Department in UBC (hereinafter “the executing agency”)

### **(3) Scope of the Survey**

- 1) To produce results of feasibility study of the Project (e.g. Design Report, Drawing, Implementation Plan etc.)
- 2) To propose technical cooperation plan for the capacity development of the quality control and operation and maintenance (O/M) of road and bridge
- 3) To propose prioritized rehabilitation plan of existing bridges in UB

### **3. Terms of Reference of the Preparatory Survey**

- (1) Confirmation of the Needs and Background of the Project
  - 1) To confirm the background and rationales of the Project with the considerations of national policy on road and bridge in Mongolia
  - 2) To review and collect the existing study results and relevant documents of the Project
  - 3) To review the legal framework (regulations and rules) of the road and bridge sector in Mongolia
  - 4) To assess the executing agency's organizational structure, jurisdiction and their expertise
  - 5) To confirm budget status and experiences of road and bridge construction, O/M of the executing agency.
  - 6) To confirm other donors' relevant projects
  
- (2) Confirmation of the Project Site Situation
  - 1) To confirm the current condition of the Project site by meteorological, geological and topographic survey
  - 2) To conduct survey of the current traffic condition and analysis of demand forecast of traffic volume
  - 3) To inspect the existing roads and bridges in UB as listed in Appendix-2
  - 4) To confirm the location, depth and type of the existing utilities by site survey and exploratory excavation (if needed)
  
- (3) Basic Design of New Bridge(s)
  - 1) To compare several alternatives of the candidate alignments / routes of Ajilchin Flyover (including approach road) and propose an appropriate design
  - 2) To compare several alternatives of the candidate bridge type and propose an appropriate bridge type
  - 3) To confirm the needs for improving access road(s) within the 1<sup>st</sup> intersection from Ajilchin Flyover
  - 4) To develop the basic design of Ajilchin Flyover, approach road, necessary access road(s) and facilities
  - 5) To develop the outline design of relocation and/or protection of existing utilities
  - 6) To conduct survey of scour depth, and basic design of protection works of river bank and bed against the scour (if needed)
  
- (4) Implementation Plan of the Project
  - 1) To develop the construction executing plan and measures
  - 2) To develop the procurement plan (including proposal of procurement package and methods)
  - 3) To collect information on the number and experience of local contractors in UB
  - 4) To propose the implementation schedule of the Project
  - 5) To estimate the Project cost
  - 6) To propose the implementation set-up with definite roles and responsibilities of the executing agency and other relevant organizations with the consideration of the current organizational system

- 7) To propose the details of consulting services
  - 8) To propose the necessary O/M framework and structure for the Project in terms of technical and financial sustainability
  - 9) To analyze the economic and financial viability of the Project
- (5) Environmental and Social Impact
- 1) To analyze environmental and social impacts of the Project and propose mitigation measures and monitoring plan in accordance with the requirements of Mongolian laws and regulations and JICA's "Guideline for Environmental and Social Consideration"
  - 2) To prepare the necessary documents and forms submitted to agency responsible for environmental and social impact in Mongolia
- (6) Technical Cooperation Plan and Bridge Rehabilitation Plan
- 1) To confirm the needs for technical cooperation for the purpose of capacity development regarding quality control and O/M of road and bridge
  - 2) To prioritize rehabilitation plan of existing bridges in UB
  - 3) To hold a seminar on quality control and O/M of road and bridge (if needed)
- (7) Evaluation of the Project
- 1) To propose operation and effect indicators (e.g. traffic volume, travel time reduction, travel velocity improvement) and monitoring plan
  - 2) To collect baseline data of operation and effect indicators
  - 3) To evaluate the qualitative and quantitative effects of the Project
- (8) Conclusion and recommendations

#### **4. Implementation Framework of the Survey**

(1) Structure of the Survey team (Tentative)

JICA will select and dispatch the Survey team to carry out the Survey.

The team will include the following experts.

- Team Leader / Transportation Planner
- Bridge Engineer
- Road Engineer
- Execution / Implementation Planner / Existing Utilities Survey Specialist
- Natural Environment Survey Specialist
- Procurement / Cost Estimate Specialist
- Economic and Financial Analyst
- Environmental and Social Impact Consideration
- Road / Bridge Inspection Specialist / Technical Cooperation Planner
- Coordinator

The Survey team might employ local consultants, NGOs, and/or other supporting staffs.



(2) Survey Implementation Schedule (Tentative)

December 2011	-	Signing of Minutes of Discussion
December 2011 - February 2012	-	Selection of consultants by JICA
March 2012	-	Mobilization of Survey Team
	-	Submission of the Inception Report
	-	Inception Report Mission
June 2012	-	Submission of the Progress Report
	-	Progress Report Mission
September 2012	-	Submission of the Interim Report
	-	Interim Report Mission
December 2012	-	Submission of the Draft Final Report
	-	Draft Final Report Mission
February 2013	-	Submission of the Final Report

(3) Reports

1) Inception Report

20 copies will be submitted at the commencement of the first work period written in Mongolian.

2) Progress Report

20 copies will be submitted 3 month after the commencement of the Preparatory Survey written in Mongolian.

3) Interim Report

20 copies will be submitted 6.5 month after the commencement of the Preparatory Survey written in Mongolian.

4) Draft Final Report

20 copies will be submitted at the end of the last work period written in English and Mongolian. MOF, MRTAUD, and UBC will submit its comments within 1 month after the receipt of the Draft Final Report.

5) Final Report

20 copies will be submitted within 1 month after the receipt of the comments on the Draft Final Report written in English and Mongolian.

(4) Monitoring

The Survey team's work will be subject to periodic review by JICA. The JICA staff will attend meetings with Joint Coordinating Committee (JCC) and/or other organizations concerned during the implementation of the Survey may also attend the meetings if necessary.

(5) Guideline for Environmental and Social Consideration

the executing agency agreed to abide by "JICA Guideline for Environmental and Social Considerations" (April 2010) ([http://www.jica.go.jp/english/operations/social\\_environmental/guideline/pdf/guideline100326.pdf](http://www.jica.go.jp/english/operations/social_environmental/guideline/pdf/guideline100326.pdf)) in order to ensure that appropriate considerations will be

made for the environmental and social impacts of the Project.

## **5. Undertakings by executing agency and other organizations concerned**

the executing agency and other relevant organizations will undertake the followings in order to assist the implementation of the Survey on schedule, through close cooperation with the authorities concerned with Government of Mongolia (hereinafter referred to as “GOM”):

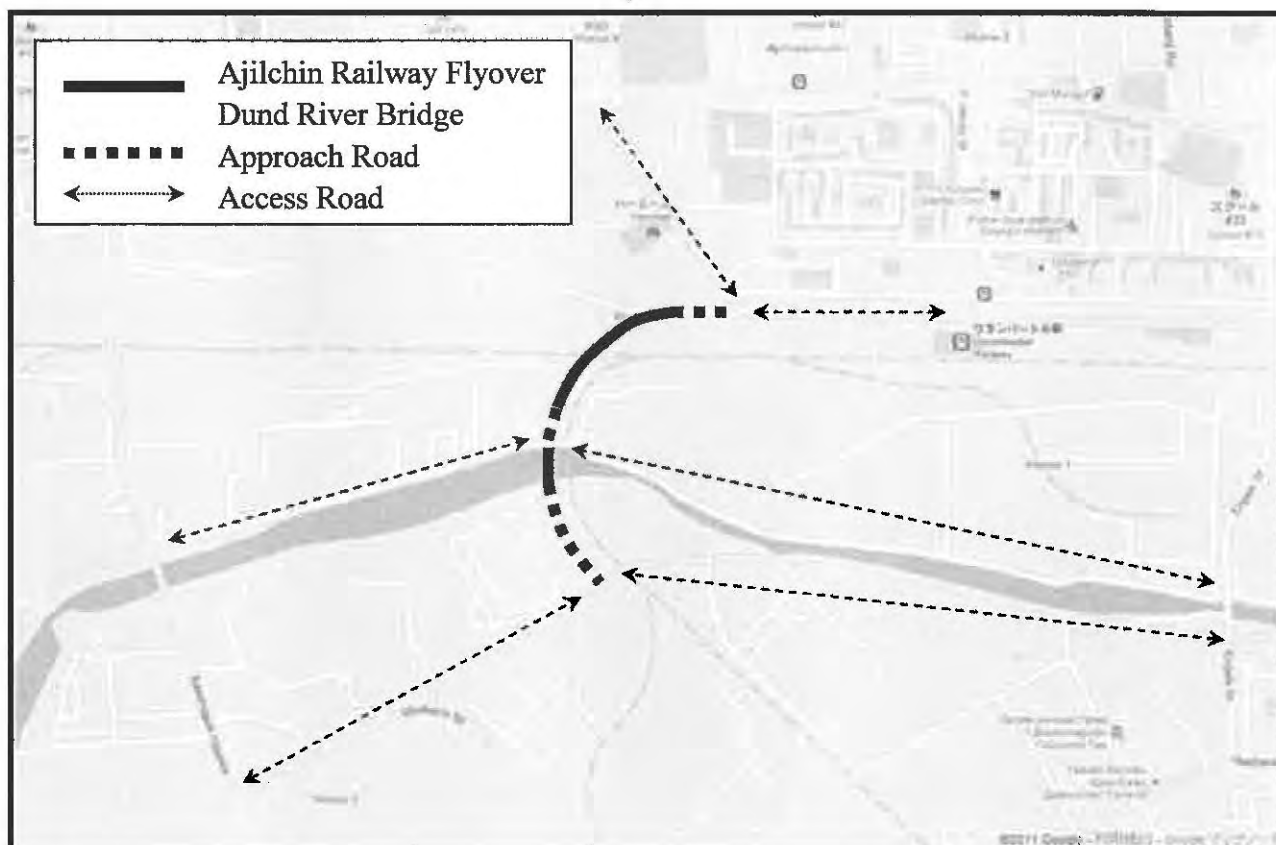
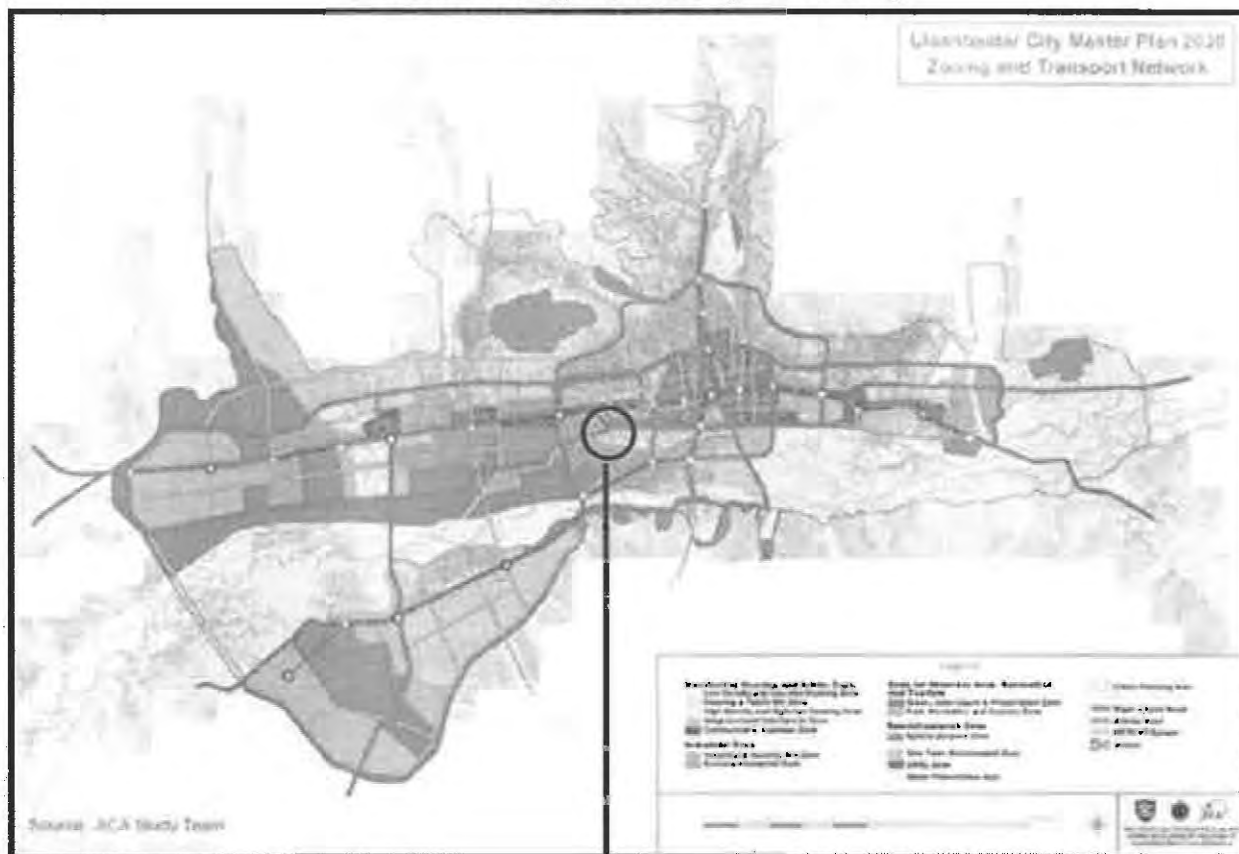
- (1) To furnish the Survey team with all available and relevant data, information and documents requested by the Survey team
- (2) To assign counterpart personnel
- (3) To provide meeting space during the stay of the Survey team.
- (4) To ensure issuance of entry permits necessary for the Survey team members to conduct field survey
- (5) To ensure safety of the team members, if and when required
- (6) To assist the team in making transportation arrangements
- (7) To assist the team in medical services as needed
- (8) To assist the team to obtain other privileges and benefits if necessary
- (9) To establish Joint Coordinating Committee (JCC) for effective and successful implementation of the Survey, whose functions and composition are described in Appendix-3

## **6. Others**

- 1) The nature of the services to be rendered by the Survey team shall be exclusively advisory, with all decisions as to whether to accept or implement any recommendation(s) made or instruction(s) given in the course of the implementation of the services shall be the responsibility of the executing agency and other authorities concerned of the GOM.
- 2) the executing agency and other authorities concerned of the GOM shall take, with their own responsibility, all the necessary measures for the utilization of the recommendations and outcomes of the survey in the JICA financed projects.
- 3) The Study team will propose the needs for the specific Japanese technics and/or materials in light of safety, economic and smooth implementation of the Project.

(end)

### Location Map Covered by the Survey



## Existing bridge list in UB

No	ID No.	Bridge name	Dimension		Constructed year	Type	Year made rehabilitation and maintenance
			L(m)	W(m)			
<b>Middle size bridges /25-100m length/</b>							
1	4	Arsiantai Bridge	52	13	1962	RC	
2	5	Uliastai tsaad Bridge /Left/	97	8+1.0*2	1967	RC	2010
3	6	Uliastai tsaad Bridge	60	8	1985	RC	
4	16	Tolgoit Parallel Bridge	72		1987	RC	2010 maintenance
5	17	Selbe dund bridge	51.12	9.0+1.5	2002	RC	
6	18	Dund gol Deed bridge	60.4	9+1.5*2	1975	RC	
7	22	Dund gol Dund bridge	44		1961	RC	
8	23	Dund gol Dood bridge	67.95	11x2+3+1.5x2	1975	RC	
9	25	Turgen river bridge	39.75	10.5+1.5*2	1987	RC	
10	28	Naran brdge	36	10.5+1.5*2	1986	RC	
11	29	Bridge behind Meat Factory	54	10.5+1.5*2	1986	RC	
12	34	Sharga morit bridge	50.4	7+0.75*2	1982	RC	
13	35	Selbe gol Deed parallel-1	58	7.5+0.75*2	1963	RC	
14	36	Selbe gol Deed parallel-2	55	7.5+1.25*2	1982	RC	
15	37	Selbe gol Dund bridge	33	16	1963	RC	
16	38	Bridge behind Chinggis hotel	45		1990	RC	
17	41	Gachuurt bridge	30		1984	RC	
18	44	Nalaikh bridge	27			RC	
19	50	Baruun-uul Dithc bridge	27.67			RC	
20	58	Damdinsuren street bridge over the Selbe river	48.8		2009	RC	
21	39	Dambadarjaa bridge	60	8+1*2	1995	RC	
22	60	New rightside bridge of the Uliastai river bridge to become parallel	97		2010	RC	
23		Morin/Horse/ hill bridge	27		2009	RC	
<b>23</b>			<b>1193.09</b>				
<b>Small size bridges /less than 25 m length/</b>							
1	7	Uliastai tsaad bridge	18	8	1963	RC	
2	8	Bridge over the Hol river	21	8	1963	RC	
3	9	Chuluut am bridge	11	8+1.25*2	1963	RC	
4	11	Zaisan West am bridge	18	7.5	1971	RC	
5	12	Bridge in front of the 14 khoroolol	20	7+0.75*2	1963	RC	
6	15	Yarmag bridge to Airport	10	8+1.25*2	1961	RC	

7	20	Ikh Tenger dood bridge	12	7.5	1979	RC	
8	30	Nairamdai bridge	18	7.5	1986	RC	
9	31	Rashaant bridge	12	8+0.75*2	1991	RC	
10	32	Khailaast	24	18+3.0*2	1987	RC	
11	33	Chingeltei	24	18+3.0*2	1987	RC	
12	40	Dambadarjaa naad bridge	24.1	8+1.1*2	1990	RC	
13	42	Gachuurt bridge	18		1984;1988	RC	
14	43	Ikh Tenger deed bridge	17.5	8+0.75*2	1979	RC	
15	45	Zaisan East bridge	12	8+0.3*2		RC	
16	48	Milk factory bridge	15.8	14+4.55*2		RC	
17	52	Bridge to Khandgait-Sanzai	9		2004	RC	
18	53	East Bridge to Khandgait-Sanzai	9		2004	RC	
19	54	Tolgoit ger area road bridge	18		2004	RC	
20	55	Tolgoit Zuun salaa road bridge	12		2004	RC	
21	56	Bridge behind the 1 st district	18		2006	RC	
22	51	Bridge over the ditch behind the 1st khoroolol	16,5		2007	RC	
23	57	Naran river bridge	26.4		2009	RC	
24	59	Bridge over the ditch west of the 39-th secondary school	10.6		2010	RC	
25		Khailaast 1.1 km length road bridge-1	9		2011	RC	
26		Khailaast 1.1 km length road bridge-2	9		2011	RC	
26			396.4				
<b>Large bridges /more than 100M length/</b>							
4	13	Enkhtaivan bridge	339.5	16.8	1961	RC	2006
5	27	Gurvaljin birdge	108	12*2	1989	RC	2009-2010
6	24	Sonsgolon bridge	297	8+1*2	1971	RC	
7	14	Yarmag bridge	259.4	8.5+1.5*2	1961;1967	RC	
8	19	Ikh Tenger bridge	258	11.5+1.5*2	1994	RC	2008-2010
9	26	Poultry farm bridge	256	8	1989	RC	
10	10	Bayanzurkh bridge	252.6	7+0.75*2	1967	RC	2009
11	21	Zaisan bridge	224	9+1.5*2	1971	RC	
11			1994.5				
60		<b>Total length</b>	<b>3584.0</b>				

## Joint Coordinating Committee

### 1. Functions

- To review the study on inception, progress, interim, draft final and final report
- To exchange views on major issues arising during the Survey
- To approve the modification to activities depending on the necessity
- To identify the scope of proposed project

### 2. Composition

Chairperson: State Secretary, Ministry of Roads, Transport, Construction and Urban Development (MRTCUD)

Vice Chairpersons: Vice Mayor, Municipality of Ulaanbaatar

Secretariat: Head, Planning and Research Division of Road Department in UB City

Members:

#### (1) Mongolian Side

- Director General, Department of Development Financing and Cooperation, Ministry of Finance

#### MRTCUD

- Director General, Road and Transportation Policy Department
- Director General of the Department of Finance and Investment
- Member, National Development and Innovation Committee
- Chairperson, Railway of Authority
- Director, Ulaanbaatar Railway
- Director General, Road Agency

#### UB City

- Head, City Development Policy Department
- Head, Road Department
- Head, State Finance and Treasury Department
- Head, Department of Land Administrations
- Head, Construction Urban Development Planning Department
- Head, Urban Planning, Architecture and Design Institute of Ulaanbaatar City
- Head, Division of Engineering Facilities
- Head, City Property Relations Department
- Head, Environmental Protection Department

Relevant personnel accepted by the Chairperson, if necessary

#### (2) Japanese Side

- Chief Representative, JICA Mongolian Office
- JICA Experts
- Other personnel concerned, to be dispatched by JICA, if necessary

付属資料-2

*Minutes of Discussion on 1<sup>st</sup> Joint Coordination Committee Meeting for the Preparatory Survey on the Construction of Ajilchin Flyover Project in Ulaanbaatar City*





RECORD OF DISCUSSION  
ON  
ADDITIONAL EXPLANATION  
REGARDING  
1<sup>ST</sup> JOINT COORDINATION COMMITTEE MEETING  
FOR  
THE PREPARATORY SURVEY ON  
THE CONSTRUCTION OF AJILCHIN FLYOVER PROJECT  
IN ULAANBAATAR CITY

25 September, 2012

In order to facilitate understanding of former discussion on the captioned project for new Vice Mayor, the meeting for additional explanation regarding 1<sup>st</sup> Joint Coordination Committee (JCC) was held among Vice Mayor of Ulaanbaatar City, JICA, and JICA Study Team based on "Minutes of Discussion on 1st Joint Coordination Committee Meeting for the Preparatory Survey on the Construction of Ajilchin Flyover Project In Ulaanbaatar City" dated July 17, 2012. Following issues discussed under 1<sup>st</sup> Joint Coordination Committee Meeting were explained and mutually agreed among the attendants.

- 1) Route of the Bridge; East-West (EW) Route could be the most appropriate and advantageous route as agreed upon the 1<sup>st</sup> JCC Meeting.
- 2) Scope of the Study: JICA Study Team shall carry out the Feasibility Study based on the selected route starting from Ajilchin Street up to Narny Road which is approximately 2200m in length as agreed upon the 1<sup>st</sup> JCC Meeting.
- 3) Ulaanbaatar City shall be in charge of organization of Working Group, and shall coordinate with Ministry of Road and Transport to organize 2<sup>nd</sup> JCC meeting to be held in the middle of October 2012.

<Attendants>


Mr. Nyamdavaa Gantumur, Vice Mayor of Ulaanbaatar City

Mr. Tomihara Takayuki, Project Adviser, JICA

Mr. Maruoka Kenji, JICA Expert

Mr. Okazaki Akio, Deputy Team Leader of JICA Study Team

Concurred by




Nyamdavaa Gantumur,  
Vice Mayor of Ulaanbaatar City

MINUTES OF DISCUSSION  
ON  
1<sup>ST</sup> JOINT COORDINATION COMMITTEE MEETING  
FOR  
THE PREPARATORY SURVEY ON  
THE CONSTRUCTION OF AJILCHIN FLYOVER PROJECT  
IN ULAANBAATAR CITY


17 July, 2012

1<sup>st</sup> Joint Coordination Committee (here in referred to as "JCC") Meeting for the Preparatory Survey on the Construction of Ajilchin Flyover Project in Ulaanbaatar City (hereinafter referred to as "the Study") was held on the 3<sup>rd</sup> day of July, 2012 with the attendance of the JCC members who represent Ministry of Road, Transportation, Construction and Urban Development of Mongolia (hereinafter referred to as "MRTCUD"), Ulaanbaatar City Government (hereinafter referred to as "UBC"), Japan International Cooperation Agency (hereinafter referred to as "JICA") and JICA Study Team of the Preparatory Survey on the Construction of Ajilchin Flyover Project in Ulaanbaatar City (herein referred to as "the Study Team").

The Study Team and the JCC members exchanged views on the bridge route and scope of the Study and hereby agreed upon these issues as summarized in Annex-1. Based on the consent, the Study Team will proceed to stage-II of the Study to formulate the outline of the Project such as bridge type, number of lanes and design criteria as well as to prepare the basic design of new bridge which will be proposed in the Interim Report by the end of September 2012.

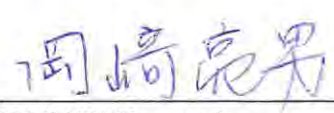


\_\_\_\_\_  
Jadamba Bat Erdene  
State Secretary, MRTCUD



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ISOGAI Toshinori  
Chief Representative  
JICA Mongolia Office

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Munkhbaatar Begzjab  
Vice Mayor, Ulaanbaatar City



\_\_\_\_\_  
NAGATA Tsunemi  
Team Leader of JICA Study Team

## Annex-1

### 1. Route of the Bridge

Based on a comparative study on three (3) alternative bridge routes; namely, 1) East -West (EW) Route, 2) North-South (NS) Route, and 3) Combination of EW and NS, it was concluded that 1) East-West (EW) Route could be the most appropriate and advantageous route in terms of prospective traffic demand, estimated project cost, land acquisition for ROW, and so forth.

### 2. Scope of the Study

Subsequent to conclusion of bridge route, the Study Team shall carry out Feasibility Study (FS) on the Project of Ajilchin Flyover Construction as defined by the scope given below and shown in Figure 1.

- (1) The road length to be covered by the Feasibility Study shall be approximately 2,200m starting from the intersection of West Industrial Street and Ajilchin Road, and ending at the intersection of Narrny Road in front of Ulaanbaatar Railway Station.
- (2) Ajilchin Flyover shall connect Narrny Road and West Industrial Road crossing railway and its feeder lines.
- (3) Intersection plan shall incorporate three intersections; namely, 1) at Ajilchin Street, 2) near railway branch, and 3) at Narrny Road.
- (4) Design of Dund River Crossing Bridge would be excluded from the Feasibility Study.

### 3. Other Issues

- (1) Grade separation at the intersection of Narrny Road might be proposed depending on analytic examination of traffic demand forecast as well as economic efficiency during the Study.
- (2) The Study Team was requested to provide certain ideas to mitigate traffic congestion along West Industrial Road which has been induced mainly by heavy duty traffics.
- (3) Consideration should be given to the physical constraints such as railway double track plan at the vicinity of Ulaanbaatar Station and underground sewage pipes near the railway.



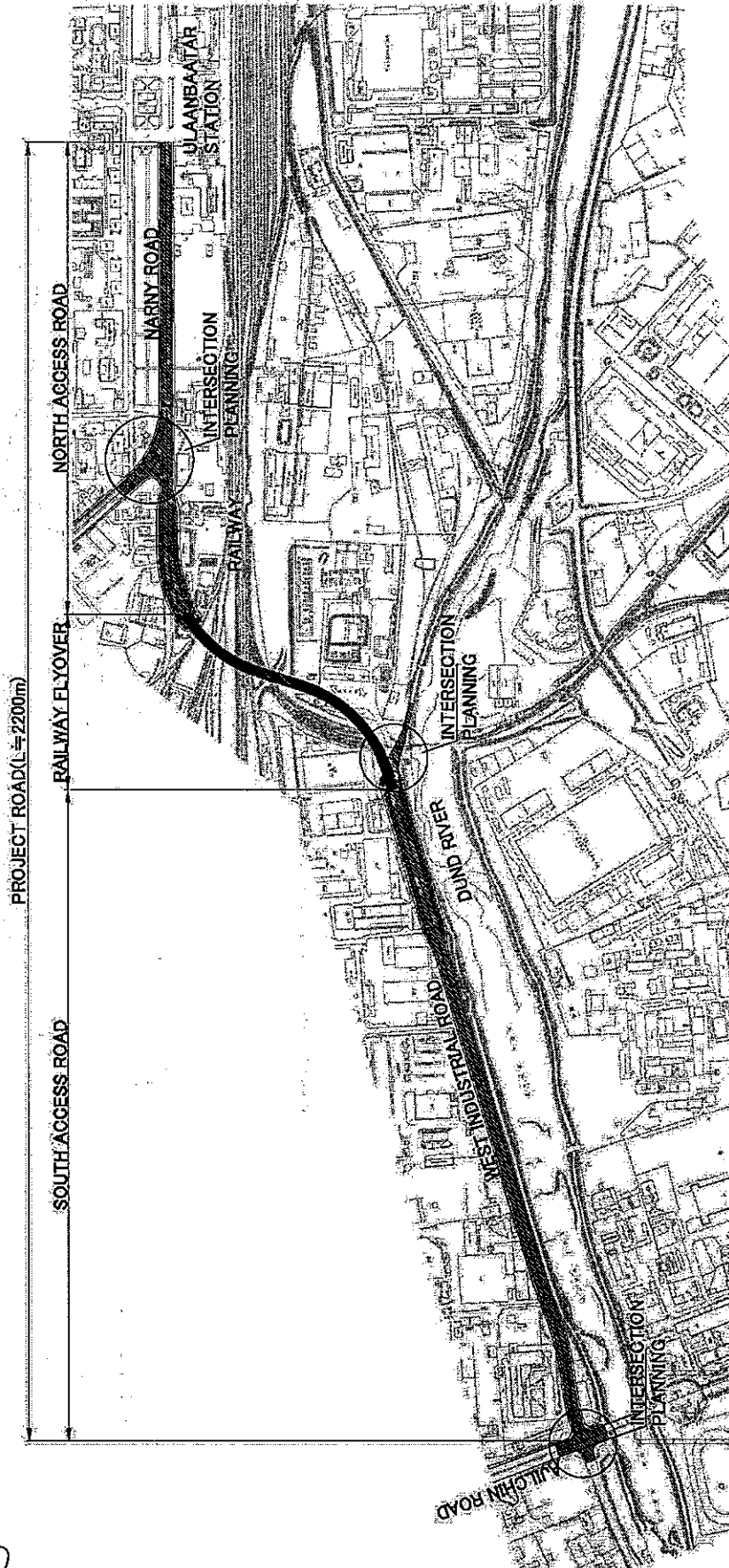


Figure-1 Study Area and Scope of the Project

付属資料-3

*Minutes of Discussion on 2<sup>nd</sup> Joint Coordination Committee  
Meeting for the Preparatory Survey on the Construction of  
Ajilchin Flyover Project in Ulaanbaatar City*

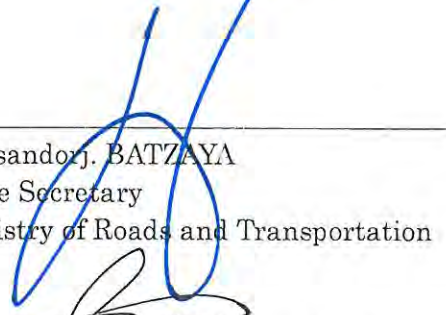



MINUTES OF DISCUSSION  
ON  
2nd JOINT COORDINATION COMMITTEE MEETING  
FOR  
THE PREPARATORY SURVEY ON  
THE CONSTRUCTION OF AJILCHIN FLYOVER PROJECT  
IN ULAANBAATAR CITY


9 November, 2012

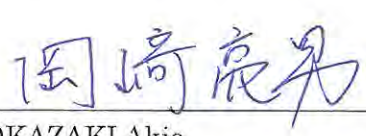
The Second Joint Coordination Committee (JCC) Meeting on the Preparatory Survey for the Construction of Ajilchin Flyover Project in Ulaanbaatar City, Mongolia (hereinafter referred to as "the Study") was held on the 7<sup>th</sup> day of November 2012 with the attendance of the JCC members representing the Ministry of Roads and Transportation (MRT), representatives of the Ulaanbaatar City Government (UBC), representatives of Japan International Cooperation Agency (JICA), and members of the JICA Study Team conducting the Preparatory Survey for the Construction of Ajilchin Flyover Project in Ulaanbaatar City (the Study Team).

The Study Team and the JCC members exchanged views on the outline of the Project such as road planning, general condition of bridge and design criteria, and confirmed the issues as summarized in Annex-1. Based on the conclusion of this 2<sup>nd</sup> JCC meeting, the Study Team will proceed to Stage-III of the Study to prepare the basic design of the new bridge, cost estimate and project evaluation which will be presented in the Draft Final Report to be submitted by the middle of January 2013..

  
Baasandorj. BATZAYA  
State Secretary  
Ministry of Roads and Transportation

  
ISOGAI Toshinori  
Chief Representative  
JICA Mongolia Office

  
Nyamdavaa GANTUMUR  
Vice Mayor, Ulaanbaatar City

  
OKAZAKI Akio  
Deputy Team Leader  
JICA Study Team

## 1. ROAD PLANNING

- (1) No specific objection was given to the following concepts on road planning presented by the Study Team in the 2<sup>nd</sup> JCC meeting.
  - Intersection of Ajilchin Flyover and Narny Road shall be grade-separation to mitigate traffic congestion, while the bridge length be extended more than 200m and construction cost increase.
  - Existing West Industrial Road and the new road to be constructed in the Project shall be separated to prevent traffic congestion. The existing West Industrial Road shall be operated as “service road” for the users of roadside facilities, and the new arterial road connecting to the Ajilchin flyover shall be constructed for the Through-Traffic at the south side of the existing road, together with the new river dike along the Dondgol River.
- (2) Grade-separation at the intersection of Ajilchin Road and new road was proposed by JCC member. The proposal shall be taken in consideration as future plan which would improve and widen the Power Plant Road to 4-lane road. The Draft Final Report shall include this point of view as recommendation to be undertaken in the future.
- (3) 4-lane road shall be recommended in terms of traffic demand, the condition of connecting road and cost-efficiency. 6-lane can not be adopted to existing access road due to physical constraints.
- (4) It was confirmed that the project road was planned taking into consideration of future road plan and Master Plan of Ulaanbaatar City to formulate effective road network although the Regional Development Plan of the project site has not developed.

## 2. ENGINEERING DESIGN CRITERIA

The Criteria for the engineering design of road and bridge shown in Chapter 7 of the Interim Report were explained by the Study Team. It was advised by JCC members that engineering justification within the scope of conclusion made among 1<sup>st</sup> and 2<sup>nd</sup> JCC meeting would be confirmed by “the Science and Technology Council (STC)” in the MRT. According to the advice of JCC, the MRT shall be responsible for organizing the STC to approve the design criteria not later than the middle of December 2012. The Study Team shall be participated in the STC if required.

## 3. FUTURE PLAN OF RAILWAY

It was confirmed that information regarding future plan of railway such as railway diversion plan and double track plan had been exchanged by and between Ulaanbaatar Railway



(UBTZ) and the Study Team. Location of piers and foundation of bridge was proposed based on the above information and it has been principally agreed by UBTZ.

#### 4. LAND ACQUISITION AND RESETTLEMENT

- (1) Land acquisition and relocation of buildings possessed by the Ulaanbaatar Railway (UBTZ) in the Right-of-Way for the Project was presented by the Study Team. JCC members requested to the Study Team to present the result of asset valuation to be compensated under the Project.
- (2) Road alignment shall be adjusted to preserve the apartment building located in the vicinity of the intersection of Ajilichin Street and West Industrial Road from the view point of impact on social environment and its cost-efficiency. Land acquisition as a consequence of the above road alignment should be undertaken by Ulaanbaatar City.
- (3) Detailed survey on land acquisition and compensation shall be carried out by the Study Team. Land Acquisition Report prepared by the Study Team shall be examined by Ulaanbaatar City to confirm validity of the cost for the compensations.

#### 5. GENERAL CONDITIONS OF THE NEW BRIDGE AND STRUCTURES

No specific objection was given to the following proposals on the general conditions of the new bridge and related structures made by the Study Team based on site condition survey and comparative studies.

- (1) Total length of new bridge is 828 m with four (4) lanes.
- (2) Type of bridge superstructures considering cost, construction period and site conditions have been selected as below:
  - At curve section from A1 to P11: Multi-Steel Box Girder Bridge
  - At straight section from P11 to A2: Steel-I Girder Bridge
- (3) The following advanced construction technologies developed in Japan will be effectively adopted utilizing their respective advantages:
  - "Steel-Concrete Composite Deck Slab" shall be adopted due to advantages in terms of reliability of construction quality, construction period and durability.
  - "Rotary Penetration Steel Pipe Pile" shall be used for foundation in the vicinity of railway track to minimize influence due to construction work.
  - Bridge erection by "Launching Method" shall be adopted on the main railway track to minimize disturbance in railway traffic.

- (4) No sidewalk beside the new bridge shall be required since the existing pedestrian bridge is located near the project site and less pedestrian has been passing through.

## 6. RELOCATION OF UTILITIES

Based on the series of discussions previously made between the Study Team and the respective utility agencies, such as those for electric power supply, heating pipe, water supply pipe, sewage, communication cable and network cable for railways, it was confirmed that the relocation of utilities for the Project would be required and that the relocation plans and approximate cost estimates should be provided by all of the concerned agencies to the Study Team not later than the 15<sup>th</sup> day of November 2012 to include such information in Draft Final Report.

## 7. OTHER ISSUES

Following requests were presented by JCC members.

- (1) JCC members will carry out field reconnaissance together with Ulaanbaatar City Government to understand the site situation.
- (2) Project Cost consists of Construction Cost, Consultant Fee, Land Acquisition, Utility Relocation and Tax related to the Project shall be presented in the Draft Final Report.
- (3) Organization and its responsibility for implementation of the Project shall be clarified in the Draft Final Report.



付属資料-4

*Minutes of Discussion on 3<sup>rd</sup> Joint Coordination Committee  
Meeting for the Preparatory Survey on the Construction of  
Ajilchin Flyover Project in Ulaanbaatar City*



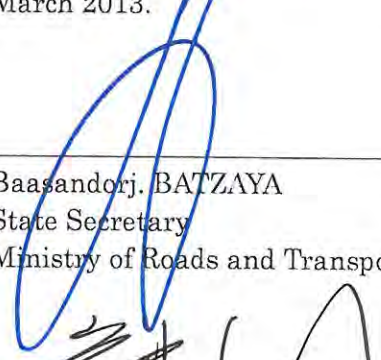
MINUTES OF DISCUSSION  
ON  
3<sup>rd</sup> JOINT COORDINATION COMMITTEE MEETING  
FOR  
THE PREPARATORY SURVEY FOR  
THE CONSTRUCTION OF AJILCHIN FLYOVER PROJECT  
IN ULAANBAATAR CITY

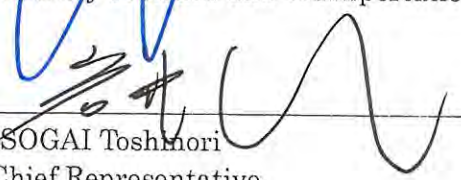
27 February, 2013


The Third Joint Coordination Committee (JCC) Meeting for the Preparatory Survey for the Construction of Ajilchin Flyover Project in Ulaanbaatar City, Mongolia, which was continued from 4<sup>th</sup> WG meeting, was held on the 27<sup>th</sup> day of February 2013 with the attendance of the JCC members representing the Ministry of Roads and Transportation (MRT), representatives of the Ulaanbaatar City Government (UBC), representatives of Japan International Cooperation Agency (JICA), and members of the JICA Survey Team conducting the Preparatory Survey for the Construction of Ajilchin Flyover Project in Ulaanbaatar City (the Survey Team).


The Survey Team presented the result of road and bridge design, Construction Schedule, Utility Relocation, Land Acquisition, Project Cost, Project Effect and Project Implementation Schedule based on Draft Final Report. In addition, JICA introduced Special Terms for Economic Partnership (STEP) and recommended to apply it to the Project so that the Project can be implemented in the most economical manner.

Based on the above presentation and exchange of views among JCC members, it was mutually confirmed as stated Appendix-1 attached herewith. Based on this JCC meeting, JCC agreed that result of the survey should be promoted in Ministry of Economic and Development, and the Survey Team should prepare and submit Final Report in April 2013 reflecting the comments on the Draft Final Report to be presented by MRT not later than 15<sup>th</sup> March 2013.

  
Baasandorj. BATZAYA  
State Secretary  
Ministry of Roads and Transportation

For   
ISOGAI Toshimori  
Chief Representative  
JICA Mongolia Office

  
Nyamdavaa GANTUMUR  
Vice Mayor, Ulaanbaatar City

  
OKAZAKI Akio  
Deputy Team Leader  
JICA Survey Team

**1. RESULT OF ROAD AND BRIDGE DESIGN**

Bridge Type, Road Planning and Design Criteria stated in the Draft Final Report were confirmed by the Science and Technology Council in the MRT held on 17<sup>th</sup> December 2012. No specific comments on result of the design were stated during the JCC meeting.

**2. CONSTRUCTION PLAN**

Ulaanbaatar Railway and MRT expressed no objection on the construction methodology of bridge mentioned in the Draft Final Report including Window Time. Regarding Construction schedule, JCC members explained the importance to complete the Project by 2016 to coordinate with other projects such as BRT Project and MRT Project.

**3. UTILITY RELOCATION PLAN**

JCC member confirmed that Utility relocation should be implemented by UBC in accordance with the schedule mentioned in the Draft Final Report, and that relocation cost would be included in Preparation Cost to be excluded in principle from the Yen Loan.

**4. LAND ACQUISITION PLAN**

To prevent extra land acquisition and increasing of compensation, the Survey Team requested that 1) Cut-off Date should be immediately announced by UBC, 2) estimated R.O.W. should be informed to land possessor and 3) public notice should be made by means of message board at the Project site.

**5. ENVIRONMENTAL IMPACT ASSESSMENT**

It was confirmed that DEIA Report had been approved by the Ministry of Environment and Green Development in January 2013 and the Report would be disclosed on the Web site of the Ministry.

**6. PROJECT COST**

- (1) The Study team explained that Land acquisition and compensation cost and Utility relocation cost were estimated and included in the Project Cost.
- (2) The Survey Team explained that Price Escalation should consist of 9% per year in local portion and 2.1 % per year in foreign portion respectively, and that Physical contingency was estimated as 5% of construction cost and consultant fee.
- (3) The Survey Team explained that the Construction Cost was estimated based on preliminary design which was result of comparison study to select optimal type of bridge. In response, JCC member remarked that further cost reduction would be strongly desired.

**7. PROJECT IMPLEMENTATION SCHEDULE**

Remarks were given by JCC members to the period which was estimated as more than two (2) years from procurement of consultant to commencement of the Construction in the Draft Final Report. Responding to the remarks, the Survey Team explained that the periods of detailed design, land acquisition, utility relocation and bidding were estimated based on required procedure and work volume.

However, JCC member strongly stated that D/D should be started in 2013 and Construction should be commenced in 2014.

**8. SPECIAL TERMS FOR ECONOMIC PARTNERSHIP; STEP**

JICA introduced advantage of Japanese ODA Loan namely "Special Terms for Economic Partnership (STEP)" in terms of interest rate, repayment period, grace period and Grant Assistance for the Detailed Design Work, and recommended to apply it to the Project so that the Project can be implemented in the most economical manner.

**9. OTHERS**

After the JCC Meeting, the Study Team, MRT and UBC held meeting respectively and agreed that MRT and/or UBC should deliver the comments on the Draft Final Report in writing to JICA Mongolia Office by March 15, 2013, which would be prepared by related agencies and to be well examined and arranged by JCC members.







付属資料-5

第1回WG会議 会議記録



## 第1回ワーキンググループ会議

### 議事録

日 時 : 2012年4月26日 14:00~16:00  
場 所 : ウランバートル市 14階 B 会議室  
出席者 : 出席者リス参照

#### 1. ムンフバートル副市長による冒頭挨拶

WGメンバーの確認および調査の進捗についての説明を依頼。

#### 2. 調査の進捗・今後の予定・調査団からの依頼事項について

これまで実施した調査内容、今後のスケジュール等について JICA 調査団から以下の説明を行った。

##### <調査の進捗>

- 1) 合同現場踏査 (UB 市・UB 鉄道・コンサルタント)
- 2) UB 市道路計画の情報収集
- 3) ユーティリティ等の情報収集
- 4) アジルチン跨線橋架橋ルート of 検討
- 5) EIA 手続きの確認および GIA の申請
- 6) 交通調査の開始 (4月30日からの予定)
- 7) UB 市内既存橋梁の図面収集 (約 50 橋分)

##### <今後の予定>

- 1) 交通調査の実施・交通需要予測
- 2) 跨線橋ルートの選定
- 3) プロジェクト範囲の設定
- 4) DEIA の開始
- 5) 地形測量・地質調査
- 6) 橋梁計画・道路計画・交差点計画

##### <UB 市への要望事項>

- 1) 交通調査開始に関わる交通警察・警察署との手続き促進
- 2) 既存地下埋設物、ユーティリティの情報提供 (給湯管, 電力, 通信, 水道, 下水, 鉄道)
- 3) EIA 手続きの促進 (GIA, DEIA)
- 4) 橋梁設計条件確定に関する協議
- 5) 調査期間中における技術移転内容 (橋梁設計, 維持管理) についての協議

#### 3. アジルチン跨線橋 F/S 調査について

プレゼンテーション資料に基づき下記内容について JICA 調査団より報告を行なった。

- ・プロジェクトサイトの土地利用および高圧線 (35kV) 配線計画

- ・2012年ウランバートル市道路改修計画（ナルニーザム通り4車線拡幅、ドンド川渡河橋新設計画、ドンドゴル通りの4車線計画）
- ・架橋ルートの代替案について（東西ルートと南北ルート）
- ・ナルニーザム通りの交差点計画案（立体交差と平面交差）
- ・事業範囲の確定について（ドンド川渡河橋の改修を含めるかどうか）

#### 4. ウランバートル市内既存構造物調査について

コンサルタントから今後実施する既存構造物調査の内容について下記のとおり報告した。

- (1) 既存橋梁インベントリー調査
- (2) 健全度評価
- (3) 橋梁調査シートの作成
- (3) 補強・補修工法の提案
- (4) 維持管理技術に関する支援策の提案

#### 5. 技術移転セミナーの開催

技術移転セミナーの開催について、JICA 調査団より以下のとおり報告した。

実施時期：10月初旬を予定

内 容：橋梁建設、維持管理、リハビリテーション等に関する日本の技術の紹介

対 象 者：ウランバートル市、道路運輸建設都市開発省の技術者等20名程度

内 容：内容、期間、参加者等については、今後モンゴル側と協議の上最終決定する予定。

#### 6. 質疑応答

##### ・UB市道路局副局長バットトグトフ氏

- UB市道路局は調査団と密接に連携しながら調査を進めており、またUB市都市開発計画局と土地管理局も支援してくれている。調査は予定通り推移しているものと考えている。
- 地下埋設物、ユーティリティーに関する情報は、UB市都市開発計画局のオッドバヤル・O氏とエルデネバヤル氏が関連資料を提供することとする。
- UB市土地管理局は土地所有者のリスト等を提供すること。
- UB市道路局ハスバートル・G氏は環境に関するGeneral Impact Assessment (GIA)の手続きを促進させること。
- 交通調査の実施に関する交通警察への協力要請については、UB市道路局ハスバートル・G氏が担当しており、既に9人の交通警察を派遣してくれることが決まっている。人数が足りない場合には道路局所属の警備員を派遣することも可能である。
- 35kwの高圧送電線は本跨線橋事業の支障になる可能性が高いので、計画を見直す必要があると考えている。
- JCCの設立を急ぐ必要がある。これに関しては、道路運輸建設都市開発省（MRTCUD）のガントムル氏が出張から戻り次第、来週早々にも相談して設立を依頼したい。
- EIAの実施促進に係る発注者側の費用負担は、MRTCUD大臣の指令が必要であるため、道路運輸建設都市開発省の所長ガントムル氏と協議した上で決定する。
- 橋梁設計に関しては、ルートが決まった後にじっくり検討をすることが必要であろう。また、技術移転に関しては、他の関係機関にも要望を聞きたいと考えている。

• **UB 市道路局ハスバートル氏：**

交通調査は4月29日に開始する予定である。UB市交通警察は調査に協力することに同意している。OD調査では、運転手に質問に正確に回答してもらえよう、UB市交通管理局、警察等の協力も得ることになっている。GIAの結果については本日午後に環境省から返事することになっている。

• **UB市の都市開発計画局の開発課課長オッドバヤル、O氏：**

当局は調査団と面会し、アジルチン跨線橋について情報を提供してもらっている。8個の35kw高圧送電線についてはウランバートル市電力送電局から説明が必要と思われる。支障物件の一つとして説明のあった鉄道沿いの建設中の物件は、ただのレンガ積みの柵だと思われる。土地所有者の情報については情報を提供する。来週の月曜日から火曜日にはプロジェクト担当委員会のメンバーを決定し、各役所と協議し来週中には全ての資料を提供できると思う。線形確定後、橋梁設計条件、施工条件を調査団と合同で作成したいと考えている。

• **モンゴル鉄道庁エルデネダライ氏：**

鉄道庁とウランバートル鉄道の間では意見を常に調整している。調査の対象となる場所は、通信ケーブル、鉄道に関するさまざまな埋設物があり、鉄道庁としては調査団と密接に連携して調査を進めることが必要と考えている。太陽橋建設の経験もあるので、関係する資料は全て提供するつもりである。その他、既存橋梁について2003年に行った調査資料があるので、もし必要であれば調査団に提供したい。

• **JICA 調査団（岡崎副総括）**

各部局の協力に感謝する。今後調査を迅速に行うため、WGメンバーに対し個別に協議を依頼することもあるので了承していただきたい。2012年にウランバートル市道路改修計画について、太陽道路の4車線拡幅工事、ドンドゴル通りの4車線化、既存のドンド川渡河橋の増設工事がリストアップされているが、本年中に予定通り実施される予定かどうかを確認させて欲しい。太陽道路の4車線化改修工事は、当跨線橋プロジェクトと密接に関係があるため、本調査の結果と整合が取れるよう調整して欲しい。

• **UB 市道路局副局長バットトグトフ氏：**

上記の改修工事については政府内で議論中であるが、指令106番が出ており、工事は計画どおり開発銀行の資金を使って実施される予定である。ドンドゴル通りの4車線化は資金調達がまだ確定していない。

• **UB 市都市交通システム改善専門家（JICA）丸岡氏**

ウランバートル市のマスタープランは今後国会で議論されることになっていると聞いている。アジルチン跨線橋は、UB市MP（2030年）にも含まれているが、このMPにおける本跨線橋の位置づけは東西方向に伸びる主要幹線道路の一部を形成することになっているはずである。本跨線橋の建設は、日本の円借款で事業化することが予定されており、MPと整合の採れた計画が必要であると考えられる。

• **UB 市道路局副局長バットトグトフ氏**

アジルチン橋梁は2020年のマスタープラン、2030年のマスタープランにも入っている。MRTCUDでも議論されている。

- **UB 市都市開発計画局の開発課課長オッドバヤル、O 氏：**

MP では基本的なことしか記述されておらず、詳細な計画については本調査で決定されるべきだと考えている。せっきく新しく跨線橋を建設するのであれば、南部の道路（ドンドゴル通り）とも連結してほしい。跨線橋が地面にすり付いたあとに、ドンド川を渡河する方法も検討してほしい。

- **調査団（岡崎副総括）**

跨線橋のルートについては、MP の考えを十分確認したうえで、モンゴル側と協議を通じて決定する予定である。次回の WG 会議の開催時期について、特に指定がなければコンサルタントから開催日時を提案することにしたいと考えている。5 月末に JCC 会議を開催する必要があるので、少なくともその前に WG 会議を開催する必要があると考えている。

以上

出席者リスト

No	Name	Organization	Position
1	Mr. B.Munkhbaatar	UB City, Administration Dept.	Deputy Mayor of UB City
2	Mr.E.Enkhbat	MRTCUD	Specialist
3	Mr.Battogtokh	UB City, Road Dept.	Deputy director
4	Mr.G.Khasbaatar	UB City, Road Dept.	Project officer
5	Ms.M.Ichinkhorloo	UB City, Road Dept.	Bridge engineer
6	Ms.N.Hishgee	UB City, Public transport department	Financial planning division
7	Mr.KH.Bat-Erdene	UB City, Urban Development Policy Division	Traffic engineer
8	Mr.O.Odbayar	UB City, Construction & Urban Development Planning Dept.	Head of the Division
9	Mr.D.Nyamdavaa	UB City, Land Management Department	Land Registration for Bayangol District
10	Mr. M.Sergelen	UB City, Land Management Department	Land Registration for Khan-Uul District
11	Mr.S.Baatar	Water Distributing Authority	Engineer
12	Mr.CH.Erdenedalai	Mongolian Railway Authority	State Inspector
13	Mr.D.Tuvshinbayar	Ulaanbaatar Railway	Engineer
14	Mr.D.Ochir-Erdene	UB Traffic Contril Center	Senior Engineer
15	Mr.T.Gantulga	Usnii Barilga Baiguulamj (Water Facilirty) Company	Engineer
16	Mr.B.Zolmandakh	UB Erectric Distribution Network Company	Drawing Engineer
17	Mr. Bum-Erdene	Urban Transportation System Improvement in UB City (JICA)	Road Consultant
18	Mr.Kenji MARUOKA	Urban Transportation System Improvement in UB City (JICA)	JICA Expert
19	Mr.Akio OKAZAKI	JICA SurveyTeam	Deputy Team Leader
20	Mr.Kimio KANEKO	JICA SurveyTeam	Transport Planner
21	Mr.Hitoshi NAKAMURA	JICA SurveyTeam	Bridge Engineer
22	Ms.Misa OISHI	JICA SurveyTeam	Social Impact Consideration
23	Mr.Mitsuhiro OYAMA	JICA SurveyTeam	Utility Survey&Construction Planner
24	Mr.Takayoshi KITAMURA	JICA SurveyTeam	Bridge Inspection
25	Mr.Toshiyuki SATO	JICA SurveyTeam	Bridge Design Assistant / Coordinator
26	Mr.N.Tserendorj	JICA SurveyTeam	Interpreter
27	Mr.O.Bold	JICA SurveyTeam	Interpreter





付属資料-6

第2回WG会議 会議記録



## 議事録

調 査 名	モンゴル国アジルチン跨線橋建設事業準備調査
開 催 日 時	平成 23 年 5 月 30 日 14:00～16:15
開 催 場 所	ウランバートル市役所 14 階 B 会議室
出 席 者	ウランバートル市 添付の出席者名簿を参照
	JICA モンゴル事務所 富原調査員
	コンサルタント 永田、金子、中村、大山、小川、渡邊、五反田、大石、北村
議 事 内 容	<p>標記案件の架橋ルート選定および事業範囲の決定の方向性を図るため、コンサルタントは、架橋ルートの各代替案に関して、建設コスト、効果、影響範囲等の説明を行った。これに対する質疑応答を通じ、ウランバートル市(以下；ウ市)側、JICA、コンサルタント間にて下記内容を確認した。</p> <ol style="list-style-type: none"> <li>1. ウ市側は東西案が第一優先であることは理解しつつも、南北案の要望が強い。東西案、南北案との折衷案とした場合、南北ルートのドンドゴル通りとの接続部が鉄道支線の踏み切りの近くとなる。コンサルタント側で確認したところ、年間数件の踏切事故が発生しており、交通安全面に不安がある。(コンサルタント)</li> <li>2. 資料に記載する概略工事費にはコンサルタントサービス、用地買収や移転補償等の費用は含まれていない。(コンサルタント)</li> <li>3. 跨線橋の車線数(幅員)は、ルート決定後に交通量を把握し、構造的な検討も行った上で決定する。(コンサルタント)</li> <li>4. ルート選定に関しては、南北の跨線は現在施工中の太陽橋がその機能を担うことが期待されており、アジルチン跨線橋は東西の交通を担うものとして計画している。(ウ市道路局：ダワースレン氏)</li> <li>5. 但し、南北ルートも交通ネットワーク上からは是非折衷案として検討して欲しい。(ウ市道路警察署)</li> <li>6. 概算工事費は現段階での試算であり、円借款となる前提として、単価等は日本の基準(太陽橋を参考)にて試算している。今後ルートが決定した後、より詳細な試算を行う。(コンサルタント)</li> <li>7. 世銀の支援による高圧送電線の事業があるが、既に一部の建設工事が開始されており、変更が困難な状況にある。コンサルタントは鉄塔建設予定地を確認の上、これが障害にならないような道路線形計画を行っている。(コンサルタント)</li> <li>8. 過去の経験において、アジルチン跨線橋予定地周辺で土地収用に関して問題が生じたことがあったことから、東西ルート案が妥当である。複合案においては、ランプ橋建設のために用地確保・移設等が必要になるため、実現は難しいと思われる。補償や移設等の規模が小さい東西ルート案で検討すべきである。(用地収用課バヤンゴル区担当)</li> <li>9. 本事業がもたらす社会的および経済的な指標については、ルート決定後に構造的な検討、交通量需要予測を行った上で評価を行う。現時点ではルートが未決定であるため、まずはルートを選定していただき、その後 EIRR 等の経済評価を行う。EIRR は建設コストと経済便益による評価で</li> </ol>

	<p>あるため、建設コストが高く、その割に予想される交通量が多くない複合案は EIRR が低くなることが予想される。(コンサルタント)</p> <p>10. 交通量は 2012 年に調査を行った結果を示している。新たに自動車 OD 調査を実施し、現在より正確な分析を行っているところである。(コンサルタント)</p> <p>11. 本調査結果がそのまま円借款につながっていくものではなく、モンゴル政府負担事業を含めて円借款の規模・内容の可能性を検討することとなる。本会議において、ウ市側は南北ルートの要望が強いことは理解したが、まずはこれまでの会議での検討から東西ルートを優先させることについては出席者の総意として理解したい。(JICA)</p> <p>12. まずは東西ルートの調査を進めることとし、ウ市側から強い要望のあった南北ルートをどこまで本調査に含めることができるかについては、改めて JICA 内で協議したい。(JICA)</p> <p>13. 本 WG 会議にて検討された、東西ルート案を優先し、南北ルートまで含めて調査を行うかについては JICA 側で再検討する方向性で、JCC へ WG の意見として上げ、承認を頂けるように進めたい。(JICA)</p>
配布書類	・説明資料(パワーポイント印刷版、ルート案の比較表)

#### 会議の状況



付属資料7

第3回WG会議 会議記録



モンゴル国  
ウランバートル市アジルチン跨線橋建設事業準備調査  
第3回ワーキンググループ会議  
議事録

日 時：2012年10月19日 14:00～16:00

場 所：ウランバートル市役所14階B会議室

配布資料：インテリムレポート（モンゴル語版）・プレゼンテーション資料

議事内容

1. UB 市副市長 Gantumur 氏より冒頭挨拶
2. JICA 調査団 総括永田氏の挨拶
3. JICA 調査団 副総括岡崎からインテリムレポート内容の説明
  - i) これまでの経緯
  - ii) 第1回JCCで決定された架橋ルートおよび事業範囲
  - iii) アジルチン跨線橋の必要性
  - iv) 事業計画の概要
  - v) 道路計画（西産業道路部の計画、ナルニー道路の立体交差、用地問題、設計条件）
  - vi) 橋梁計画（橋脚位置、橋梁形式、基礎形式、設計条件）
  - vii) 本邦技術の適用について
  - viii) ユーティリティの移設について
4. ウランバートル市副市長 Gantumur 氏からのコメント
  - i) 今回の事業は円借款を前提としている。事業費がかなり高くなると聞いているが、事業の実施の承認は、円借款条件の条件等を確認した上で、経済開発省が行うことになる。
  - ii) アジルチン跨線橋の事業では、多くの鉄道施設の移転が必要であり、また国鉄駅を新たに建設する計画もあるので、用地の確保については十分協議することが重要である。
  - iii) 東西幹線道路としてアジルチン通りまで続くという計画は、詳細に調査した結果であり、本事業の必要性は非常に高いと思われる。工事費が高いと聞いているが、太陽橋のように品質も高いと理解している。
  - iv) UB 市都市開発マスタープランとその他計画されている事業との整合を図ることが重要である。
  - v) 現在、UB 市では14種の関連手続きを簡素化し、事業の許認可手続きを早めている。調査期間は、十分な期間をかけていると思われるが、早く完成して頂きたい。最終報告書は来年の3月と理解しており、それまでに事業の実施について日本とモンゴルの政府間で協議するものと考えている。
5. UB 市首都道路局長 Nanzaddorj 氏

関係機関からの質問をお願いしたい。現在はインテリムレポートであるが、内容をよく把握して質問し、ファイナルレポートで問題が生じないようにしていただきたい。

6. UB 鉄道技術政策設計センター長 Erdenebulgan 氏

- i) アジルチン跨線橋の事業範囲では、影響を受けている鉄道施設が多いので、UB 市道路局、UB 市土地管理局宛に公式なレターを提出し、UB 鉄道の考えは伝えてある。これに基づいて用地確保と補償内容を決めて頂きたい。
- ii) 鉄道敷地内の橋脚位置・施工ヤード・施工時間 (Window Time)については、P7, P8,P9 の橋脚位置が国鉄鉄道敷地内であるので、設計図を基に協議することとする。
- iii) 鉄道の Window Time は 1 日 4 時間以内が可能である。メイン以外の支線、引込み線であれば、4 時間以上は可能であるが、協議が必要であり、現時点で回答は出来ない。個別に協議して決めたい。

7. JICA 調査団総括 永田氏

副市長の説明では、本事業範囲の近くに新しい国鉄駅を建設する計画があるとのことであるが、具体的な位置、建設開始期間について情報を提供していただきたい。

8. UB 国鉄技術政策設計センター長 Erdenebulgan 氏

建設開始時期は未定であるが、建設用地予定位置は、既存の駅の西側にある中古車販売店がある位置を予定している。

9. UB 市土地管理局、用地強制取得部部長 Batundrah 氏

本事業範囲で影響を受けている UB 鉄関係構造物施設が多いが、太陽橋の建設の際と同様、資産価額を適切に算出し、協議を重ねることで、補償問題は解決可能と考えている。

10. UB 市電気局 Ms. Battsetsteg

本事業の最初から JICA 調査団と協力しているので大きな問題はないと考えている。移設に必要な電力ケーブルが 2 本程度あるが、工事の情報を確認できれば、移設費の見積もりは可能である。

11. 情報通信ネットワーク局、通信エンジニア Ms.Narmandakh

Dundgol 橋、Nary 道路の地下埋設物の 10 本通信ケーブルがあるが、移設可能であり、設計図で確認して図面上に示すことが可能である。

12. JICA 調査団副総括 岡崎

事業の計画図はすべてレポートに添付している。CAD データも提供可能である。移設費用算出のため、個別に協議をお願いしたい。今日のワーキンググループ会議に出席出来なかった他のユーティリティ担当者との協議を、UB 市道路局にて調整をお願いしたい。



13. UB 市道路局長 Nanzaddorj 氏

- i) 各ユーティリティ及び UB 鉄道関係地下埋設物のデータは、現場立会いを行うなど、十分注意して確認して頂きたい。
- ii) 各ユーティリティ移設計画実施に関して、ウランバートル市が管理を行う予定である。
- iii) 道路・橋梁の計画、設計条件等については合意できる内容と考えている。
- iv) ユーティリティの移設については、各担当と十分に確認を行っていただきたい。UB 鉄道とは、移転施設が多いので、資産価値の査定を慎重に行い、事業実施時に問題が発生しないよう注意して欲しい。

以上

出席者リスト

No	氏名	組織	役職	電話番号
1	N. GANTUMUR	ウランバートル市役所	副市長	
2	D. NANZADDORJ	UB 市道路局	局長	
3	G. HASBAATAR	UB 市道路局	プロジェクト担当専門家	99990181
4	L. ERDENEBAT	UB 市	Senior ofiicer	99196789
5	O. ODBAYAR	UB 市建築首都計画部	部長	99190769
6	L. GANBAT	UB 市設計研究所、首都計画部	部長	99232564
7	D. BAT-UNDRAKH	UB 市土地管理局、用地強制取得部	部長	99090362
8	KH. UNURJARGAL	UB 市交通管理センター	交通エンジニア	98225757
9	T. BATTSETSEG	UB 市電気局	設計部部長	99199463
10	SH. ERDENEBULGAN	UB 鉄道技術政策設計センター	センター長	99117496
11	T. NARMANDAKH	情報通信ネットワーク局	通信エンジニア	99047744
12	A. Bulgan	JICA	Programm Officer	
13	丸岡 健二	JICA 専門家		99080342
14	永田 恒見	JICA 調査団	総括／道路計画	95884369
15	岡崎 亮男	JICA 調査団	副総括／橋梁設計(1)	94234199

付属資料-8

第4回WG会議 会議記録



アジルチン跨線橋建設事業準備調査  
第4回WG会議 議事録

日時：2013年2月27日 10:00～

場所：ウランバートル市 14F 会議室

会議を UB 市副市長、GantumurJCC 会議会長として開会する

協議事項

1. アジルチン跨線橋建設事業準備調査の DFR の内容を確認することである

会議出席者

1. Ulaanbaatar City、Vice Mayor Mr. Gantumur
2. UB City Road Dept. Foreign relation, projects Mr. G. Hasbaatar
3. MRT, Railway Policy Implementation and Coordination Division Director  
Mr. Artur
4. MRT, Specialist Mr.Ch.Erdenedalai
5. UB Railway Head of Dept. Mr. T.Bat-Erdene
6. UB City Strategic Policy and Planning Department Director  
Mr.Bayarbaatar
7. UB City Road Department Director Mr. Nanzaddorj
8. General Planning Agency Head of Construction and Urban  
development Dept. Mr. O.Odbayar
9. UB City Head of department Mr. Ganbat
10. Property Relation Dept. of UB Head of Dept. Mr. Bayar
11. Property Relation Dept. of UB Land acquisition Dept. Mr. Bat-Undrakh
12. UB City Engineering Facilities Department Director Mr. S. Bayar-Ulzii
13. Engineering Facility Dept. Senior specialist Mr. L. Erdenebat
14. Traffic control center Head of task Mr. D.Ochir-Erdene
15. UB Railway Engineer Mr. D. Chinzorig
16. UB Heating Network Maintenance and relocation engineer Mr.  
Naranhishigt
17. NETCOM Co. engineer T. Narmandakh
18. Water facility General engineer Ts.Bayarmaa
19. USUG Engineer Mrs. L.Dungarmaa
20. JICA Country Officer Mr.Murayama Mitsuo
21. JICA Representative Mr. WAKISAKA Yutaka
22. JICA Survey Team Team Leader Mr.Nagata Tsunemi
23. JICA Survey Team Deputy Team Leader Mr.Okazaki Akio

Nanzaddorj 道路局長：本日は、2つの会議を実施予定であるので、各メンバーは、直接考えを発言してください。WG 会議の後、続けて JCC の会議を実施します。

A.Okazaki JICA 調査団：今日は、東京本部から村山さんも参加されています。出席者皆さんからの忌憚りの無いご意見をお願いしたい。

Gantumur 副市長：WG の後 JCC の会議が予定されている。意見のある人は発言してください。

A.Okazaki JICA 調査団：（ドラフトファイナルレポートの説明を実施）

Gantumur 副市長：モンゴルの経済開発省は、事業の実施について2つのことを懸念している。1つは、施工期間が長いと、2つ目は、コストが高いことである。ADB の BRT 事業、地下鉄の事業との関連があるので、モンゴル側は出来るだけ早く完成させたいと考えている。

Erdenedalai (MRT 道路運輸検査登録局 専門家)：建設費、施工期間については妥当ではないかと考える。鉄道局は協力していくことに問題はない。以前太陽橋の経験もある。建設期間に関して、4月と10月は施工可能な時期もあるので、検討してはどうか？

Bayarbaatar (UB 市戦略政策計画局)：為替レートの違いで太陽橋の値段が2割安くなっているように見える。日本で鋼材の価格が1割下がったというが、為替のレートの違いではないか？

A.Okazaki JICA 調査団：日本国の鋼材価格の低下と、為替レートの関係性はそれほどないと考えられる。これまで、円高傾向であったが、現時点では、やや円安に推移している。

Nanzaddorj 道路局長：予備費、準備費には何が含まれているのか？また、施工期間について、2019年の完成では遅いと考え。2013年にDDを開始し、2014年に建設を開始し、2017年に完成するように計画するべき。2019年の完成では、BRT 事業、地下鉄のプロジェクトとはまったく結びつかない。

A.Okazaki JICA 調査団：予備費には、年率9.0%（内貨）、年率2.1%（外貨）の物価上昇費、建設費とコンサルタントフィーに対する5%の物理的予備費が含まれている。施工期間については、鋼製橋梁を使い、工期、工費の観点から最適な計画を行っている。

Bayar-Ulziy (UB 市技術施設局)：埋設物の移設に3.6BLN MNT が確保されているが UB 市がこの費用を負担し、ローンでカバーされてないと理解してよいか？

JICA 調査団：一般的には、ユーティリティ移設費用は円借款には含まれない。

Bat-Erdene (UB 鉄道)：太陽橋の経験では、予定されてなかった移設費用が発生した。今後はこんな問題が発生しないと期待する。

Gantumur 副市長: 鉄道の施設に関する移設費用は UB 市がカバーすることになっている。  
それでは、JCC 会議も予定されているので、WC 会議を終わりにする。

以上





## 付属資料9

環境緑化省から承認されたDEIA レポート

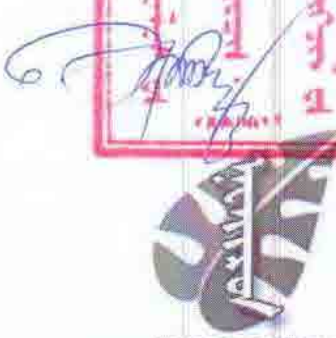


Батлав:  
БОАЖЯ-ны ерөнхий шинжээч



Д. Энхбат

Шүүмж хийсэн:  
БОАЖЯ-ны шинжээч



С. Баярцэцэг



## АЖИЛЧИН ГҮҮРЭН ГАРЦ ТӨСЛИЙН БАЙГАЛЬ ОРЧНЫ НАРИЙВЧИЛСАН ҮНЭЛГЭЭНИЙ ТАЙЛАН

Нарийвчилсан үнэлгээ хийсэн  
Мэргэжлийн байгууллага:  
"Энвайрон" ХХК-ийн захирал



Н. Эрдэнэсайхан

Төсөл хэрэгжүүлэгч:  
Нийслэлийн засаг даргын  
хэрэгжүүлэгч агентлаг  
Авто замын газрын дарга



Д. Нанзаддорж

Төсөл хэрэгжих нутаг:  
Баянгол дүүргийн  
Засаг дарга



Л. Амгалан

Улаанбаатар хот  
2012 он



ENVIRONMENTAL IMPACT ASSESSMENT COMPANY  
ENVIRON LLC

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# **“AJILCHIN FLYOVER PROJECT”**

## **DETAILED ENVIRONMENTAL IMPACT ASSESSMENT REPORT**



ULAANBAATAR CITY 2012

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# **1. INTRODUCTION**

## **1.1 Project background**

### **1.1.1 Project demands**

The railway through the center of Ulaanbaatar city divided the city into the north and south sections and traffic movement which was passed above the railway, is restricted by the 3 bridges namely “Peace Bridge”, “Narny Bridge” and “Gurvaljin Bridge”. “Narny Bridge” constructed at the 3km from “Gurvaljin Bridge” by Japanese Grant Aid Project, has been opened to traffic since October 2012. It is expected that the Narny Bridge will reduce traffic movement intensities but it is not enough to regulate expected movement intensities.

The “Ajilchin” flyover which is being planned by the project will be located in the middle of Narny Bridge and Gurvaljin Bridge and will improve auto road networks of the city, simultaneously will be advantageous to disperse and allocate movement intensities of the “Gurvaljin” and “Narnii” bridges. Moreover, as a result that “Ajilchin” flyover is built, will solve main magisterial auto road trace parallel to the Peace avenue which was reflected to the General Plan of Ulaanbaatar city until 2030; movement load of the Peace avenue will be reduced and also auto road network to the right and east sides will be improved.

### **1.1.2 Project location**

Ajilchin flyover project is planned to be constructed in the territories of the 4<sup>th</sup> khoroo of Bayangol district and 3<sup>rd</sup> khoroo of Khan-Uul district, which stretches from right end of Narny zam road to the south passing above the railway lines and continues along the Baruun Teeverchdiin street and ends at the intersection of “Ajilchin” street.

### **1.1.3 Key project components**

Project will consist of following components.

- To construct flyover bridge
- To construct approach road to the flyover bridge.

### **1.1.4 Project Scope**

Project team must define following project scopes according to preliminary research.

#### **(1) Start and ending point of the project**

Start point: Ajilchin street and crossing of west coast of Dundgol

End point: Central depot of Ulaanbaatar Railway

#### **(2) Flyover boundaries**

It is connected from Narnii zam to the east road of Dundgol.

### (3) Road connection boundaries

North: Extension Plan for restructuring “Narnii zam” with 4 rows will be implemented within this year and reflected that “Ajilchin” flyover will be connected to Narnii zam after it was extended with 4 rows.

South: West side from branch railway to TPP-3. (Crossing of Ajilchin street)



Figure 1. Scope of the Project

### 1.1.5 Project funding

Feasibility Study for the Project has been carried out since March 2012 and been scheduled to complete by February 2013. Funding for the Project Implementation would be discussed based on result of the F/S.

### 1.1.6 General Environmental Impact Assessment

According to the Environmental Impact Assessment Law of Mongolia, any project prior its implementation, should be submitted to the Ministry of Environment and Green Development (MEGD) of Mongolia for a General Environmental Examination. As implementing agency, UB Road department has submitted the Ajilchin Flyover Project Proposal to MEGD and in turn the Ministry has issued a Conclusion of General Environmental Examination on 25<sup>th</sup> of April 2012 recommending to conduct detailed environmental impact assessment (a copy of MEGD’s conclusion letter is attached in the annex 1).

The present report is as a follow up of above conclusion of the Ministry.

## 1.2 Environmental Policy, Legal and Institutional Framework

### 1.2.1 Government Environmental Policy, Regulations and Guidelines

Mongolia has a comprehensive legal framework on Environment. This includes policies, laws and strategies which focused to ensure healthy and safe living environment for Mongolian citizens, to fulfill international obligations and conservation of ecologically sensitive areas. A list of laws, plans and programs pertinent to the project are included in table 1.

**Table 1. Main laws and regulations relevant to Flyover project**

Classification	Names	Year
General	Law on environmental protection	Revised in 1995/2005, 2008
EAA	Law on Environmental Impact Assessment	Revised in 1998/2001
Pollution control	Law on Air	Validated in 1995/2010
	Law on Air Pollution Payment	2010
	Law on Water	Revised in 1995/2004
	Law on Hazardous and Toxic Chemicals	2006
	Law on Labor Safety and Hygiene	2008
	Law on State Professional Inspections	2003
Environmental standard	Air and Noise (MNS4585:2007)	2007
	Water (MNS4586: 1998)	1998
	Soil (MNS5850: 2008)	2008

Requirements for Environmental Impact Assessment are regulated by the Law on Environmental Impact Assessment (it was approved in 1998 and revised in 2002 and 2012 respectively). Scope of the law includes screening of new projects and or projects for extensions of current manufacturing and service buildings and explorations of natural resources. Purpose of the law is to protect environment, to prevent ecological degradation, to regulate exploitation of natural resources, to assess environmental Impact assessment and to regulate decision making process about implementations.

### 1.2.2 JICA Guideline

#### (1) JICA Safeguard Policy

Japan International Cooperation Agency (JICA) considers environmental and social considerations as environmental impacts on air, water, soil, ecosystem, fauna and flora as well as social impacts including involuntary resettlement and respect for human rights of indigenous people and so on. Environmental Impact Assessment by JICA means evaluating environmental and social impacts that projects are likely to have, analyzing alternative plans and preparing adequate mitigation measures and monitoring plans in accordance with laws or guidelines of the recipient governments.



While project proponents etc. bear the ultimate responsibility for the environmental and social considerations of projects, JICA supports and examines appropriate environmental and social considerations undertaken by project proponents to avoid or minimize development projects' impacts on the environment and local communities, and to prevent the occurrence of unacceptable adverse impacts. JICA thus promotes sustainable development in developing countries. In these guidelines, JICA has created clear requirements regarding environmental and social considerations, which project proponents must meet. JICA provides project proponents with support in order to facilitate the achievement of these requirements through the preparation and implementation of cooperation projects. JICA examines undertakings by project proponents in accordance with the requirements, and makes adequate decisions regarding environmental and social considerations on the basis of examination results.

## **(2) JICA's Guideline for Environmental conservation and Social Considerations**

At the Official Development Assistance Charter (ODA Charter) of Japanese Government reflected that "Japan complies with fairness while it processes and implements the assistance policy. In order to do that, Japan aims to support vulnerable part of the society of developing countries and to remove discrimination of regional development and distinction between rich and poor people". Also it was reflected that "Pays special attentions to environmental and social Impacts to implement Official development Assistance".

The JICA organization is an implementer of the ODA and plays main role to create sustainable development in the developing countries.

## 2. DESCRIPTION OF THE PROJECT

### 2.1 Project Location and Setting

Ajilchin flyover project is planned to be constructed in the territories of the 4<sup>th</sup> khoroo of Bayangol district and 3<sup>rd</sup> khoroo of Khan-Uul district, and which stretches from right end of Naryn zam road to the south passing above the railway lines and continues along the Baruun Teeverchdiin street and ends at the intersection of “Ajilchin” street.

Flyover bridge length above the railway is planned to be 600 meter in length and access road to the flyover bridge will be 2200 m.

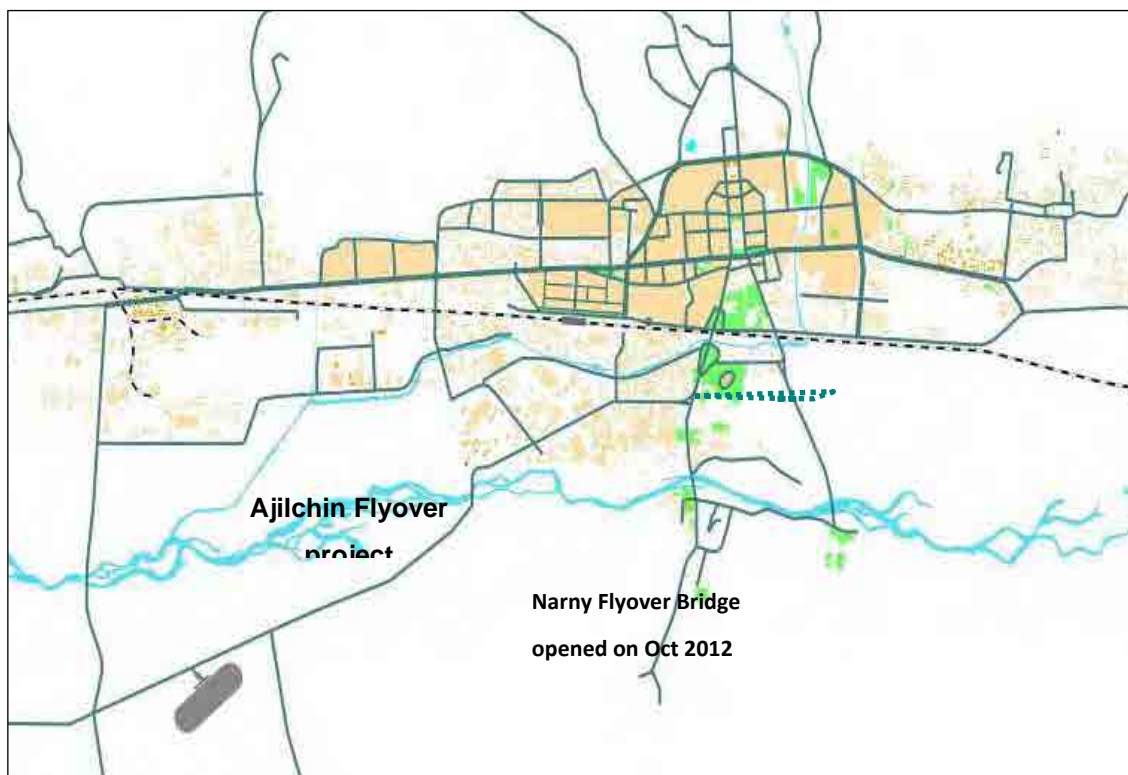


Figure 2. Location of Ajilchin Flyover project in Ulaanbaatar Road Scheme

### 2.2 Project Design Details

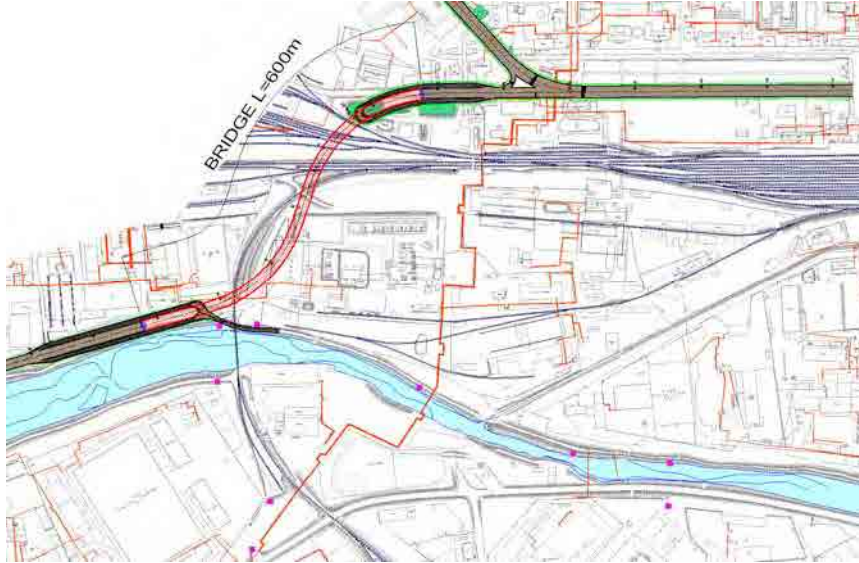
JICA feasibility study team, which aim was to design the flyover project, has made extensive surveys on current traffic volume and future traffic trends based on the socio-economic development of Ulaanbaatar city, demographic statistics, and other associated problems that challenge the city. While at the design stage of Flyover project, two basic alternative routes: “East-West” and “North-South” have been analyzed within the feasibility study framework.

Moreover, three alternatives within each of these two alternatives have been analyzed in terms of traffic volume, road safety and overall construction costs etc.

### 2.2.1 “Ajilchin” flyover

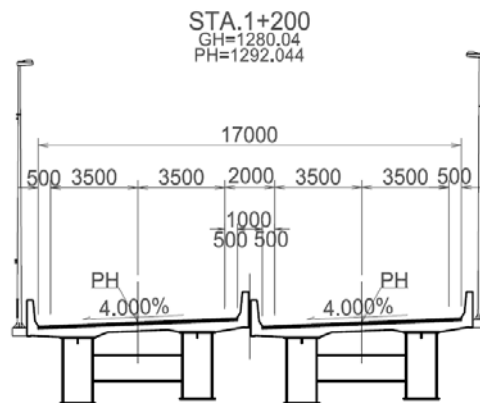
The feasibility study team has conducted surveys focused to select the best route that meets the current and future traffic demands of Ulaanbaatar city. As a result, the most suitable route within three “East-West” alternatives was chosen as the best route in terms of traffic safety, feasibility and impacts to environment and local development.

The chosen East-West route is shown in figure 3.



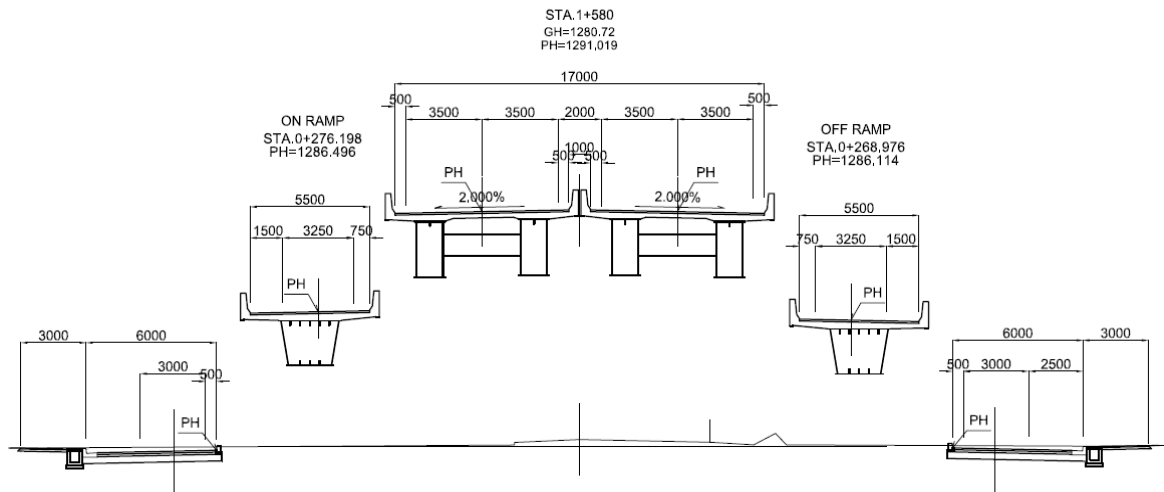
**Figure 3. Most feasible East-West route**

As described in figure 4, road traffic width will be 17 m in total and with 7 m wide lane in each way. Road gradient is designed to be 4%, which ensures road safety.



**Figure 4 Bridge Section**

Cross-sections of Flyover bridge and ON-OFF Ramp are shown in figure 5.



**Figure 5 Bridge and ON-OFF Ramp Section**

In the design of flyover bridge and access roads, Mongolian Standard (BNbD-32-01-04), Japanese Standard, and US Standard have been considered to establish a suitable design. Standards and Normatives that have been used in the Flyover and access road design are described in table 2.

**Table 2. Standards and normatives applied for Road Design**

Items		Used standards for project		Remark
Road standard		Mongolia BNbD		
Cross structure	Road width	3.5 m		
	Insulation line	5.0 , 0.0		
	edge	1.0 m /bridge 0.5 m/		
Calculation rate		60 km/hr		
minimum rotation radius		200 m		Appropriate
Maximum bias		6%		
Rotation radius and bias		6%	$270 \leq R < 330$	Complied with Japanese standards for safety
		5%	$330 \leq R < 420$	
		4%	$420 \leq R < 560$	
		3%	$560 \leq R < 800$	
		2%	$800 \leq R < 2000$	
Vertical curve radius		2000 /standard bias 2%/		
Rotation radius and road extension width		R = 160 0.0m		
Length of minimum rotation radius on even surface		$100 / \Theta < 7^\circ : 700/\Theta /$		
Drifting curve		Radius length	50	
		Minimum parameter	90	
		Reducible radius	500	
Maximum longitudinal bias		4.5%		Estimated sliding
Longitudinal rotation		Convex	1400 /appropriate 2000/	
		Lap	1000 /appropriate 1500/	
Combined bias		$\leq 8\%$ / In snowy and cold area/		

## 2.2.2 Access roads

As mentioned in the project design section, total length of Flyover project including its access roads from both sides will be 2200 m (Figure 6). Narny road, one of busy roads of UB will approach the Ajilchin flyover project from the north side and its length is planned about 600 meters. Cross-section of Narny access road is shown in figure 7. On the west, access road will be West industrial road with four lanes along the Dundgol River with length of 1,000 meters. Typical cross-section of West industrial access road is shown on figure 6, below.

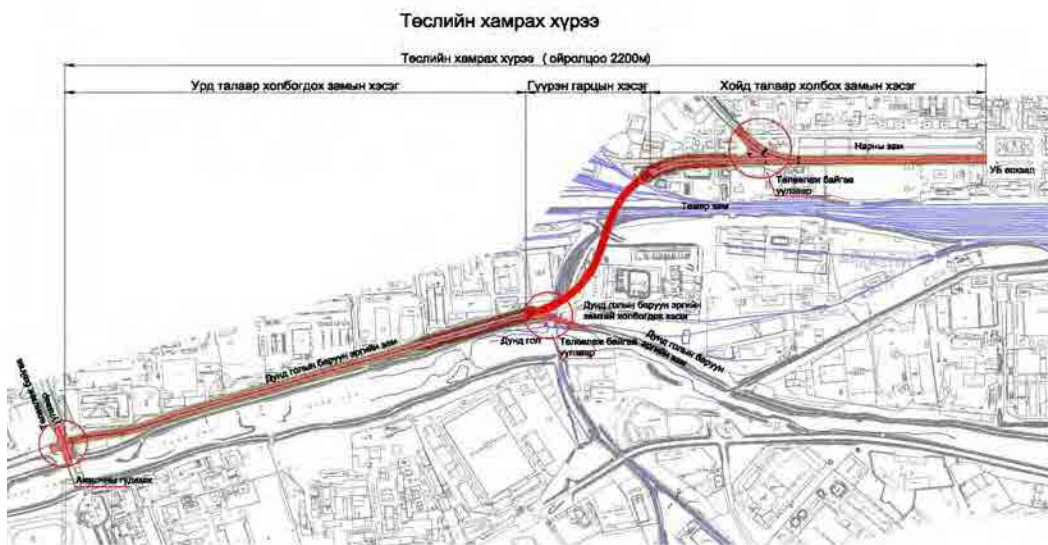


Figure 6 Access road to Ajilchin Flyover Bridge

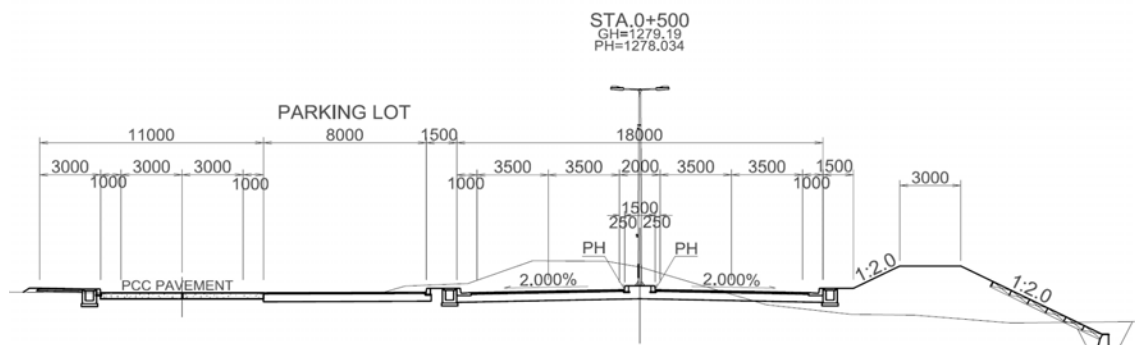
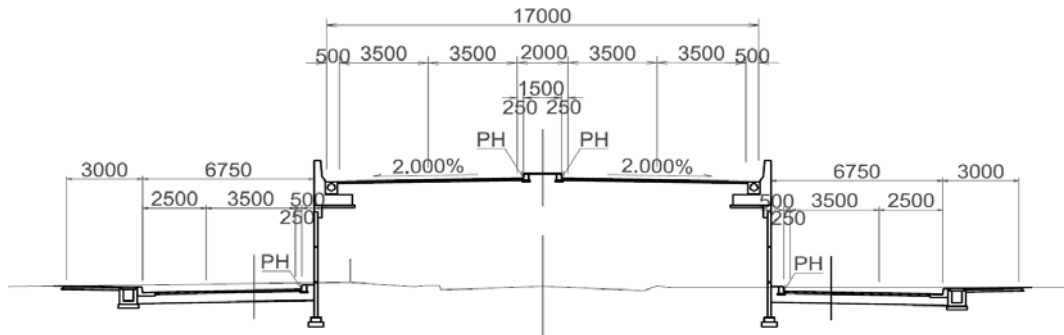


Figure 7 Cross-section at West Industry Road



**Figure 8 Cross-section at Naryn zam Approach Road**

### 2.3 Implementation stages

The project is planned to be implemented by following schedule.

The first stage: Feasibility Study is implemented from March 2012 to February 2013.

The second stage: Approval of the Project in Mongolian Parliament has to be done. Loan Agreement shall be concluded between Mongolian Government and the Japanese Government in case Japanese Yen Loan would be applied.

The third stage: Detailed Engineering Design and Preparation of Bid Documents will be conducted for twelve (12) months after selection of consultant according to loan agreement.

The fourth stage: Bidding and selection of the Contractor would be carried out within six months.

The fifth stage: Construction work would be implemented for 4 years.