

MINUTES OF MEETING OF
THE FIRST JOINT COORDINATING COMMITTEE MEETING
ON JAPANESE TECHNICAL COOPERATION FOR
CAPACITY DEVELOPMENT PROJECT FOR AIR POLLUTION CONTROL IN
ULAANBAATAR CITY PHASE 3 in MONGOLIA

The Japan International Cooperation Agency (hereinafter referred to as "JICA") Advisory Team and JICA Expert Team (hereinafter referred to as "JET") visited Mongolia from November 28th, 2018 to December 22nd, 2018 to discuss the Inception Report (hereinafter referred to as "ICR"). Both parties held the Counterpart Working Group (hereinafter referred to as "C/P-WG") Kickoff Seminar and Joint Coordinating Committee (hereinafter referred to as "JCC") of "the Capacity Development Project for Air Pollution Control in Ulaanbaatar City Phase 3 in Mongolia" (hereinafter referred to as "the Project") on December 10th and 12th 2018 respectively. Participants list of the first JCC meeting is shown in ANNEX I.

During their stay in Mongolia, JICA advisory team and JET had a series of discussions with the Mongolian authorities concerned based on the draft ICR prepared by the JET. As a result of discussions, and in accordance with the provisions of the Record of Discussions between JICA and Mongolian authorities concerned signed on June 29, 2018 (hereinafter referred to as "the R/D"), both Japanese and Mongolian sides agreed on the contents of the ICR and matters referred to in this document attached hereto.

Ulaanbaatar, December 12, 2018

田村 利子

for
Mr. Mutsumi SATO
Chief Representative,
JICA Mongolia Office,



Mr. Jantsan BATBAYASGALAN
Acting Governor of Capital City and
Mayor of UB City, Mongolia

田畑 亨

Mr. Toru TABATA
Leader, JICA Expert Team



Mr. Batkhuu Idesh
Director General
Development Financing Department
Ministry of Finance, Mongolia

ATTACHED DOCUMENT

I. Nomination of the JCC members

Both side agreed JCC members as shown in the mayor's order (A/1202) in ANNEX II.

II. The ICR based on the PDM (Project Design Matrix) (ver. 1)

JET presented the draft ICR as shown in ANNEX III and draft PDM revised from the PDM (ver. 0) included in the signed R/D.

Both sides agreed, in principle, on the concepts and detailed amendments of the ICR at Kick-off seminar and JCC on December 10th and 12th, 2018 respectively as described below. Mongolian side will provide additional comments by December 28th, 2018. The ICR would be finalized by the end of January 2019. Revised PDM (ver.1) agreed by the both side is shown in ANNEX IV.

1. Demarcation of roles of C/P-WG and nomination of the participating organizations

Both parties agreed the revised Demarcation of Roles of C/P-WG attached in ANNEX V after series of discussions. Also, it was agreed that Traffic Control Center of the Ulaanbaatar City (TCC) and Mineral Resources and Petroleum Authority (MRPA) will join C/P-WG.

2. Revision of PDM from ver. 0 to ver. 1

(1) Project duration

The Project starts in November 2018 and will be completed in the end of April 2023.

(2) Revision of project activities

(i) Activity 1-2-4

"APRD and the relevant agencies share and evaluate CEMS emission data." will be replaced by;

"NAMEM and the relevant agencies share and evaluate CEMS emission data".

(ii) Activity 1-2-5

"IACC compiles inspection results of emission gas from TPP2, TPP3, TPP4 and new large heat supply facilities and report UB city." will be

replaced by;

“NAMEM compiles monitoring data of emissions from TPP2, TPP3, TPP4 and new large heat supply facilities and share them with relevant agencies”.

(iii) Activity 1-3-2

“MRTD and MMHI with JICA Experts implement automobile fuel surveys.” will be replaced by;

“MRPA and IACC with JICA Experts implement automobile fuel surveys”.

(iv) Activity 1-4-1

“CLEM and JICA Experts assess the current status of equipment in reference laboratory of CLEM and identify necessary actions” will be replaced by;

“CLEM and JICA Experts assess the current status of equipment in reference laboratory of CLEM and identify actions if necessary”.

(v) Activity 1-4-5

“APRD and NAMEM with JICA Experts implement parallel measurement by FRM sampler for PM concentration, and implement quality control of PM measurements of AQMS” will be eliminated.

(vi) Activity 2-2-2

“APRD and PTDC implement studies for mobile sources including update of emission inventory, examination of traffic signal control, traffic volume and vehicle traveling speed.” will be replaced by;

“APRD, TCC, and TDCC implement studies for mobile sources including update of emission inventory, examination of traffic signal control, traffic volume and vehicle traveling speed”.

(vii) Activity 3-2

“MMHI with JICA Experts elaborates safety standards on the household gas distribution.” will be replaced by;

“ME with JICA Experts elaborates safety standards on the household gas distribution”.

(viii) Activity 4-2

“NCEPR approves technical appraisal guidelines for air pollution control fund, and utilizes it for selection of air pollution control measures” will be

replaced by;

“Relevant agencies with pilot projects elaborate technical guidelines and utilizes them”.

(ix) Activity 6-5

“JICA Experts provide training on air pollution control measures and technical appraisal guideline for air pollution control fund staff.” will be replaced by;

“JICA Experts provide training on air pollution control measures for Anti-air Pollution Fund staff.”

(x) Activity 6-6

“Air pollution control fund establishes an appraisal system on air pollution control measures.” will be replaced by;

“Fund staff with JICA Experts improve relevant operations with funding for air pollution control measures, if necessary”.

(xi) Activity 6-8

“NCEPR and relevant agencies with JICA Experts develop an operational guideline for elaboration, implementation and evaluation of air pollution control measures based on pilot projects implementation.” will be replaced by;

“Relevant agencies of pilot projects with JICA Experts develop an operational guideline for elaboration, implementation and evaluation of air pollution control measures based on pilot projects implementation”.

III. Important issues discussed and agreed regarding with the project implementation

1. Mr. Galimbek, a head of the Air Quality Control Division in APRD, was assigned as acting project manager.
2. The C/P-WG participating organizations will issue formal instructions to the concerned staff so that they can participate in the project activities as authorized tasks in their organizations.
3. Japanese side requested C/P-WG participating organizations to appoint at least two staff for each activity of the Project for effective and sustainable technical transfer by the project.
4. Japanese side requested that the vice mayor will request cooperation of related organizations (both inside and outside Ulaanbaatar city) so that the pilot projects will be implemented smoothly.

IV. Collaboration with Ulaanbaatar Clean Air Project supported by the World Bank (hereinafter referred to as “UBCAP”) and Other Development Partners’ Projects

The JICA Advisory Team and Expert Team discussed with Mongolian side and the development partners such as UBCAP Project Management Unit (PMU), the Asian Development Bank (hereinafter referred to as “ADB”), United Nations International Children's Emergency Fund (hereinafter referred to as “UNICEF”) and Swiss Agency for Development Cooperation (hereinafter referred to as “SDC”) regarding coordination issues. Based on the series of discussions, the following issues were agreed by involved parties.

1. Overall responsibility in coordination with UBCAP and the other development partners.

The Mongolian side will coordinate with UBCAP and other development partners in the course of Project implementation in order to avoid overlapping and to maximize the synergy effects. APRD Director as the Project Director is appointed as a focal point for such coordination.

2. Coordination Rules between UBCAP and the Project

Japanese side reported the contents of discussions with UBCAP PMU for coordination to Mongolian side. Both sides agreed on coordination rules with UBCAP which are internally effective in the implementation of the Project as described in ANNEX VI. UBCAP also indicated that they would respect the rules in their project implementation regarding coordination with the Project.

3. Coordination Rules between the Project and the relevant projects supported by other development partners such as ADB, UNICEF and SDC.

Japanese side reported the contents of discussions with the other development partners such as ADB, UNICEF and SDC for coordination to Mongolian side. Both sides agreed on coordination rules with the other development partners which are internally effective in the implementation of the Project as described in ANNEX VII. The other development partners also indicated that they would respect the rules in their projects implementation regarding coordination with the Project.

V. Signers for M/M

APRD director was nominated as an acting JCC chairperson substituting for Ulaanbaatar city vice mayor for the 1st JCC meeting. APRD director will make a best effort to obtain a signature of the vice mayor himself for M/M. Japanese side agreed on it.

Regarding with the signature of the Director General of MET who was absent in the JCC, due to difficulty to access the Director General, it was agreed that his signature regrettably be excluded this time. However from the next JCC the Director General shall be one of signers of the M/M.

VI. Other issues

1. Central Laboratory of Environment and Metrology (hereinafter referred as to "CLEM") requested the training of Particulate Matter speciation on site in Mongolia. Japanese side explained the Project includes training in Japan for Particulate Matter speciation and elaboration of necessary equipment and laboratory plan for Particulate Matter speciation. Consequently such onsite training in Mongolia becomes possible after the Mongolian side prepares necessary equipment and laboratory according to the plan elaborated by the Project. Japanese side took a note the Mongolian side's request for future consideration.
2. Regarding with Ger area improved fuel pilot project, JET requested Mongolian side to accelerate establishment of the guidelines and Mongolian National Standards for emissions and measurement methodologies for households improved fuels. APRD director recommended JET to contact the task force inside the Ministry of Energy, which is in charge of establishing such standards.
3. CLEM mentioned that currently CLEM possesses the on-board emission measurement system for vehicle and the emission measurement system for vehicle inspection provided in the project phase 2, but the equipment are not utilized now because measurement of vehicle emission has become out of responsibility of CLEM. CLEM suggested transfer of the equipment to proper organization. JET will consider utilization of the on-board emission measurement system for vehicle in the pilot project. Also, proper way to utilize the emission measurement system for vehicle inspection and appropriate organization to receive the equipment will be proposed by JET. Transfer of the equipment between organizations needs to be officially arranged by Mongolian side.



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END

ANNEX I	Participants of Joint Coordination Committee
ANNEX II	Mayor's order for JCC members' designation
ANNEX III	Presentation of Draft Inception Report
ANNEX IV	PDM (ver. 1)
ANNEX V	Demarcation of Roles of the C/P-W/G
ANNEX VI	Coordination Rules between UBCAP and the Project
ANNEX VII	Coordination Rules between the Project and the relevant projects supported by other development partners such as ADB, UNICEF and SDC



ANNEX I Participants of Joint Coordination Committee

The participants of the JCC are as follows.

	Name	Organization	Position
1	Ch.Chuluunbat	Ministry of Mining and Heavy Industry Fuel Policy Department	Head of Department
2	E. Gantsetseg	Ministry of Road and Transport Development Policy and Planning Department, Standard and Normative Division	Officer
3	D. Davaasuren	Ministry of Energy, Fuel Policy Implementation Coordination Department, Energy Coal and Gas Division	Head of Division
4	B.Tsatsral	Air Pollution Reducing Department	Head of Department
5	J. Batbayar	National Agency for Meteorology and Enivronment Monitoring	Head of Division
6	B. Barkhasragchaa	Central Laboratory of Environment and Metrology	Senior officer
7	G. Ulziibayar	Strategic Policy and Planing Department	Head of Division
8	Kh. Bulgaa	Transportation Department of Capital City	Deputy Head
9	N.Shine- Orgil	Inspection Agency of the Capital City Division of Air Quality Control	Head of Division
10	O. Enkhzaya	Health Department of Capital City Division of Social Health	Head of Division
11	T. Kherlen	Mayor`s Office, Engineering facility Division	Head of Division
12	G. Amartuvshin Batbold	Thermal Power Plan-3 Technical policy Division	Head of Division Engineer
13	Taizo YAMADA	JICA	Senior Advisor
14.	Mutsumi SATO	JICA Mongolia Office	Chief Representative
15.	Satomi YOSHINO	JICA Mongolia Office	Project Formulation Advisor
16.	Ch. MUNKHMANLAI	JICA Mongolia Office	National Staff
17	Toru TABATA	JICA Expert Team	Leader
18	Natsuji SAWAKI	JICA Expert Team	Vice Leader
19	Ei Edo	JICA Expert Team	Chief Sub Group Leader
20	Hajime Endo	JICA Expert Team	Clean Coal Technology / Pilot Project for Improved Fuel 1



НИЙСЛЭЛИЙН ЗАСАГ ДАРГЫН ЗАХИРАМЖ

2018 оны 12 сарын 12 өдөр

Дугаар А/1202

Улаанбаатар хот

Хамтарсан зохицуулах хороо байгуулах тухай

Монгол Улсын Засаг захиргаа, нутаг дэвсгэрийн нэгж, түүний удирдлагын тухай хуулийн 29 дүгээр зүйлийн 29.2, Нийслэлийн эрх зүйн байдлын тухай хуулийн 8 дугаар зүйлийн 2 дахь хэсгийн 5, Монгол Улсын Ерөнхий сайдын 2018 оны 198 дугаар захирамжийг тус тус үндэслэн ЗАХИРАМЖЛАХ нь:

1. Сангийн яам, Байгаль орчин, аялал жуулчлалын яам, Нийслэлийн Засаг даргын Тамгын газар болон Японы олон улсын хамтын ажиллагааны агентлаг (ЖАЙКА)-ийн 2018 оны 06 дугаар сарын 29-ний өдрийн хурлын тэмдэглэлийн дагуу техник туслалцаагаар хэрэгжүүлэх "Улаанбаатар хотын агаарын бохирдлын хяналтын чадавхыг бэхжүүлэх төсөл III"-ийн Хамтарсан зохицуулах хороог дараах бүрэлдэхүүнтэйгээр байгуулсугай:

- | | |
|-----------|--|
| Дарга | - Нийслэлийн Засаг даргын ногоон хөгжил, агаарын бохирдлын асуудал хариуцсан орлогч |
| Дэд дарга | - Байгаль орчин, аялал жуулчлалын яамны Хүрээлэн буй орчин, байгалийн нөөцийн удирдлагын газрын дарга |
| Гишүүд: | <ul style="list-style-type: none"> - Байгаль орчин, аялал жуулчлалын яамны Үндэсний хорооны нарийн бичгийн дарга бөгөөд Ажлын албаны дарга /зөвшилцсөнөөр/; - Уул уурхай, хүнд үйлдвэрийн яамны Түлшний бодлогын газрын дарга /зөвшилцсөнөөр/; - Сангийн яамны Хөгжлийн санхүүжилтийн газрын Зээл, тусламжийн бодлогын хэлтсийн дарга /зөвшилцсөнөөр/; - Зам, тээврийн хөгжлийн яамны Бодлого, төлөвлөлтийн газрын Стандарт, нормативын хэлтсийн дарга /зөвшилцсөнөөр/; - Барилга, хот байгуулалтын яамны Бодлого, төлөвлөлтийн газрын дарга /зөвшилцсөнөөр/; - Эрчим хүчний яамны Бодлогын хэрэгжилтийг зохицуулах газрын Эрчим хүчний нүүрс болон хийн хэлтсийн дарга /зөвшилцсөнөөр/; |

111020005407



- Цаг уур, орчны шинжилгээний газрын Орчны шинжилгээний хэлтсийн дарга /зөвшилцсөнөөр/;
- Нийслэлийн Засаг даргын Тамгын газрын Бодлого, төлөвлөлтийн хэлтсийн дарга;
- Нийслэлийн Тээврийн газрын орлогч дарга;
- Нийслэлийн Мэргэжлийн хяналтын газрын Агаарын чанарын хяналтын хэлтсийн дарга;
- Нийслэлийн Эрүүл мэндийн газрын Нийгмийн эрүүл мэндийн хэлтсийн дарга;
- Улаанбаатар хотын Захирагчийн ажлын албаны Инженерийн байгууламжийн хэлтсийн дарга;
- Цаг уур, орчны шинжилгээний газрын Байгаль орчин хэмжил зүйн төв лабораторийн ахлах мэргэжилтэн /зөвшилцсөнөөр/;
- Дулааны 3 дугаар цахилгаан станц ХК-ийн Техник, бодлогын хэлтсийн дарга /зөвшилцсөнөөр/;
- Дулааны 4 дүгээр цахилгаан станц ХК-ийн Судалгаа, хөгжлийн албаны дарга /зөвшилцсөнөөр/;

Нарийн бичгийн - Нийслэлийн Агаарын бохирдлыг бууруулах газрын дарга.

2. Төслийн хэрэгжилтийг зохион байгуулж, нэгдсэн удирдлагаар хангаж, хяналт тавьж ажиллахыг Ажлын хэсэгт даалгасугай.

НИЙСЛЭЛИЙН ЗАСАГ ДАРГЫН
НОГООН ХӨГЖИЛ, АГААРЫН
БОХИРДЛЫН АСУУДАЛ ХАРИУЦСАН
ОРЛОГЧ

Ж.Б.АТБАЯСГАЛАН





Монгол улс Улаанбаатар хотын Агаарын
бохирдлыг бууруулах арга хэмжээний
чадавхыг бэхжүүлэх төсөл
(3-р үе шат)
Төслийн танилцуулга

2018 оны 12 дугаар сар
ЖАЙКА төслийн баг

1

Хуваарь

Өдөр	Агуулга
28 Nov (Wed)	Япон мэргэжилтэн ирэх
3 Dec (Mon) – 7 Dec (Fri)	Холбогдох байгууллага, хандивлагч байгууллагад чиглэсэн танилцуулга
10 Dec (Mon)	Төслийн нээлтийн семинар
11 Dec (Tue)	Үдээс хойш хандивлагч байгууллагатай уулзалт
12 Dec (Wed)	Үдээс хойш ТУХ-ны хурал
13 Dec (Thu)	ТУХ-ны ММ-ыг боловсруулж, хэлэлцэх
14 Dec (Fri)	ТУХ-ны М/М –д гарын үсэг зурах ёслол
21 Dec (Fri)	Удиртгал тайлангийн засварласан хувилбарыг тараах
28 Dec (Fri)	Удиртгал тайланд тусгах саналыг хүлээн авах хугацаа дуусах

2

ТУХ-ны зорилго

- ☐ Удиртгал тайланд тулгуурлан төслийн үйл
ажиллагааны ерөнхий чиглэл, агуулгыг
тохиролцож баталсанаар төсөл эхлэх
- ☐ Х/Т-АХ-ийн хуваарилалт болон хариуцаж
ажиллах гишүүдийг томилж шийдвэрлэх
- ☐ Санал солилцох

3

УБ хотын агаарын бохирдлын байдлыг
дээрээс авсан зураг



4

УБ хотын агаарын бохирдлын байдал
(Гандан орчим)



Зун

Өвөл

5

Монгол талын төсөл хэрэгжүүлэгч байгууллага (1)

Төсөл хэрэгжилтийн хугацаа

2018/11 ~ 2023/4 (4.5 жил)

Ангилал	Байгууллагын нэр
Хамтрагч тал (Х/Т)	Нийслэлийн Агаарын бохирдлыг бууруулах газар (АББГ) БОАЖЯ

6



Үр дүн-1: Эх үүсвэрүүдийн ялгарлын хяналт шинжилгээ болон агаар орчны хяналт шинжилгээний чадавх сайжирна

1-1 АББГ, НМХГ-ын хаягдал утааны хэмжилтэнд тулгуурласан УХЗ-ны хяналт бэхжинэ.(1)

- 1-1-1 ЖАЙКА мэргэжилтэн нь АББГ-тай ажиллаж суурин эх үүсвэрийн хэмжилтийн ур чадавхын байдлыг тодорхойлно



УХЗ-ны хэмжилт

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1-1 Хаягдал утааны хэмжилтээр АББГ болон НМХГ-ын УХЗ-нд хийх хяналт шалгалт сайжрах (2)

- 1-1-2 АББГ нь ЖАЙКА мэргэжилтний дэмжлэгтэй хэмжилтийн 2 багаар ажиллах зохион байгуулалт хийх
- 1-1-3 НМХГ, холбогдох байгууллага нь ЖАЙКА мэргэжилтний дэмжлэгтэй хаягдал утааны хэмжилтэнд тулгуурласан УХЗ-ны хяналт, шалгалт хийх.
- 1-1-4 НМХГ-т байгаа хий анализатор тестогоор хэмжилт хийх хялбар аргачлалыг ЖАЙКА мэргэжилтэн дэмжлэгтэйгээр хэрэгжүүлэх. (JIS аргачлалтай зэрэгцүүлсэн хэмжилт, гарын авлага, үйлдвэрийн тохиргоо гэх мэт)
- 1-1-5 АББГ, НМХГ нь ЖАЙКА мэргэжилтний дэмжлэгтэйгээр хаягдал утааны хэмжилтийн тайлан боловсруулах.

14

Монгол улс
Улаанбаатар хотын агаарын богино мэт
бууруулах хэмжээний чөлөөт
бэлгүүр (1-р үе мэт)

Баян оврын усан халаагчийн зуух (ЭХД)
Утааны хийн хэмжилтийн зааварчилгаа



2016 оны 4 сар

Хэмжилтийн зааварчилгаа

Хэмжилтийн тайлан

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1-2 ЖАЙКА-ын мэргэжилтний дэмжлэгтэйгээр ДЦС 3, ДЦС 4 -ын CEMS-т тулгуурласан хаягдал утааны хяналт сайжрах (1)



CEMS-ийн хэмжилтийн өгөгдөл дамжуулах системийн бүрдүүлэх зураг

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1-2 ЖАЙКА-ын мэргэжилтний дэмжлэгтэйгээр ДЦС 3, ДЦС 4 -ын CEMS-т тулгуурласан хаягдал утааны хяналт сайжрах (2)

CEMS-ийн хэмжилтийн систем- ДЦС-4-ын өгөгдөл

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1-2 ЖАЙКА-ын мэргэжилтний дэмжлэгтэйгээр ДЦС 3, ДЦС 4 -ын CEMS-т тулгуурласан хаягдал утааны хяналт сайжрах (3)

- 1-2-1 ЖАЙКА мэргэжилтний зөвлөгөөнд тулгуурлан ДЦС-3, ДЦС-4 нь CEMS ашиглалтын хяналтын төлөвлөгөө боловсруулж, хэрэгжүүлэх.
- 1-2-2 ЖАЙКА мэргэжилтний дэмжлэгтэйгээр ДЦС-3, ДЦС-4 нь CEMS-ийн хэмжилтийн нарийвчлалыг сайжруулах.
- 1-2-3 ДЦС-3 нь БОАЖЯ болон холбогдох байгууллагатай хамтран CEMS-ийн хэмжилтийн мэдээллийн нэгдсэн системийг бий болгох.
- 1-2-4 ЦУОШГ АББГ, холбогдох байгууллага нь CEMS-ийн хэмжилтийн дүнд үнэлгээ хийх.
- 1-2-5 ЦУОШГ АББГ нь ДЦС-2, 3, 4 болон томоохон дулаан хангамжийн байгууламжийн хэмжилтийн дүнг нэгтгэж холбогдох байгууллагатай хамтран ашиглах Нийслэлд тайлагнах

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1-3 ЗТХЯ болон НТГ нь автомашины утааны хэмжилтэнд тулгуурлан автомашины журмыг нэвтрүүлэх

- 1-3-1 ЗТХЯ болон НТГ нь ЖАЙКА мэргэжилтний дэмжлэгтэй RSD-ээр тээврийн хэрэгслийн хаягдах утааны хэмжилт хийж, ялгарлын бодит байдлыг тодорхойлон, журамд хамруулах тээврийн хэрэгслийг нарийвчлан тогтоох.
- 1-3-2 АМГТГ, НМХГ ~~ЗТХЯ, ЦУОШГ~~ нь ЖАЙКА мэргэжилтний дэмжлэгтэй шатахууны судалгаа хийх



RSD (зайнаас мэдрэгч төхөөрөмж)



Шатахууны хүэр хэмжигч

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1-4 АББГ, ЦУОШГ нь ЖАЙКА мэргэжилтний дэмжлэгтэй АЧСХ-ын үйл ажиллагааг сайжруулах (1)

- 1-4-1 БОХЗТЛ, ЖАЙКА-ын мэргэжилтэн нь БОХЗТЛ-ын референс лабораторын багаж төхөөрөмжийн хэвийн ажиллагааг шалгаж, шаардлагатай гэж үзвэл авах арга хэмжээний талаар судлах
- 1-4-2 АББГ-ын (төслийн 2-р шат) боловсруулсан АЧСХ-ын техникийн засвар, үйлчилгээний төлөвлөгөөнд тулгуурлан, ажиллагааны тогтвортой байдлыг бэхжүүлэх
- 1-4-3 АББГ нь ЖАЙКА мэргэжилтний дэмжлэгтэй сайжруулсан түншийн загвар төсөл хэрэгжүүлэх газарт явуулсан АЧСХ-аар хэмжилт хийх
- 1-4-4 АББГ нь ЖАЙКА мэргэжилтний дэмжлэгтэй Баянхонгууд байрлах АЧСХ-ын тоноглолыг сайжруулах

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1-4 АББГ, ЦУОШГ нь ЖАЙКА мэргэжилтний дэмжлэгтэй АЧСХ-ын үйл ажиллагааг сайжруулах (2)

- ~~1-4-5 АББГ, ЦУОШГ нь ЖАЙКА мэргэжилтний дэмжлэгтэй РМ-ын РМ сорьцогч шинжилгээ, АЧСХ-ын хэмжилтийн нарийвчлалд үзлээс нийн~~
- 1-4-6 АББГ, ЦУОШГ нь ЖАЙКА мэргэжилтний дэмжлэгтэй АЧСХ-ын мэдээллийн сүлжээний хэвийн ажиллагааг хангах
- 1-4-7 АББГ, ЦУОШГ нь тухайн цаг үеийн хэмжилтийн мэдээллийг агаар орчны хяналт шинжилгээний сүлжээгээр дамжуулж бусад холбогдох байгууллагатай хамтран ашиглах
- 1-4-8 АББГ болон ~~БОХЗТЛ, ЦУОШГ~~ нь ЖАЙКА мэргэжилтний дэмжлэгтэй агаар орчны хэмжилтийн өгөгдөлд дүн шинжилгээ хийж, тайлан боловсруулах

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1-4 АББГ, ЦУОШГ нь ЖАЙКА мэргэжилтний дэмжлэгтэй АЧСХ-ын үйл ажиллагааг сайжруулах (3)

- 1-4-9 Холбогдох байгууллага нь агаар орчны хяналт шинжилгээний өгөгдлийг ашиглах



Агаарын чанарын мэдээг олон нийтэд мэдээлэх, сэрэмжлүүлэх зорилгоор хийгдсэн ажлын жишээ

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Үр дүн-2: Улирлаас хамаарах агаарын бохирдлын бүтцийг тодорхойлох дүн шинжилгээ, үнэлгээний чадавх сайжрах

2-1 ЦУОШГ, ЖАЙКА мэргэжилтэн жилийн РМ-ын найрлагын шинжилгээний дүнд тулгуурлан РМ-ын эх үүсвэрийн нөлөөллийн дүн шинжилгээг хийх (1)

- 2-1-1 БОХЗТЛ, ЖАЙКА мэргэжилтэн бүтэн жилийн туршид РМ-ын сорьц авах төлөвлөгөө гаргаж, хэрэгжүүлэх
- 2-1-2 ЖАЙКА мэргэжилтэн РМ-ын бүтцийн шинжилгээг Япон улсад хийх



РМ сорьцогч

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2-1 Бүтэн жилийн РМ-ын найрлагын шинжилгээнд үндэслэн РМ-ын эх үүсвэрийн нөлөөллийн дүн шинжилгээг хийх (2)

- 2-1-3 ЦУОШГ, БОХЗТЛ нь ЖАЙКА мэргэжилтний дэмжлэгтэй РМ-ын найрлагын шинжилгээний ур чадавх (ионы шинжилгээ, элементийн шинжилгээ, нүүрстөрөгчийн шинжилгээ)-г суралцах
- 2-1-4 ЦУОШГ, БОХЗТЛ нь ЖАЙКА мэргэжилтний дэмжлэгтэй РМ-ын найрлагын шинжилгээний тоног төхөөрөмжийг бүрдүүлэх төлөвлөгөө боловсруулах
- 2-1-5 АББГ болон ЦУОШГ нь ЖАЙКА мэргэжилтний дэмжлэгтэйгээр Ресептор моделийг ашиглан РМ-ын эх үүсвэр нөлөөллийн дүн шинжилгээ хийх.

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2-2 Тархалтын загварчлалын модель болон Ресептор модель ашигласан агаарын бохирдлын бүтэц, хүн амын өртөлтийн түвшний үнэлгээ хийх (1)

- 2-2-1 АББГ болон ЦУОШГ нь эх үүсвэрийн ялгарлын инвентор шинэчлэх төлөвлөгөөг боловсруулах.

Инвентар шинэчлэх жилийн төлөвлөгөө

[illegible]

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Хөдөлгөөний эрхийн судалгаа хийгдэх
цэгийн байршил (дугуй цэнхэр тэмдэг)



Хөдөлгөөний эрчимийн судалгаа

- 2-2-2 АББГ, ~~ЖУУТ~~ Замын хөдөлгөөний удирдлагын төв нь хөдөлгөөнт эх үүсвэрийн судалгаа (ялгарлын инвентор, гэрлэн дохионы зохицуулалт, хөдөлгөөний эрчим, хөдөлгөөний хурд) –г хэрэгжүүлэх
- 2-2-3 АББГ, ЖАЙКА мэргэжилтэн нь загвар төсөл хэрэгжүүлэх газрыг сонгож, тухайн хэсгийн гэрийн зуухны ашиглалтын байдлыг судлах. (Зуухны төрөл, улирлын өөрчлөлт, орон байрны дулаалга, нүүрсний хэрэглээ)

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2-2 Тархалтын загварчлалын модель болон Ресептор модель ашигласан агаарын бохирдлын бүтэц, хүн амын өртөлтийн түвшний үнэлгээ хийх (2)

- ❑ 2-2-4 Шаардлагатай гэж үзсэн тохиолдолд АББГ болон ЦУОШГ нь ЖАЙКА мэргэжилтний дэмжлэгтэй бусад эх үүсвэрийн судалгаа хийх
- ❑ 2-2-5 АББГ болон ЦУОШГ нь ЖАЙКА мэргэжилтний дэмжлэгтэй ДЦС-ын хэтийн төлөвлөгөө, тээврийн хэрэгслийн тоо, хүн амын өсөлт, эдийн засгийн нөхцөл байдал, ялгарлын стандарт, шатахууны стандарт зэрэгт тулгуурлан ялгарлын ирээдүйн (BAU /Business as Usual/) хувилбарыг боловсруулах
- ❑ 2-2-6 АББГ, ЦУОШГ нь одоо болон ирээдүйн (BAU хувилбар) хувилбараар ялгарлын инвенторыг боловсруулж шинэчлэх

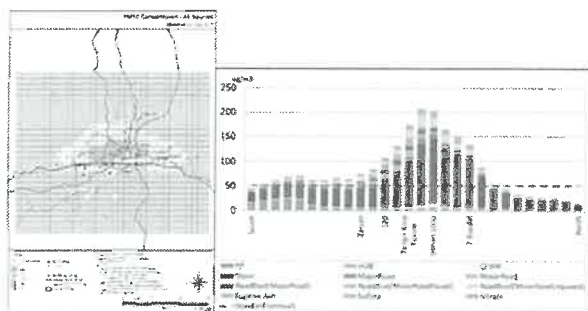
27

2-2 Тархалтын загварчлалын модель болон Ресептор модель ашигласан агаарын бохирдлын бүтэц, хүн амын өртөлтийн түвшний үнэлгээ хийх (3)

- 2-2-7 АББГ, ЦУОШГ нь PM10, SO2, NOx-ын агаар орчны тархалтын загварчлалын моделийг шинэчлэх
- 2-2-8 АББГ, ЦУОШГ нь УБ хотын агаарын бохирдлын бүтцийн үнэлгээ хийх
- 2-2-9 АББГ, ЦУОШГ нь PM10-ын хүн амын өртөлтийн хэмжээг хүн амын нягтшилд тулгуурлан жинлэсэн дундаж агууламжаар тодорхойлж, үнэлэх.

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2-2 Тархалтын загварчлалын модель болон Ресептор модель ашигласан агаарын бохирдлын бүтэц, хүн амын өртөлтийн түвшний үнэлгээ хийх (4)



Агууламжийн тархалтын зураг (зүүн тал), эх үүсвэрийн нөлөөллийн агууламжийн хөндлөн огтлолын зураг (баруун тал)

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Үр дүн 3: Агаарын бохирдлыг бууруулах арга
хэмжээний техникийн үнэлгээ, хэрэгжилтийг хангах
чадавх сайжрах

- ❑ 3-1 АББГ болон холбогдох байгууллага нь сайжруулсан түлшний утааны хийн хэмжилтийн аргаачлалын стандарт зааварчилгаа болон бүтээгдэхүүний чанарыг тогтоох стандарт (MNS)-ын төслийг боловсруулж, СХЗГ-т санал болгох.
- ❑ 3-2 ~~УХЗ~~ ЭХЯ нь ЖАЙКА-ын мэргэжилтэнтэй хамтран хотын хий (city gas) -н хэрэглээг нэвтрүүлэхтэй холбогдуулж аюулгүй байдалын зааварчилгааг боловсруулах.
- ❑ 3-3 АББГ болон холбогдох байгууллага нь сонгогдсон загвар төслийг хэрэгжүүлэх төлөвлөгөө (жайжруулсан түлш, УХЗ, гэрлэн дохионы удирдлагын систем, эко жолоодлого, RSD, жижиг зөөврийн хаагдах утаа хэмжигч төхөөрөмж ашигласан автомашины журамлалт, DPF, хүчрийн найрлага багатай түлш болон ялрал багатай автомашин нэвтрүүлэх зэрэг) болон холбогдох ерөнхий зааварчилгааг боловсруулах.

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Үр дүн-4 : Монгол талын шийдвэр гаргах түвшний үйл ажиллагаа сайжрах

- 4-1 Агаарын бохирдлын бүтцийн дүн шинжилгээ, бууруулах арга хэмжээний богино болон дунд, урт хугацааны стратегийн төсөл (BAU-г оруулсан), хэрэгжсэн болон цаашид хэрэгжүүлэх арга хэмжээний үнэлгээг 2-оос дээш удаа шийдвэр гаргагч түвшний байгууллагад санал болгох
- 4-2 ОББҮХ нь тус газрын агаарын бохирдлын түвшин дээр агаарын бохирдлыг бууруулах арга хэмжээг сонгох технологийг хангахад анхаарч, Загвар төслийн үйл ажиллагаанд хамаарал бүхий байгууллага нь ЖАЙКА мэргэжилтний дэмжлэгтэйгээр техникийн гарын авлагыг боловсруулж, ашиглах
- 4-3 Холбогдох байгууллага нь хэрэгжүүлэх загвар төслийг сонгох хэлэлцүүлэг явуулж, шийдвэрлэх

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Үр дүн-4 : Монгол талын шийдвэр гаргах түвшний үйл ажиллагаа сайжрах

- 4-4 ОББҮХ болон холбогдох байгууллага нь загвар төслийн үр дүнд тулгуурлан цаашид бодитоор хэрэгжүүлэх арга хэмжээгээр сонгож батлах
- 4-5 ОББҮХ нь Агаарын бохирдлын эсрэг сангийн санхүүжилтыг шийдвэрлэхдээ төслийн үр дүн болон загвар төслийн үр дүнг ашиглах

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Үр дүн 5: Агаар бохирдуулагч томоохон эх үүсвэрийн PM, SO2 болон NOx-ийн ялгарлыг бууруулахад чиглэсэн арга хэмжээний хэрэгжилт сайжрах (1)

- 5-1 АББГ нь НЭМГ болон холбогдох байгууллагатай хамтран, иргэд, сургуулийн сурагч болон асран халамжлагчдыг хамруулан ухуулан таниулах сурталчилгаа, сэрэмжлүүлэх үйл ажиллагааг хэрэгжүүлэх.
- 5-2 БОАЖЯ, АББГ нь мэдээллийн тойм, сонины нийтлэл гаргах, цахим хуудсаар мэдээлэх зэргээр хэвлэл, мэдээллийн хэрэгслээр дамжуулж төслийн талаар мэдээлэл түгээх.
- 5-3 АББГ, ЖАЙКА-ын мэргэжилтэн нь сайжруулсан түлш үйлдвэрлэгчид түлш үйлдвэрлэх технологийг сайжруулах талаар зөвлөгөө өгөх.
- 5-4 Холбогдох байгууллага нь ЖАЙКА-ын мэргэжилтэнтэй хамтран 3-3-д боловсруулсан төлөвлөгөөнд тулгуурлан загвар төслийг хэрэгжүүлэх.

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Үр дүн 5: Агаар бохирдуулагч томоохон эх үүсвэрийн PM, SO2 болон NOx-ийн ялгарлыг бууруулахад чиглэсэн арга хэмжээний хэрэгжилт сайжрах (2)

- 5-5 Холбогдох байгууллага нь ЖАЙКА-ын мэргэжилтэнтэй хамтран загвар төслийн үр дүнгийн үнэлгээ (ялгарлын бууралт, агаарын чанар, хүн амын өртөлтийн түвшин) хийж, сургамж дүгнэлт гаргах.
- 5-6 Холбогдох байгууллага нь ЖАЙКА-ын мэргэжилтэнтэй хамтран загвар төслийн үр дүнг тодорхойлж, ОББҮХ-нд тайлагнах.
- 5-7 ДЦС 3, ДЦС 4 нь ЖАЙКА-ын мэргэжилтэнтэй хамтран CEMS хэмжээний өгөгдөлд дүн шинжилгээ хийж, агаарын бохирдлыг бууруулах боломжит арга хэмжээг судлах.
- 5-8 ДЦС 3, ДЦС 4 нь ЖАЙКА-ын мэргэжилтэнтэй хамтран бохирдуулах бодисын ялгарлыг бууруулах төлөвлөгөөг боловсруулах.

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Үр дүн 1-5-ын биелэлтийг хангах хүрээнд холбогдох хууль эрх зүйн орчин, хөрөнгө санхүүжилтийн хувиарлалт, зохицуулалтын механизм боловсронгуй болж сайжрах (1)

- 6-1 Холбогдох байгууллага нь төслийн үр дүн, хэрэгжүүлэх үйл ажиллагаатай холбогдуулан агаар орчны хяналт, удирдлагын тогтолцоонд гүйцэтгэх үүрэг, оролцооны талаар зөвшилцөж, шаардлагатай баримт бичгийг үйлдэх.
- 6-2 АББГ нь ЖАЙКА-ын мэргэжилтний дэмжлэгтэйгээр ОББҮХ-г сайжруулсан түлшний стандарт, суурин эх үүсвэр (ДЦС, УХЗ, БОУХЗ, гэрийн зуух), хөдөлгөөнт эх үүсвэр, бусад эх үүсвэрийн ялгарлын стандарт, журмыг шинэчлэхэд зориулсан техникийн материалаар хангах.
- 6-3 ОББҮХ, холбогдох яам нь түлшний стандарт, ялгарлын стандартыг боловсруулж, СХЗГ-г хүргүүлэх.

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Үр дүн 1-5-ын биелэлтийг хангах хүрээнд холбогдох хууль эрх зүйн орчин, хөрөнгө санхүүжилтийн хувиарлалт, зохицуулалтын механизм боловсронгуй болж сайжрах (2)

- 6-4 Төрийн болон Нийслэлийн холбогдох байгууллага, газар, хэлтэс нь агаарын бохирдлыг бууруулах арга хэмжээг хэрэгжүүлэхтэй холбоотой журам, тогтоол, шийдвэр, ажлын удирдамжийн төслийг боловсруулж, зөвлөх хуралдаанд хэлэлцүүлэх.
- 6-5 ЖАЙКА-ын мэргэжилтэн нь Агаарын бохирдлын эсрэг сангийн ажлын албанд агаарын бохирдлыг бууруулах арга хэмжээний төсвийн үнэлгээний гарын авлагыг хангах талаар сурталт зохион байгуулах.
- 6-6 ЖАЙКА мэргэжилтэн нь Агаарын бохирдлын эсрэг сангийн бууруулах арга хэмжээний төслийн баримт бичиг бүрдүүлэх процедурыг сайжруулах чиглэлээр шаардлагатай гэж үзвэл дэмжлэг үзүүлэх төсвийн технологийн шаардлага, үнэмлэхүй өсгөлтөөг бүрдүүлэх.
- 6-7 Монгол талын хэрэгжүүлэх арга хэмжээний хүрээнд хандлагач байгууллагуудын хамтын ажиллагааны уялдааг сайжруулах.
- 6-8 ОББҮХ, загвар төслийн үйл ажиллагаанд хамаарал бүхий байгууллага нь ЖАЙКА-ын мэргэжилтний дэмжлэгтэйгээр загвар төслийн үр дүнд тулгуурлан агаарын бохирдлыг бууруулах арга хэмжээг төлөвлөх, хэрэгжүүлэх, үнэлэх өрөнхий зааварчилгааг боловсруулах.

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Сайжруулсан түлшний загвар төсөл

1. Үйт ажиглаагааны цар хүрээ

Үүрэг	Агуулга
1. Айл өрхийн тоо	•Гэр хороололд 1 км радиусын доторх газарт 1,250 айл өрх, зуухны дундаж тоо 2 шайл гэж үзэх
2. Түлшний зарцуулалт	•3,000 кг ÷ 7 сар ÷ 30 өдөр = 14.3 кг/зуух-хонго
3. Сайжруулсан түлшний хэрэглээ	•14.3 кг × 28 өдөр × 1,250 айл × 2 зуух = 1,000 тн
4. Хэрэгжүүлэх хугацаа	•Өмнөх хэмжилт 12 сар, Сайж түлшний туршилт 1 сар, Дараах хэмжилт 2 сард гэж төлөвлөх
5. Хэмжилтийн өдрийн тоо	•Салхигүй, цасгүй 3-аас доошгүй өдрийг сонгох
6. Хэмжилтийн аргачлал, цаг хугацаа	•Төсөл хэрэгжих газарт АББГ-ын хэмжилтийн явуулын станцар PM10, PM2.5, SO ₂ -ын агууламжийг хэмжих •Хэмжилтийн цагийн хувьд тусгайлан аришцаж шийдэх

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2. Загвар төслийн ажлын хуваарь

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
1. Үйлдвэр, ажлаа										
2. Сайжруулсан түлшний зарцуулалт										
3. Сайжруулсан түлшний хэрэглээ										
4. Сайжруулсан түлшний туршилт										
5. Сайжруулсан түлшний хэрэглээ										
6. Сайжруулсан түлшний хэрэглээ										
7. Сайжруулсан түлшний хэрэглээ										
8. Сайжруулсан түлшний хэрэглээ										
9. Сайжруулсан түлшний хэрэглээ										
10. Сайжруулсан түлшний хэрэглээ										
11. Сайжруулсан түлшний хэрэглээ										
12. Сайжруулсан түлшний хэрэглээ										
13. Сайжруулсан түлшний хэрэглээ										
14. Сайжруулсан түлшний хэрэглээ										

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3. Загвар төсөлд ашиглах сайжруулсан түлшний санал

Загвар төсөл	Агуулга
1-р шатны туршилт (2020.01)	Дараах сайжруулсан түлшний шаталтын туршилтын дүн, үйлдвэрлэх боломжийг судалсаны үндсэн дээр шийдвэрлэх ① Жижиг хэмжээтэй нүүрсэн шалмал түлш (25 мм × 30 мм × 18 мм, хүчгүржүүлэгч хольсон) ② Хагас коксон шалмал түлш (Хүчгүржүүлэгч зольж эсэхийг түүхийг эдээс хамаарч судлах) ③ Нүүрсэн шалмал түлш (40 мм × 40 мм × 25 мм, хүчгүржүүлэгч хольсон)
2-р шатны туршилт (2021.01)	Дараах сайжруулсан түлшний шаталтын туршилтын дүн, үйлдвэрлэх боломжийг судалсаны үндсэн дээр шийдвэрлэх ① Биомассын хольцтой нүүрсэн шалмал түлш (Биомасс нь жингийн 10-15%, хүчгүржүүлэгч хольсон нүүрсэн шалмал түлш) ② Жижиг хэмжээтэй нүүрсэн шалмал түлш (25 мм × 30 мм × 18 мм, хүчгүржүүлэгч хольсон)

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Автомашины чиглэлийн загвар төсөл

1. Гэрлэн дохионы зохицуулалт

- Одоогийн гэрлэн дохионы удирдлагын системийг судлах—үнэлэх
- Замын хөдөлгөөний бодит байдлыг тодорхойлж, гэрлэн дохионы зохицуулалтын системийг сайжруулах талаар судлах
- Сайжруулсан гэрлэн дохионы удирдлагын системийг боловсруулах—ашиглах
- Яонд гэрлэн дохионы зохицуулалтын технологийн сургалтанд хамруулах



Гэрлэн дохионы удирдлагын систем

2 Эко-жолоодлого

- Эко-жолоодлогын хяналтын төхөөрөмж 80 ширхэг
- Жолооч болон удирдах ажилтанд зориулсан эко-жолоодлогын сургалт
- Эко-жолоодлогын хэрэгжилтийн үр дүнг үнэлэх
- Эко-жолоодлогын давтан сургалт

Эко-жолоодлогын хяналтын төхөөрөмж



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3 DPF дизелийн торгтийн шүүлтүүр

- ЖАЙКА-ын үр дүнг баталгаажуулах туршилтын төсөл-Комотек ХХК-д үйлдвэрлэсэн DPF-ыг нэвтрүүлэх
- 2019/5 сард хэрэгжихээр төлөвлөгдөж байгаа журмын дагуу хангантгай, бүрэн ажиглах боломжтой DPF (хүчин чадал, аюулгүй байдал) эсэхийг магадлах
- DPF-ын хүчин чадал, аюулгүй байдал үнэлгээ хийж, 2-р үе шатанд нэвтрүүлсэн АСХУХ-ийг ашиглан хэмжилт хийж, үр дүнг баталгаажуулах.

DPF-ын суурилуулалт



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4 Хүхэр багатай шатахуун болон ялгарал багатай тээврийн хэрэгсэл

- ❑ 2019/5-аас хэрэгжихээр төлөвлөгдөж байгаа журмаар Евро-5 автомашин (шинэ) болон Евро-5 түлшний хэрэглээг нэвтрүүлэх
- ❑ Евро-5 автомашиньг нэвтрүүлэхэд Евро-5 шатахууны хэрэглээг нэвтрүүлэх зайлшгүй шаардлагатай
- ❑ УБ хотод борлуулагдаж байгаа шатахууны хүхрийн агууламжид хэмжилт хийж, хүхрийн найрлага багатай (Евро-5) -ын хэмжээг тодорхойлох

Шатахууны хүхрийн агууламж
хэмжилтгч төхөөрөмж



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5 Автомашины хаягдал утаа хэмжих зориулалттай RSD (зайнаас мэдрэгч төхөөрөмж)

- ❑ MNS-ын хүлцэх хэмжээ (40% тортогшилт)-нд RSD-ын харьцах ялгарлын хэмжээг боловсруулж тодорхойлох
- ❑ 2019 оны 5 сараас журам хэрэгжиж эхэлсэний дараа зам дээр хэмжилт хийж, хүлцэх хэмжээг хангахгүй байгаа тээврийн хэрэгсэлд мөнгөн торгууль ноогдуулах, нийслэлийн хөдөлгөөнд оролцогчийг хориглох, бүртгэлээс хасах, засаж сайжруулах шаардлага тавих зэрэг арга хэмжээг хэрэгжүүлэх боломжийг судлах



RSD ашигласан хэмжилтийн байдал

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АНХААРАЛ ТАВЬСАНД БАЯРЛАЛАА

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Project Title: Capacity Development Project for Air Pollution Control in Ulaanbaatar City Phase 3

Implementing Agency: Air Pollution Reduction Department (APRD) of Ulaanbaatar (UB) City, Ministry of Environment and Tourism (MET) and Counterpart Working Group (C/P-WG)

Target Group: APRD, MET, C/P-WG and Relevant Agencies

Period of Project: November 2018 – April 2023 (4 years and six months)

Project Site: UB City

Narrative Summary		Objectively Verifiable Indicators	Means of Verification	Important Assumptions
Overall Goal Emission reduction at major emission sources is enhanced towards air quality improvement in Ulaanbaatar City.	1. XX% of emissions from major pollution sources is reduced compared with the BAU baseline.			
Project Purpose Capacity for air pollution control in Ulaanbaatar City is strengthened, paying special attentions to implementation of effective pollution control measures and to the necessary coordinating mechanism of APRD and the relevant agencies.	1. XX of pilot projects are adopted as full scale implementation by relevant authorities. 2. XX cases of lessons learned from the pilot projects are utilized by the decision makers. 3. Relevant laws, regulations and standards on air pollution control measures are implemented in UB City. (such as XX of newly established MNS standards, XX% of achievements of existing MNS emission standards)			
Outputs				
Output 1: Capabilities of emission monitoring for the major pollution sources and of air quality monitoring are strengthened.	1-1. XX % of inspections for boiler registration based on emission measurements (including standard and simplified methodologies) are implemented by APRD and IACC. 1-2. The emission measurement reports are submitted to the Deputy Governor of UB City at least 3 times during the Project period. 1-3. Emission monitoring for the major pollution sources and air quality monitoring information are shared regularly among the relevant agencies through coordination between APRD and NAMEM. 1-4. The CEMS measurement is compared with the standard measurement once in a year. 1-5. Distribution of emission measurements from vehicles in UB City is prepared based on the study with RSD at least once a year. 2-1. The results of PM apportionment study are reported at least three times during the Project. 2-2. Pollution structures are assessed at least 3 times during the Project period including emission inventory, simulation model, PM specification, receptor model, air quality monitoring and population exposure throughout the year. 3-1. Drafts of emission measurement methods and quality standards of improved fuel for households in Ger area are submitted to MASM. 3-2. At least XX of implementation plans of the pilot projects are prepared. 4-1. Analysis of air pollution status, short-, medium- and long- term air pollution control strategies (including BAU analysis) and evaluation of air pollution control measures (including implemented and planned) are presented to decision makers at least 2 times. 4-2. Results of pilot project implementation and other Project results are utilized for the revision of NCEPR and for decision making on implementation/non-implementation of pollution control measures at least once.			
Output 2: Capabilities to analyze and evaluate pollution structure of PM, SO ₂ , and NO _x throughout the year are strengthened.	1. Emission measurement reports by APRD / IACC 2. The Project reports 3. Boiler registration database 4. Air quality monitoring monthly reports and annual reports 5. CEMS data 1. The Project reports			
Output 3: Capabilities of technical evaluation and preparation of air pollution control measures for implementation are strengthened.	1. The Project reports			
Output 4: Decision making process for air pollution control is improved by utilizing the Professional agencies including APRD, NAMEM and the relevant agencies.	1. The Project reports 2. Reports on NPREP			

Output 5: Air pollution control measures are enhanced for PM, SO ₂ and NO _x emission reduction at major sources.	5-1. XX pilot projects selected by C/P-WG are implemented 5-2. The results of each pilot project (emission reduction, improvement of ambient air quality and population exposure for PM, SO ₂ and NO _x) are presented to the relevant agencies.	1. The Project reports
Output 6: Legal framework, resource allocation and coordinating mechanism as a Platform for the Air Quality Management Cycle are strengthened for the Outputs 1 to 5.	6-1. XX of drafts on laws and regulations, such as fuel regulations, MNS emission standards and ordinances of UB City, are submitted. 6-2. More than 3 pollution control measures and technologies are funded by Air Pollution Against Fund by utilizing technical appraisal guideline provided by the Project. 6-3. XX agreements are made on demarcation of roles of the relevant agencies for air pollution control measures in the Project. 6-4. The operational guideline is distributed to relevant agencies.	1. Laws and regulations, fuel regulations, MNS emission standards and ordinances of UB City 2. Air Pollution Against Fund Operation reports 3. Official documents including UB city Governor's orders 4. Operational guideline

Activities		Inputs	
1-1 APRD and IACC reinforce HOB inspections based on on-site stack gas measurements. 1-1-1 APRD and JICA Experts assess the technical transfer on-site stack gas measurement. 1-1-2 APRD with JICA Experts re-constructs 2 teams of stack gas measurement. 1-1-3 IACC and the relevant agencies with JICA Experts implement HOB inspection based on on-site stack gas measurement. 1-1-4 IACC with JICA Experts introduces simplified measurement method by using IACC's portable gas measurement equipment including parallel measurement with JIS method, elaboration of manuals and manufacturer's calibration. 1-1-5 APRD and IACC with JICA Experts elaborate emission measurement reports. 1-2 TPP3 and TPP4 with JICA Experts enhance emission gas control by utilizing CEMS. 1-2-1 TPP3 and TPP4 with JICA Experts elaborate and implement CEMS operation and maintenance plan. 1-2-2 TPP3 and TPP4 with JICA Experts perform quality control of emission gas data of CEMS. 1-2-3 TPP3 with MET and the relevant agencies elaborates online emission data reporting system for the CEMS. 1-2-4 NAMEM and the relevant agencies share and evaluate CEMS emission data. 1-2-5 NAMEM compiles monitoring data of emissions from TPP2, TPP3, TPP4 and new large heat supply facilities and share them with relevant agencies. 1-3 MRTD and TDCC introduce relevant regulations of vehicles based on emission measurement. 1-3-1 MRTD and TDCC with JICA Experts implement vehicle emission measurements by RSD, assess distribution of vehicles emission intensity and define target vehicles to be regulated. 1-3-2 MRPA and IACC with JICA Experts implement automobile fuel surveys. 1-4 APRD and NAMEM with JICA Experts strengthen AQMS utilization. 1-4-1 CLEM and JICA Experts assess the current status of equipment in reference laboratory of CLEM and identify necessary actions if necessary. 1-4-2 APRD reinforces AQMS operation and maintenance based on the plan by Phase 2. 1-4-3 APRD with JICA Experts starts air quality monitoring at pilot project area for improved household fuels by utilizing mobile AQMS. 1-4-4 APRD with JICA Experts reinforces the AQMS at Bayankhoshuu station. 1-4-5 APRD and NAMEM with JICA Experts implement parallel measurement by FRM sampler for PM concentration, and implement quality control of PM measurements of AQMS. 1-4-6 APRD and NAMEM with JICA Experts maintain the online information system of AQMS. 1-4-7 APRD and NAMEM share real-time monitoring data with the relevant agencies through the online information system. 1-4-8 APRD and CLEM with JICA Experts analyze air quality monitoring data and elaborate air quality monitoring reports. 1-4-9 The relevant agencies utilize air quality monitoring data.	Japanese side 1. JICA experts (necessary fields) (1) Chief Advisor (2) Air Pollution Control Planning and Policy (3) Emission Measurement for Stationary Sources (4) Ambient Air Quality Monitoring (5) Ambient Air Quality Analysis (6) PM10 and PM2.5 Sampling (7) PM10 and PM2.5 Apportionment Study (8) Emission Inventory (Stationary, Mobile and Others) (9) Air Quality Simulation Modeling / Air Pollution Control Measures Evaluation (10) Auto-mobile Emission Control 1 (Traffic Signal Control) (11) Auto-mobile Emission Control 2 (RSD and others) / Emission Measurement 2 (12) Clean Coal Technology for Air Pollution Control Measures (13) CEMS Data Analysis (14) Stationary Source Emission Control	Mongolian side 1. C/P and C/P-WG (1) JCC Chairperson (2) JCC Vice-Chairperson (3) Project Director (4) Project Manager (5) Necessary C/P and C/P-WG staff according to the fields of JICA Experts 2. Facility (1) Provision of necessary office space in APRD and MET (including internet access) (2) CLEM Laboratory (3) Storage Space for Equipment 3. Local cost (1) Counterpart expenses such as salary, allowance, travel cost and accommodation (2) Project administrative expenses	1. There are no frequent transfers or resignations of C/P and C/P-WG members. 2. Necessary coordination among UB city, districts, khoroos and communities in Ger area is secured by Mongolian side for implementation of pilot projects.

2-1 NAMEM and JICA Experts conduct PM apportionment study based on PM speciation throughout the year. 2-1-1 CLEM and JICA Experts elaborate PM sampling plan throughout the year, and implement PM samplings. 2-1-2 JICA Experts perform PM speciation analysis in Japan. 2-1-3 NAMEM and CLEM with JICA Experts learn PM speciation technologies (ion analysis, element analysis and carbon analysis). 2-1-4 NAMEM and CLEM with JICA Experts formulate equipment and laboratory plan for PM speciation. 2-1-5 APRD and NAMEM with JICA Experts perform PM apportionment study based on receptor modeling. 2-2 APRD and NAMEM with JICA Experts evaluate air pollution structure and health impact based on air quality simulation model and receptor model. 2-2-1 APRD and NAMEM elaborate plans for updating emission inventory. 2-2-2 APRD, TCC and TDCC implement studies for mobile sources including update of emission inventory, examination of traffic signal control, traffic volume and vehicle traveling speed. 2-2-3 APRD and JICA Experts select the pilot areas and assess Ger stoves usage pattern (type and model of stoves, seasonal pattern of usage, insulation of Ger housing and coal consumption). 2-2-4 APRD and NAMEM with JICA Experts implement studies for other emission sources as necessary. 2-2-5 APRD and NAMEM with JICA Experts elaborates BAU (Business as usual) scenario for the future year based on TPPs future development plans, projection of number of vehicle, population, economic growth, emission regulation, fuel quality regulation and so on. 2-2-6 APRD and NAMEM update emission inventory for the present year and the future year for the BAU scenario. 2-2-7 APRD and NAMEM update the air quality simulation model for PM10, SO₂ and NO_x. 2-2-8 APRD and NAMEM evaluate the air pollution structure of UB city. 2-2-9 APRD and NAMEM evaluate indicative population exposure of PM10 based on population weighted concentration and so on. 3-1 APRD and the relevant agencies elaborate a draft MNS on an emission measurement method of improved fuel and fuel quality, and propose it to MASM. 3-2 ME with JICA Experts elaborates safety standards on the household gas distribution. 3-3 APRD and the relevant agencies elaborate implementation plans and terms of reference for pilot projects such as improved fuel, HOB, traffic signal control, eco-driving, RSD, smoke belching program based on portable emission device, DPF, low sulfur fuel and low emission vehicles. 4-1 APRD and NAMEM submit to the decision makers the analysis of air pollution status, short-, medium- and long- term air pollution control strategies (including BAU analysis) and evaluation of air pollution control measures (including implemented and planned). 4-2 Relevant agencies with pilot projects elaborate technical guidelines and utilizes them. 4-3 The relevant agencies discuss and endorse the selection of pilot projects. 4-4 NCEPR and the relevant agencies approve large scale investments based on pilot projects implementation and assessment. 4-5 NCEPR utilizes the Outputs of the Projects and pilot projects implementation and assessment for operation of Anti-air Pollution Fund. 5-1 APRD with Health Department of Capital City and the relevant agencies implements public awareness and advisory activities for citizens including school students and parents. 5-2 MET and APRD publish progress of the Project by newsletter, newspaper articles, web-site and other medias. 5-3 APRD and JICA Experts provide technical guidance to manufacturers for improved fuel production. 5-4 The relevant agencies with JICA Experts implement pilot projects according to the implementation plan by Activity 3-3. 5-5 The relevant agencies with JICA Experts evaluate pilot projects results in terms of emission reduction, air quality improvement and exposure to citizens, and extract lessons learned. 5-6 The relevant agencies with JICA Experts report the pilot projects results to NCEPR. 5-7 TPP3 and TPP4 analyze CEMS data, and examine viable air pollution control measures. 5-8 TPP3 and TPP4 with JICA Experts elaborate emission reduction plans.	Measures (15) Air Quality Administration (16) Public Awareness and Public Relations 2. Training (1) Local seminars and workshops (2) Training course in Japan 3. Provision of necessary equipment 4. Local cost Necessary expenses for activity of JICA Experts	Pre-conditions 1. Appropriate number of qualified staff of C/P and C/P-WG is assigned. 2. Adequate amount of budget related with the Project
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6-1 The relevant agencies discuss and elaborate written agreements on demarcation of roles in air quality management related with each Output and Activity of the Project. 6-2 APRD with JICA Experts submits technical documents to NCEPR for improved fuel standard, emission standard on stationary sources, mobile sources and other emission sources, and revision of ordinance. 6-3 NCEPR and the relevant agencies elaborate fuel standard and emission standard, and submit them to MASM. 6-4 Relevant ministries / relevant agencies of UB city elaborate laws, regulations and ordinances on air pollution control measures, and submit them to national parliament / city council. 6-5 JICA Experts provide training on air pollution control measures for Anti-air Pollution Fund staff. 6-6 Fund staff with JICA Experts improve relevant operations with funding for air pollution control measures, if necessary. 6-7 Mongolian side enhances donor coordination in air pollution control. 6-8 Relevant agencies of pilot projects with JICA Experts develop an operational guideline for elaboration, implementation and evaluation of air pollution control measures based on pilot projects implementation.	implementation is secured. 3. Necessary human resources mobilization related with pilot projects is secured by Mongolian side.
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APRD: Air Pollution Reducing Department of Capital City

AQMS: Air Quality Monitoring Station

BAU: Business as Usual

CEMS: Continuous Emission Monitoring System

CFWH: Coal Fired Water Heater

C/P: Counterpart

C/P-WG: Counterpart Working Group

DPF: Diesel Particulate Filter

FRM: Federal Reference Method

HOB: Heat Only Boiler

IACC: Inspection Agency of the Capital City

MASAM: Mongolian Agency for Standardization and Metrology

MET: Ministry of Environment and Tourism

MMHI: Ministry of Mining and Heavy Industry

MNS: Mongolian National Standard

MRPA: Mineral Resources and Petroleum Authority

MRTD: Ministry of Road and Transport Development

NAMEM: National Agency for Meteorology and Environment Monitoring

NCEPR: National Committee for Environment Pollution Reduction

NPREP: National Program on Reducing Environment Pollution

PM: Particulate Matter

TCC: Traffic Control Center of the Capital City

TDC: Transportation Department of the Capital City

RSD: Remote Sensing Device

TPP: Thermal Power Plant

ANNEX V Demarcation of Roles of the C/P-WG

Demarcation of Roles of C/P-WG

Output Activity Organization	1				2				3	4				5				6																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
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Legend : ★ Leading Agency ✓ Supporting Agency

ANNEX VI Coordination Rules between UBCAP and the Project

1. Communication between JICA project experts and UBCAP consultants
JICA project experts and UBCAP consultants would communicate freely each other. Should any problem arise, they would report to and consult with JICA and UBCAP PMU respectively for proper actions. The World Bank team can also be consulted should that be necessary and reserves the right to be involved in discussions but does not require a priori consultations prior to meetings between experts.
2. Information exchange rule
For effective implementation of the both of UBCAP and JICA Phase 3, smooth reciprocal information exchange including technical data is encouraged between them. The JICA Project Experts would provide such information upon request by UBCAP PMU Director/Manager. JICA Project Experts may consult with the APRD Director and JICA, if needed. The use of technical data obtained from JICA Phase 3 must be limited within the UBCAP project activities. In utilizing such data, the both sides will indicate the source of information.
3. Exchange of observers between UBCAP PSC (Project Steering Committee) and JICA Phase 3 JCC and C/P-WG meeting
The JICA Phase 3 JCC and C/P-WG meetings would invite observers from the World Bank and UBCAP PMU to facilitate better coordination. Likewise, the UBCAP PSC would invite observers from JICA or JICA-designated JICA Project Experts provided that they have no intention to participate in the relevant downstream works discussed at the meeting in order to avoid a conflict of interest.
4. Possible coordinating project activities
Specific areas for coordination will be examined in the course of implementation of the Project.

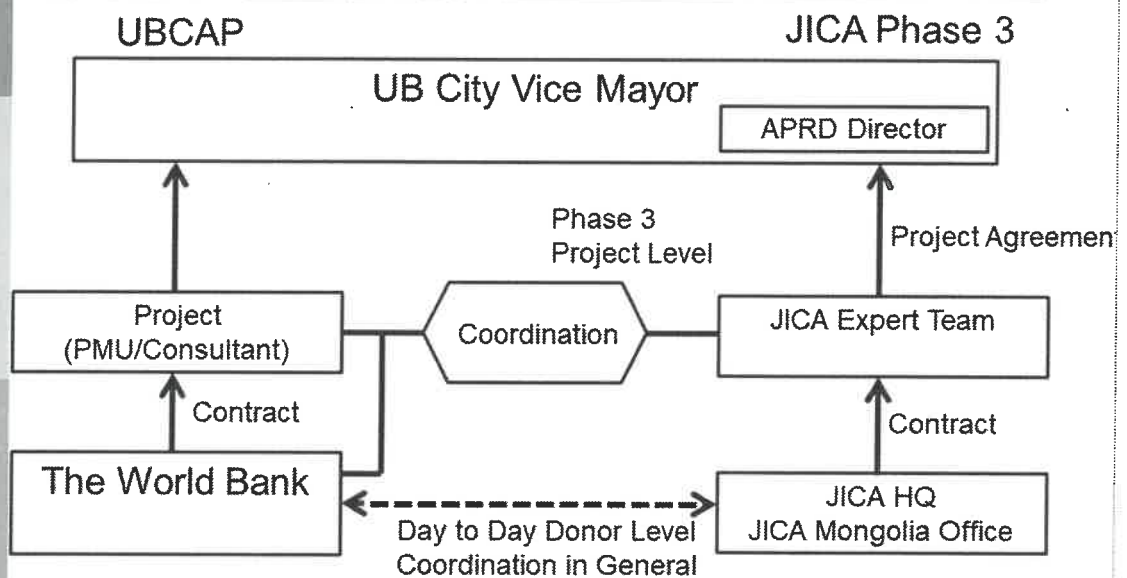


16



2

Mechanism for UBCAP Supported by The World Bank



11

ANNEX VII Coordination Rule between the Project and the relevant projects supported by other development partners such as ADB, UNICEF and SDC.

Focal point at APRD for coordination

APRD Director as the Project Director is the focal point at APRD for coordination between the JICA Phase 3 Project and relevant projects supported by other development partners such as ADB, UNICEF and SDC. The APRD focal point will be involved in the following possible coordination activities between the JICA Phase 3 Project and the other development partners' projects.

(1) Communication between JICA project experts and other development partners projects.

JICA project experts and other development partners' projects would communicate freely each other. Should any problem arise, they would report to and consult with JICA and the relevant development partners respectively for proper actions. The APRD focal point shall be updated periodically on the communication status by the JET.

(2) Information exchange rule

For effective implementation of the both of JICA Phase 3 and other development partners' projects, smooth reciprocal information exchange including technical data is encouraged between them. The JICA Project Experts would provide such information upon request by projects of other development partners, JICA Project Experts may consult with the APRD focal point and JICA, if needed to provide such information. The use of technical data obtained from JICA Phase 3 must be limited within the other development partners' project activities. In utilizing such data, the both sides will indicate the source of information.

(3) Exchange of observers between JICA Phase 3 JCC, C/P-WG meeting and relevant meetings in other development partners' project.

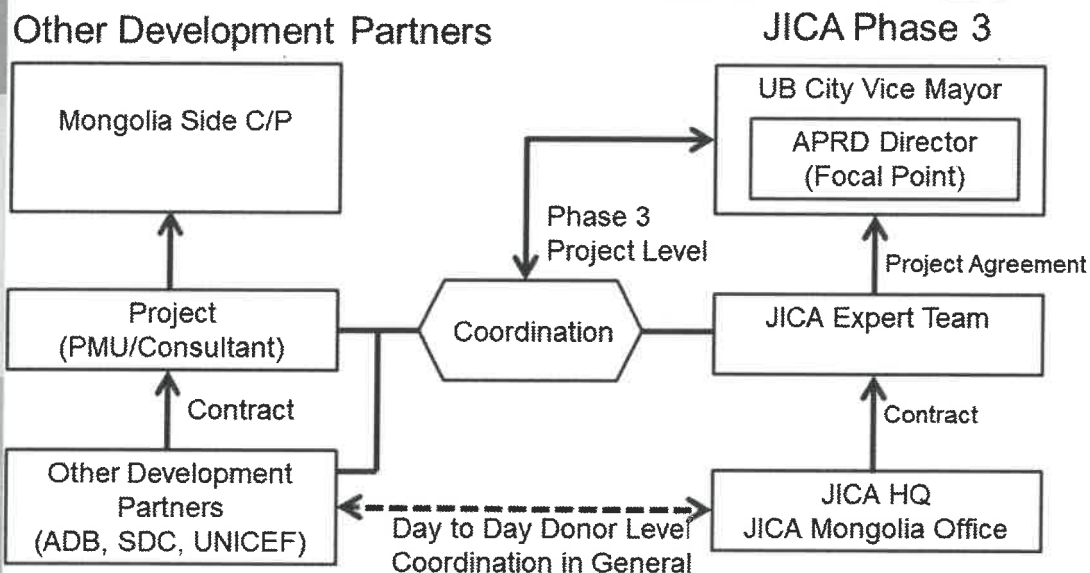
The JICA Phase 3 JCC and C/P-WG meetings would invite observers from the other development partners and their projects to facilitate better coordination with no objection by the APRD focal point. Likewise, the other development partners are expected to invite observers from JICA or JICA-designated JICA Project Experts. The APRD focal point shall be updated periodically on such exchange of observers by JET.

(4) Possible coordinating project activities

Specific areas for coordination will be examined in the course of implementation of the Project.



Donor Coordination Mechanism for Other Development Partners (ADB, SDC, UNICEF)



12

MINUTES OF MEETING OF
THE SECOND JOINT COORDINATING COMMITTEE MEETING
ON JAPANESE TECHNICAL COOPERATION FOR
CAPACITY DEVELOPMENT PROJECT FOR AIR POLLUTION CONTROL IN
ULAANBAATAR CITY PHASE 3 in MONGOLIA

The second Joint Coordinating Committee (hereinafter referred to as "JCC") of "the Capacity Development Project for Air Pollution Control in Ulaanbaatar City Phase 3 in Mongolia" (hereinafter referred to as "the Project") was held on June 7th 2019. Participants list of the JCC meeting is shown in ANNEX I.

Japanese side and the Mongolian authorities had discussions based on the draft Monitoring Sheet Version 1 prepared by the JICA Expert Team (hereinafter referred to as "JET") and Department of Against Air Pollution of Capital City (hereinafter referred to as "DAAP"). As a result of discussions, both sides agreed on matters referred to the document attached hereto.

Ulaanbaatar, June 07, 2019

田村 211子

Ms. Eriko TAMURA
Chief Representative,
JICA Mongolia Office,



Ms. Munkhjargal DASHNYAM
Project Leader of Capital City,
Mongolia

田畑 亨

Mr. Toru TABATA
Leader, JICA Expert Team



Mr. Batkhuu IDESH
Director General
Development Financing Department
Ministry of Finance, Mongolia

ATTACHED DOCUMENT

I. The Monitoring Sheet and the Project Schedule

JET presented current progress of the project activities and explained facing issues since its launch in December 2018. As a result of constructive discussions, JCC Members agreed on the concepts and contents of the Monitoring Sheet Volume 1. In addition, JCC Members agreed on the Project Schedule for amendment to PDM in December 2019.

II. Issues in the JCC

(1) The request from Mongolian side for change of JCC chairman

Mongolian side explained that JCC chairman of the Project is Deputy Governor of Capital City in charge of air pollution reducing and green development. Based on the Cabinet Order 100th (March 21st 2019), number of Deputy Governors was reduced from four to two persons, and four Project Leaders, who have the same level of authority as Deputy Governor, were nominated as a replacement. Therefore, Mongolian side requested that JCC chairman will be changed from Deputy Governor to Project Leader in charge of air pollution reducing and green development. JET answered that JET will inform JICA headquarters of the request from Mongolian side and then if JICA headquarters will accept the change of JCC chairman, JICA headquarters will commence the procedures of amendment of Record of Discussion (R/D) signed on June 29th 2018.

(2) Securing necessary human resources

Since it is difficult for the Project to secure continuity of activities with personnel shortage, Japanese side requested Mongolian side that DAAP should appoint two (2) additional staff by November 2019 in order to develop the second team of on-site stack gas measurement for HOBs. Japanese side also requested DAAP and NAMEM to appoint additional staff on emission inventory and air diffusion simulation modeling activities by September 2019.

The Director of DAAP answered that DAAP will employ two staff in charge of on-site stack gas measurement for organizing the second team of on-site stack gas measurement by November 2019. DAAP will also appoint new staff who has necessary mathematical skill on emission inventory and air diffusion simulation activities. Recently resigned staff of DAAP in charge of emission inventory and simulation modeling will train the new replacing staff.

Mr. Batbayar of NAMEM answered that issue of a lack of human resource cannot be solved in a short period because changes in organizational structure take time. Since relevant agencies in this area have been leveraging its human resource to certain

degree, this activity can be implemented through close cooperation among Mongolian side organizations.

(3) Provision of equipment by the Project

JET explained that one crusher will be provided to Ministry of Energy by the end of November 2019, and two PM samplers will be provided to CLEM by the end of January 2020. Both sides agreed on the provision of equipment by the Project as follows:

- Ministry of Energy will own and lend the crusher to Tavan Tolgoi Tulsh LLC that manufactures improved fuel.
- Provided institution and / or end user should secure the necessary space and utilities for installing the equipment.
- Maintenance, management and utilities costs for the operation of the equipment will be borne by the provided institution and / or end user.
- Provided institutions should prepare the necessary documents for tax exemption procedures.

(4) Undecided objectively verifiable indicators for PDM

Both sides agreed that undecided objectively verifiable indicators for PDM will be defined at the 3rd JCC in December 2019.

(5) PDM amendment

JET explained that some activities stated in PDM could be revised and both sides agreed to discuss the revision of the PDM activities at the 3rd JCC in December 2019.

(6) Training course in Japan

Both sides confirmed that the first training course for traffic control technic in Japan will be conducted for 2 weeks in April 2020. Both sides discussed eight (8) trainees for the first training course will be selected and appointed from Traffic Control Center of the Ulaanbaatar City.

(7) Issue of implementation system of air pollution control measures in Mongolia

Mongolian side explained that no progress has been made with establishment of an air pollution control coordination agency and it is not clear when the procedure of establishing the agency will be completed. Mongolian side also explained procedure for legal amendments to abolish the Air Pollution Control Fund has been progressing including issuing Cabinet Decision No.87 "Partial Treatment for Government Special Fund" in February 2019. As JET requested, Mongolian side agreed to inform and share the direction and progress of legal and institutional amendments including "Law on Air"

and “Law on Air Pollution Fees”.

Both sides agreed that when the direction of these organizational restructuring related with amendments of the laws and institutional arrangements become clear, the relevant PDM activities will be revised.

(8) Implementation of the seminar for citizen

Japanese side proposed that the UB city holds a seminar for citizen regarding air pollution control to which JET is willing to contribute along with the pilot projects implementation.

III. Other issues

The Director of DAAP explained that there were some changes in organizational structure of UB City because of the Cabinet Order 100th (21st March 2019). Department of Urban Regulation, Environmental Safety Control Coordination, and Department of Road Traffic Planning and Coordination Engineering were newly established. JCC members will discuss possibilities whether the relevant agencies join JCC.

Mr. Amartuvshin of TPP3 requested that activity 1-2-2 which is planned to be conducted from October to December 2019 shown in Annex 2 of Monitoring sheet Vol.1, should be changed from October to January 2020. JET agreed on this proposal.

IV. Conclusions by JCC chairman

The JCC chairman urged that each stakeholder in Mongolian side to endeavor for making concrete contribution to solve the issues raised at this JCC before the third JCC in December 2019. Accordingly, as a preparation for the next JCC, relevant agencies of the Project should submit proposals or progress reports on what measures can be taken as an action plan for solving aforementioned issues to the Director of DAAP by 31st August, 2019.

END

ANNEX I	Participants of Joint Coordination Committee
ANNEX II	Presentation of Monitoring Sheet Volume 1
ANNEX III	PDM (ver. 1)

ANNEX I Participants of Joint Coordination Committee

The participants of the JCC are as follows.

	Name	Organization	Position
1	D. Munkhjargal	Project leader of Air pollution	Project Leader
2	G. Gantuya	Office of the National Committee for Air Pollution Reduction	Officer
3	A. Agbold	Ministry of Finance, Department of Grant Aid and Policy Development Fund	Project advisor
4	J. Sereeter	Ministry of Road and Transport Development, Policy and Planning Department, Standard and Normative Division	Head of Division
5	E. Batbold	Ministry of Construction and Urban Development, division of Policy and Planning	Officer
6	B. Tsatsral	Department of Against Air Pollution	Head of Department
7	J. Batbayar	National Agency for Meteorology and Environment Monitoring	Head of Division
8	B. Barkhasragchaa	Central Laboratory of Environment and Metrology	Senior Officer
9	S. Ariuntsetseg	Mayor's office Development Policy Planning Department	Officer
10	Kh. Bulgaa	Department of Public Transport service	Head of department
11	E. Ariunbold	Inspection Agency of the Capital City Division of Air Quality Control	Inspector
12	O. Enkhzaya	Health Department of Capital City Division of Social Health	Head of division
13.	J. Batbayar	National Agency for Meteorology and Environment Monitoring	Director of Environmental Monitoring Division
14	G. Amartuvshin	Thermal Power Plant-3 Technical policy Division	Head of division
15	Tokuji Yoshimura	JICA Mongolia Office	Representative
16	Makiko Inamori	JICA Mongolia Office	Project Formulation Advisor
17	Ch. Munkhmanlai	JICA Mongolia Office	National Staff
18	Toru Tabata	JICA Expert Team	Leader
19	Natsuji Sawaki	JICA Expert Team	Vice Leader

20	Hajime Endo	JICA Expert Team	Clean Coal Technology / Pilot Project for Improved Fuel 1
21	Fumiya Niwa	Embassy of Japan in Mongolia	Second Secretary
22.	Ts. Bayartogtokh	UBCAP	Coordinator
23	P. Ongonsar	ADB	Consultant
24	B. Mungunkhishig	UNICEF	Officer
25	Kh. Galyimbek	DAAP	Head of division
26	J. Amarmaa	DAAP	Head of division
27	Ts. Baasankhuu	DAAP	Officer
28	E. Battsetseg	DAAP	Officer
29	G. Batoyun	DAAP	Officer
30	G. Davaajargal	DAAP	Officer

ANNEX II Presentation of Monitoring Sheet Volume 1

2019 оны 6 дугаар сар
ЖАЙКА төслийн баг

Ур дүн-4
АБ-ын стратеги,
чиглэл, шийдвэр

Ур дүн-3
АБ-ын арга
хэмжээний үнэлэлт

Ур дүн-5
АБ-ын арга
хэмжээний
хэрэгжүүлэлт

Ур дүн-6

АО, х үүсвэрийн
анализ,
хэрэгжилтийн үр
дүнгийн үнэлгээ

Ур дүн-1, 2
Төслийн хамрах хүрээ

- Төслийн гүйцэтгэлийн тайланд тусгагдсан хэрэгжилтийн нөхцөл байдлыг шалгаж, тайланд тусгагдсан агуулгыг батламжлах.
- Төслийн хэрэгжилтэнд тулгарч буй асуудалтай танилцаж, хэлэлцэж шийдвэрлэх



Эрхэн зорилго	Улаанбаатар хотын агсгарын чанарыг сайжруулж, голлох эх үүсвэрүүдээс ялгарах бохирдуулалт бодисын ялгарах буурна.
Төслийн зорилго	Агаарын бохирдлыг бууруулах үр дүнтэй арга зэмсэний хэрэглээг, АБТГ, Төрийн болон Нийслэлийн холбоо-доо байгууллаарын хамтын ажиллагааны тогтолцоог сайжруулахад товлон анхаари, УБ хотын агаарын бохирдлыг бууруулах арга зэмсэг хэрэглэхэд чадварыг сайжруулна.

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2	Угсралт хяналт ах агаарыг бохирдт (планктуна РМ)-ын бүтцийг төлөр мөйлөх анхны шалгалтууд, үнэлгээний таадаг сайжирна
3	Агаарын бохирдлыг бууруулах арга хэлбэрний төлөвсний үнэлгээ, хэрэгсэлтийн бүтэцтэй олголт таадаг сайжирна
4	АБТГ, ЦУОШП гэрээ нэрлэсний байгууллагын орлогсчтойгоор агаарын бохирдлыг бууруулах арга хэлбэрийг хамбагтэй бонитат тэмцэл/проектээр гэрээ түгээний үйл ажиллагаа сайжирна
5	Агаар бохирдуулж төлөвсний эх үүсвэр PM ₁₀ , SO ₂ болон NO _x -ийн агаарыг бууруулахад төлөвсний арга хэлбэрийг хэрэгсэлт сайжирна
6	Үр дүн 1-5-ын бичлэлийг хяналт хүрээний мөблөх хууль эрх гүйц орнон, хэрэгсэлт шалгалтуудын хууль эрх, олохуудтайг хяналт (агаар орныг хяналт шалгалтуудтайг үнэлгээ) боловсруулж таадаг сайжирна

1. Япон мэргэжилтний томилолтын байдал

Хэрэгцээ, зарцуулсан хэмжээ	Өмч нэр	Хэрэг
Төслийн дараа Агаарын бохирдлыг бууруулах арга хэмжээний үрэлтээ, түүнийн бололто	Талбата Тоору	1.21
Төслийн дүн дараа/Агаар орчим хийгээт, ухирдлага-1 /Суурин эх үүсвэрийн утааны хийн хэмжээнт-2 /Агаар орчим хийгээт хийгээнтээ	Саман Нацрын	1.23
Дүн бүтэйн эхэлч/PM10 боловч PM1,1-ээ үгүйсгэрийн нөлөөллийн дүн хэмжээнтээ/ Агаарын чанарын өсгөсгөлийн дүн хэмжээнтээ	Эвэ Эй	0.20
Цэвэр нүүрсний төлөөлөгч/Сайжруулсан түнийний загвар төсөл 1	Эвдэ Хажоон	1.43
Сайжруулсан түнийний загвар төсөл	Оотма Яасуу	0.37
Сайжруулсан түнийний үндэслэл	Комалын Нобуэсэро	0.47
Агаар орчим зардалттай загварчлал/Агаарын бохирдлыг бууруулах арга хэмжээний үрэлтээ/3 х үгүйсгэрийн нийслэлээр	Налата Ш юмал	0.70
Суурин эх үүсвэрийн утааны хийн хэмжээнт-1/PM10 боловч PM1,1 сөрөгөөт	Үсүг Тэдмэйн	0.70
Хэрэгцээний 1-р үеийн бүт мэдээллийн төлөөлөгчөөм биелэлт		6.33/49%
Хэрэгцээний 1-р үеийн бүт мэдээллийн төлөөлөгчөөм төлөөлөлт		7.50/100%

U.S. *Alfred*



2. Хамтарсан Зохицуулах Хорооны хурал (ХЗХ), Нээлтийн семинар зэрэг

- 2018 оны 12 сарын 10-ны өдрийн үдээс өмнө төслийн нээлтийн семинар, үдээс хойш ХЗХ-ны хурлыг тус тус зохион байгуулсан.
- ХЗХ-ны анхдугаар хурлаар ХЗХ-ны гишүүдийг томилж, ХЛТ-АХ-ын гишүүдийн үүрэг оролцооны хуваарилалтыг батласан. Түүнчлэн АМГТГ болон ЗХУТ-ийг ХЛТ-АХ-ийн гишүүнээр нэмж оруулахаар шийдвэрлэсэн.
- Монгол талын одоогийн нөхцөл байдалд уялдуулан "Төсөл төлөвлөлтийн матриц" хувилбар-1-д өөрчлөлт оруулсан.
- ХЗХ-ны анхдугаар хурлаар төслийн удиртгал тайлангийн агуулгыг Монгол, Япон талаас харилцан зөвшөөрч 2019 оны 1 сард ЖАЙКА-д хүлээлгэн өгсөн.

7

Үр дүн-1-3 Тээврийн хэрэгсэлд холбоотой журам



Үр дүн 1-4 АЧСХ-ын ашиглалт арчилгааг сайжруулах



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3. Үр дүнгийн хэрэгжилтийг хангахад чиглэсэн үйл ажиллагаа

Тус төсөл 2018 оны 11 сараас 2023 оны 4 сар хүртэл 4.5 жилийн хугацаатай үргэлжлэх бөгөөд дараах үечилсэн хугацаанд үйл ажиллагааг төлөвлөж байна. Үүнд:

- Хэрэгжилтийн 1-р үе: 2018/11~2021/6
- Хэрэгжилтийн 2-р үе: 2021/7~2023/4

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Үр дүн-1 Эх үүсвэрийн болон орчны агаарын хяналт шинжилгээг сайжруулах



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3.1 Үр дүн-1 Эх үүсвэрийн болон орчны агаарын хяналт шинжилгээг сайжруулах

Үр дүн-1-1 УХЗ-ны хяналтыг сайжруулах



Үр дүн-1-2 СЕМС-ийн хэмжилтэнд тулгуурлан ДЦС-ын ХУ-ны хяналтыг сайжруулах



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Үр дүн-1 Эх үүсвэрийн болон орчны агаарын хяналт шинжилгээг сайжруулах

1. Хэрэгжилтийн байдал (Nov. 2018 - Apr. 2019)

Голлох үйл ажиллагаа:

- АБТГ болон НМХГ хамтран УХЗ-ны магадлан итгэмжлэх хяналт шалгалтыг хэрэгжүүлээд байгаа бөгөөд 2018 оны 10 сараас 2019 оны 4 сарын хооронд 56 газарт ХУ-ны хэмжилт хийсэн байна.
- БОХЗТЛ-ын референс лабораторийг багажны тохируулга хийхэд тогтмол ашиглаж байна.

Асуудал:

- Үндсэн ажилтны орон тоо хязгаартай тул ХУ-ны хэмжилтийн 2 баг болгож нэмэгдүүлэхэд боловсон хүчин хүрэлцээгүй.
- НМХГ-ын утааны хийн анализаторын багажнуудыг шууд хэмжилтэнд ашиглах боломжгүй эд ангийг сэлбэж янзлах шаардлагатай.

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2. Дараагийн хагас жилд хэрэгжүүлэхээр төлөвлөгдөж буй үйл ажиллагаа (May, 2019 - Oct. 2019)

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1. Хэрэгжилтийн байдал (Nov. 2018 - Apr. 2019)

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2. Цаашид хэрэгжүүлэх үйл ажиллагаа (May, 2019 - Oct. 2019)

- 17



3.3 Загвар төслийн ажил: Үр дүн 3, 4, 5, 6

1. Хэрэгжилтийн байдал (Nov. 2018 - Apr. 2019)

Голлох үйл ажиллагаа:

Япон мэргэжилтэн сайжруулсан түлшний загвар төслийг хэрэгжүүлэх төлөвлөгөө боловсруулж, АОББҮХ-ны ажлын алба, АБТГ болон бусад холбогдох байгууллагатай зөвшилдсөн.

- Сайжруулсан түлшний чанарыг шаталтын туршилтаар тодорхойлсон.
- Сайжруулсан түлшний ЗТ-ийг хэрэгжүүлэх газрын судалгааг хийсэн.

2. Цаашд хэрэгжүүлэхээр төлөвлөгдөж буй үйл ажиллагаа (May. 2019 - Oct. 2019)

- 2020 оны 1 сард хэрэгжүүлэх ЗТ-ийн газрыг судлаж сонгох.
- Сайжруулсан түлшний ЗТ-ийг хамтран хэрэгжүүлэх байгууллагуудтай зөвшилдөх.
- Сайжруулсан түлшинд шаталтын туршилт хийсэн үр дүнд тулгуурлан түлшний орц найрлагыг зэвсэглэн шийдвэрлэх, үйлдвэрлэх захиалга өгөх.
- ЗТ-ийг хэрэгжүүлэх газрын оршин суугчдад танилцуулж, туршилтын хугацаанд хамтран ажиллах хүсэлт гаргах.
- ТХ-д хамааралтай ЗТ-ийн хувьд 2019 оны 5 сард зөвшилдсөний дагуу хэрэгжүүлэх төлөвлөгөө боловсруулах.
- 5 сард т/х-ийн журмын хэрэгжилтийн байдалтай танилцах, мөн замын хөдөлгөөний нөхцөл байдлыг тодорхойлох зоригтой судалгааг 9 сард хэрэгжүүлэх.

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3.3.3 Загвар төслийг хэрэгжүүлэхээр судлаж буй газар



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3.3.1 Сайжруулсан түлшний загвар төслийн агуулга

1.1 Зорилго

Сайжруулсан түлшний үр дүнг баталгаажуулахын тулд агаарын чанарын хэмжилт хийх орчин бүрдсэн гэр хорооллыг сонгож, тухайн хэсгийн айл өрхөд сайжруулсан түлшийг тарааж, одоо хэрэглэж буй түлш болон сайжруулсан түлшийг шатаах үеийн агаарын бохирдлыг харьцуулах.

Одоо хэрэглэж буй түлш: Түүхий нүүрс, угаасан нүүрсний баяжмалын алийг нь сонгох талаар судлаж байгаа.

Сайжруулсан түлш: Жижиг ширхэгт шахмал брикет, хагас кокс, буюунурсан шахмалын дотроос 2 төрлийг сонгоно.

1.2 Аргачлал

Загвар төслийг хэрэгжүүлэх 1 км радиусын доторх айлд сайжруулсан түлшний 1 сарын хэрэглээг тарааж, хэмжилт хийх тохиромжтой нөхцөлтэй 3-аас доошгүй өдөр PM10, PM2.5, SO2 -ын хэмжилт хийнэ. Энэ туршилтын өмнөх болон дараах 1 сарын хугацаанд энгийн одоо хэрэглэгдэж буй түлшний шаталтыг мөн ажилхан байдлаар хэмжилт хийнэ.

1.3 Хэрэгжүүлэх газар

Бусад газрын агаарын бохирдол угааны нөлөө бага байхаар газрыг сонгоно.

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3.3.4 Загвар төслийг хэрэгжүүлэх ажлын график

	2018	2019												2020												2021												2022																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8

3.4 Олон нийтийн мэдээлэл, хууль эрхзүй орчин болон зохицуулалтын механизмыг боловсронгуй болгох

Үр дүн-3, 5, 6



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4.1 Бутлуур төхөөрөмжийн нийлүүлэлт

- Нийлүүлэхээр төлөвлөж буй байгууллага ЭХЯ-д бутлуур төхөөрөмж 1 ширхэг нийлүүлнэ ЭХЯ-аас ТТТ компанид шилжүүлэх
- Төхөөрөмжийн техникийн үзүүлэлт

Вариант	Модель
1. 1-1 АБТГ, НМХГ нь хаягдал утааны хэмжилтийн нарийвчилсан болон хялбарчилсан аргачлалд тулгуурласан зуухны магадлан итгэмжлэх, <u>хяналт шалгалтын ажлыг XX%</u> хэрэгжүүлэх.	0.9.1r 22kW, AC380V, 50Hz, three-phase 1 unit 1 unit of fix plate, Screens, V belts

- Зориулалт
Биомассыг бутлуураар жижиглэж шахмал түлш бэлтгэх зорилготой
- Нийлүүлэх хугацаа
2019 оны 11 сар



Бутлуур

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Олон нийтийн мэдээлэл, хууль эрхзүй орчин болон зохицуулалтын механизмыг боловсронгуй болгох: Үр дүн-3, 5, 6

1. Хэрэгжилтийн байдал (Nov. 2018 - Apr. 2019)

Голлох үйл ажиллагаа:

- Мэдээллийн тоймын дугаар-1 –ыг хэвлэн гаргасан.
- Төсөлд хамрагдах байгууллагуудын үүрэг оролцоог тодорхой болгосон.
- Сайжруулсан хатуу түлшний техникийн шаардлагын стандартын саналыг монгол тал боловсруулсан.
- Сайжруулсан хатууны шаталтаас үүдэлтэй бохирдлын алгарын стандарт боловсруулах ажлын хэсэг байгуулагдаад ажиллаж байна.
- Япон мэргэжилтэн ТТТ компани болон хувийн хэвсгид сайжруулсан түлшний технологиод шаардлагатай зөвлөгөө өгч байгаа.
- LCD дэлгэцийг суурилуулсан 35 сургуулийн холбогдох ажилтан нарч АН-ын мэдээлэл хэрэгжүүлэх сургалтыг АБТГ, БОХЭТЛ хамтран хэрэгжүүлсэн.

Төлөвлөсөн асуудал

- 2019 оны 2 дугаар сарын 31-ын шийдвэрээр АБЭС-г байгуулах асуудлыг зогсоосон.
- АБЭС-ийн 31-ын тохирцуулагч агентлаг байгуулагдахад болсон боловч хэрэгжүүлэх зорилгогүй байна.

2. Цаашид хэрэгжүүлэх үйл ажиллагаа (May. 2019 - Oct. 2019)

- Мэдээллийн тойм дугаар-2 бэлтгэн гаргах
- ТТТ болон хувийн хэвсгид сайжруулсан түлшний технологиог сайжруулах зөвлөгөө
- MNS 5679:2014 нь CX33-ны дархын 2019 оны 5 сарын 14-ний өдрийн СЛБ дугаар тушаалаар батлагдсан 5 сарын 15-ны өдрөөс эхлэн хүчинтэй болоод байна.
- СТ-ны шаталтаас үүдэлтэй алгарын стандартыг боловсруулахаар ажлын хэсэг ажиллаж байна.
- Иргэдэд чиглэсэн сургалт семинари зохион байгуулахаар төлөвлөж байна.

Боловсрох

- 6 сард 36-лах ХЗХ-ны хурлаар АБЭС-тай холбоотой хэрэгжүүлэхээр төлөвлөсөн төслийн үйл ажиллагааны талаар зөвшилцөх

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4.2 ТТМ-д оруулах өөрчлөлт

2019 оны 12 сард зохион байгуулах ХЗХ-ны 3 дугаар хурлаар Монгол талын нөхцөл байдалтай уялдуулан төслийн шалгуур үзүүлэлт, үйл ажиллагааны агуулгатай холбоотой ТТМ-ын зарим нэг хэсэгт өөрчлөлт оруулахаар төлөвлөж байна.

4. Төслийн хэрэгжилттэй холбоотой тодотгох болон хэлэлцэх асуудал

- Бутлах төхөөрөмжийн нийлүүлэлт
- ТТМ-д оруулах өөрчлөлтийн судалгаа
- Япон дахь сургалт-1

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4.2 ХЗХ-ын дараагийн хуралдаанд хэлэлцэх ТТМ-ын өөрчлөлтүүд (Үр дүн, шалгуур үзүүлэлт)

Үр дүн-1-ийн шалгуур үзүүлэлт

- 1-1 АБТГ, НМХГ нь хаягдал утааны хэмжилтийн нарийвчилсан болон хялбарчилсан аргачлалд тулгуурласан зуухны магадлан итгэмжлэх, хяналт шалгалтын ажлыг XX% хэрэгжүүлэх.

Үр дүн-3-ын шалгуур үзүүлэлт

- 3-2. Загвар төслийн XX доошгүй хэрэгжүүлэх төлөвлөгөө боловсруулах.

Үр дүн-5-ын шалгуур үзүүлэлт

- 5-1. ХТ-АХ-ээс сонгосон XX загвар төсөл хэрэгжих.

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4.2 ХЗХ-ын дараагийн хуралдаанд хэлэлцэх ТТМ-ын өөрчлөлтүүд (Үр дүн, шалгуур үзүүлэлт)

Үр дүн-6-ын шалгуур үзүүлэлт

- 6-1. Холбогдох хууль, журам (түлшний стандарт, ялгарлын стандарт, MNS, нийслэлийн захирамж, тогтоол журам зэрэг) -ын төсөл ХХ-ыг боловсруулах.
- 6-2. АБЭС нь төслөөс боловсруулсан техникийн үнэлгээний гарын авлагыг ашиглах зэргээр төслийн үр дүнд тулгуурлан бохирдлыг бууруулах арга хэмжээ, технологийг нэвтрүүлэх 3-аас доошгүй ажилд санхүүжилтийг хувиарлах.
- 6-3. Тус төслийн агаарын бохирдлыг бууруулах арга хэмжээний хэрэгжилтийг хангах хүрээнд холбогдох байгууллагын үүрэг оролцоог тодорхойлсон ХХ хэлэлцээр байгуулах.

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4.3 Япон дахь сургалт-1

Япон дахь сургалт-1

Хугацаа: 2020 оны 4 сар

Сургалтын нэр: Гэрлэн дохионы зохицуулалтын горимын тохиргооны технологийн сургалт

Суралцагчид: ЗХУТ-ийн 8 ажилтан

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4.2 ХЗХ-ын дараагийн хуралдаанд хэлэлцэх ТТМ-ын өөрчлөлтүүд (Үйл ажиллагаа)

- 4-4 ОББҮХ болон холбогдох байгууллага нь загвар төслийг цаашид хэрэгжүүлэх бодит арга хэмжээ болгож батлах.
- 4-5 ОББҮХ нь АБЭС-гийн үйл ажиллагаанд тус төслийн болон загвар төслийн үр дүнг ашиглах.
- 6-2 АБТГ нь ЖАЙКА-ын мэргэжилтний дэмжлэгтэйгээр ОББҮХ-д сайжруулсан түлшний стандарт, суурин эх үүсвэр (ДЦС, УХЗ, БОУХЗ, гэрийн зуух), хөдөлгөөнт эх үүсвэр, бусад эх үүсвэрийн ялгарлын стандарт, журмыг шинэчлэхэд зориулсан техникийн материалиар хангаж өгөх.

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Анхаарал тавьсанд баярлалаа

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4.2 ХЗХ-ын дараагийн хуралдаанд хэлэлцэх ТТМ-ын өөрчлөлтүүд (Үйл ажиллагаа)

- 6-3 ОББҮХ, холбогдох төр захиргааны байгууллага нь түлшний стандарт, ялгарлын стандартыг боловсруулж, СХЗГ-т хүргэх.
- 6-5 ЖАЙКА-ын мэргэжилтэн нь АБЭС-ийн ажлын албанд агаарын бохирдлыг бууруулах арга хэмжээний талаар сургалт зохион байгуулах.
- 6-6 ЖАЙКА мэргэжилтэн нь АБЭС-гийн агаарын бохирдлыг бууруулах арга хэмжээний төслийн баримт бичиг бүрдүүлэх процедурыг сайжруулах чиглэлээр шаардлагатай гэж үзвэл дэмжлэг үзүүлэх

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Project Design Matrix (PDM)

Ver.1.1
Dated: 7 June, 2019

Project Title: Capacity Development Project for Air Pollution Control in Ulaanbaatar City Phase 3

Implementing Agency: Department of Against Air Pollution (DAAP) of Ulaanbaatar (UB) City, Ministry of Environment and Tourism (MET) and Counterpart Working Group (C/P-WG)

Target Group: DAAP, MET, C/P-WG and Relevant Agencies

Period of Project: November 2018 – April 2023 (4 years and six months)

Project Site: UB City

Narrative Summary		Objectively Verifiable Indicators	Means of Verification	Important Assumptions
Overall Goal Emission reduction at major emission sources is enhanced towards air quality improvement in Ulaanbaatar City.		1. XX% of emissions from major pollution sources is reduced compared with the BAU baseline.	1. Comparison between BAU and updated inventory for target year (3 to 5 years after completion of the Project)	
Project Purpose Capacity for air pollution control in Ulaanbaatar City is strengthened, paying special attentions to implementation of effective pollution control measures and to the necessary coordinating mechanism of DAAP and the relevant agencies.		1. XX of pilot projects are adopted as full scale implementation by relevant authorities. 2. XX cases of lessons learned from the pilot projects are utilized by the decision makers. 3. Relevant laws, regulations and standards on air pollution control measures are implemented in UB City, (such as XX of newly established MNS standards, XX% of achievements of existing MNS emission standards)	1. The Project reports 2. Interview survey to the relevant agencies 3. Laws, regulations, MNS standards, and ordinances of UB City	
Outputs				1. Legal and political framework for air quality management is maintained, which defines decision making mechanism such as NCEPR and professional agencies like DAAP and NAMEM.
Output 1: Capabilities of emission monitoring for the major pollution sources and of air quality monitoring are strengthened.		1-1. XX % of inspections for boiler registration based on emission measurements (including standard and simplified methodologies) are implemented by DAAP and IACC. 1-2. The emission measurement reports are submitted to the Deputy Governor of UB City at least 3 times during the Project period. 1-3. Emission monitoring for the major pollution sources and air quality monitoring information are shared regularly among the relevant agencies through coordination between DAAP and NAMEM. 1-4. The CEMS measurement is compared with the standard measurement once in a year. 1-5. Distribution of emission measurements from vehicles in UB City is prepared based on the study with RSD at least once a year.	1. Emission measurement reports by DAAP / IACC 2. The Project reports 3. Boiler registration database 4. Air quality monitoring monthly reports and annual reports 5. CEMS data	
Output 2: Capabilities to analyze and evaluate pollution structure of PM, SO ₂ , and NO _x throughout the year are strengthened.		2-1. The results of PM apportionment study are reported at least three times during the Project. 2-2. Pollution structures are assessed at least 3 times during the Project period including emission inventory, simulation model, PM specification, receptor model, air quality monitoring and population exposure throughout the year.	1. The Project reports	
Output 3: Capabilities of technical evaluation and preparation of air pollution control measures for implementation are strengthened.		3-1. Drafts of emission measurement methods and quality standards of improved fuel for households in Ger area are submitted to MASM. 3-2. At least XX of implementation plans of the pilot projects are prepared.	1. The Project reports	
Output 4: Decision making process for air pollution control is improved by utilizing the Professional agencies including DAAP, NAMEM and the relevant agencies.		4-1. Analysis of air pollution status, short-, medium- and long- term air pollution control strategies (including BAU analysis) and evaluation of air pollution control measures (including implemented and planned) are presented to decision makers at least 2 times. 4-2. Results of pilot project implementation and other Project results are utilized for the revision of NCEPR and for decision making on implementation/non-implementation of pollution control measures at least once.	1. The Project reports 2. Reports on NPREP	

Output 5: Air pollution control measures are enhanced for PM, SO ₂ and NO _x emission reduction at major sources.	5-1. XX pilot projects selected by C/P-WG are implemented 5-2. The results of each pilot project (emission reduction, improvement of ambient air quality and population exposure for PM, SO ₂ and NO _x) are presented to the relevant agencies.	1. The Project reports
Output 6: Legal framework, resource allocation and coordinating mechanism as a Platform for the Air Quality Management Cycle are strengthened for the Outputs 1 to 5.	6-1. XX of drafts on laws and regulations, such as fuel regulations, MNS emission standards and ordinances of UB City, are submitted. 6-2. More than 3 pollution control measures and technologies are funded by Air Pollution Against Fund by utilizing technical appraisal guideline provided by the Project. 6-3. XX agreements are made on demarcation of roles of the relevant agencies for air pollution control measures in the Project. 6-4. The operational guideline is distributed to relevant agencies.	1. Laws and regulations, fuel regulations, MNS emission standards and ordinances of UB City 2. Air Pollution Against Fund Operation reports 3. Official documents including UB city Governor's orders 4. Operational guideline

Activities		Inputs	
1-1 DAAP and IACC reinforce HOB inspections based on on-site stack gas measurements. 1-1-1 DAAP with JICA Experts assess the technical transfer on-site stack gas measurement. 1-1-2 DAAP with JICA Experts re-constructs 2 teams of stack gas measurement. 1-1-3 IACC and the relevant agencies with JICA Experts implement HOB inspection based on on-site stack gas measurement. 1-1-4 IACC with JICA Experts introduces simplified measurement method by using IACC's portable gas measurement equipment including parallel measurement with JIS method, elaboration of manuals and manufacturer's calibration. 1-1-5 DAAP and IACC with JICA Experts elaborate emission measurement reports. 1-2 TPP3 and TPP4 with JICA Experts enhance emission gas control by utilizing CEMS. 1-2-1 DAAP and TPP4 with JICA Experts elaborate and implement CEMS operation and maintenance plan. 1-2-2 DAAP and TPP4 with JICA Experts perform quality control of emission gas data of CEMS. 1-2-3 TPP3 with MET and the relevant agencies elaborates online emission data reporting system for the CEMS. 1-2-4 NAMEM and the relevant agencies share and evaluate CEMS emission data. 1-2-5 NAMEM compiles monitoring data of emissions from TPP2, TPP3, TPP4 and new large heat supply facilities and share them with relevant agencies. 1-3 MRTD and TDCC introduce relevant regulations of vehicles based on emission measurements. 1-3-1 MRTD and TDCC with JICA Experts implement vehicle emission measurements by RSD, assess distribution of vehicles emission intensity and define target vehicles to be regulated. 1-3-2 MRPA and IACC with JICA Experts implement automobile fuel surveys. 1-4 DAAP and NAMEM with JICA Experts strengthen AQMS utilization. 1-4-1 CLEM and JICA Experts assess the current status of equipment in reference laboratory of CLEM and identify necessary actions if necessary. 1-4-2 DAAP reinforces AQMS operation and maintenance based on the plan by Phase 2. 1-4-3 DAAP with JICA Experts starts air quality monitoring at pilot project area for improved household fuels by utilizing mobile AQMS. 1-4-4 DAAP with JICA Experts reinforces the AQMS at Bayankhoshuu station. 1-4-5 DAAP and NAMEM with JICA Experts implement parallel measurement by FRM sampler for PM-concentration, and implement quality control of PM measurements of AQMS. 1-4-6 DAAP and NAMEM with JICA Experts maintain the online information system of AQMS. 1-4-7 DAAP and NAMEM share real-time monitoring data with the relevant agencies through the online information system. 1-4-8 DAAP and CLEM with JICA Experts analyze air quality monitoring data and elaborate air quality monitoring reports. 1-4-9 The relevant agencies utilize air quality monitoring data.	Japanese side 1. JICA experts (necessary fields) (1) Chief Advisor (2) Air Pollution Control Planning and Policy (3) Emission Measurement for Stationary Sources (4) Ambient Air Quality Monitoring (5) Ambient Air Quality Analysis (6) PM10 and PM2.5 Sampling (7) PM10 and PM2.5 Apportionment Study (8) Emission Inventory (Stationary, Mobile and Others) (9) Air Quality Simulation Modeling / Air Pollution Control Measures Evaluation (10) Auto-mobile Emission Control 1 (Traffic Signal Control) (11) Auto-mobile Emission Control 2 (RSD and others) / Emission Measurement 2 (12) Clean Coal Technology for Air Pollution Control Measures (13) CEMS Data Analysis (14) Stationary Source Emission Control	Mongolian side 1. C/P and C/P-WG (1) JCC Chairperson (2) JCC Vice-Chairperson (3) Project Director (4) Project Manager (5) Necessary C/P and C/P-WG staff according to the fields of JICA Experts 2. Facility (1) Provision of necessary office space in DAAP and MET (including internet access) (2) CLEM Laboratory (3) Storage Space for Equipment 3. Local cost (1) Counterpart expenses such as salary, allowance, travel cost and accommodation (2) Project administrative expenses	1. There are no frequent leaves, or resignations of C/P and C/P-WG members. 2. Necessary coordination among UB city, districts, khoroos and communities in Ger area is secured by Mongolian side for implementation of pilot projects.

2-1 NAMEM and JICA Experts conduct PM apportionment study based on PM speciation throughout the year. 2-1-1 CLEM and JICA Experts elaborate PM sampling plan throughout the year, and implement PM samplings. 2-1-2 JICA Experts perform PM speciation analysis in Japan. 2-1-3 NAMEM and CLEM with JICA Experts learn PM speciation technologies (ion analysis, element analysis and carbon analysis). 2-1-4 NAMEM and CLEM with JICA Experts formulate equipment and laboratory plan for PM speciation. 2-1-5 DAAP and NAMEM with JICA Experts perform PM apportionment study based on receptor modeling. 2-2 DAAP and NAMEM with JICA Experts evaluate air pollution structure and health impact based on air quality simulation model and receptor model. 2-2-1 DAAP and NAMEM elaborate plans for updating emission inventory. 2-2-2 DAAP, TCC and TDCC implement studies for mobile sources including update of emission inventory, examination of traffic signal control, traffic volume and vehicle traveling speed. 2-2-3 DAAP and JICA Experts select the pilot areas and assess Ger stoves usage pattern (type and model of stoves, seasonal pattern of usage, insulation of Ger housing and coal consumption). 2-2-4 DAAP and NAMEM with JICA Experts implement studies for other emission sources as necessary. 2-2-5 DAAP and NAMEM with JICA Experts elaborate BAU (Business as usual) scenario for the future year based on TPPs future development plans, projection of number of vehicle, population, economic growth, emission regulation, fuel quality regulation and so on. 2-2-6 DAAP and NAMEM update emission inventory for the present year and the future year for the BAU scenario. 2-2-7 DAAP and NAMEM update the air quality simulation model for PM10, SO₂ and NO_x. 2-2-8 DAAP and NAMEM evaluate the air pollution structure of UB city. 2-2-9 DAAP and NAMEM evaluate indicative population exposure of PM10 based on population weighted concentration and so on.	Measures (15) Air Quality Administration (16) Public Awareness and Public Relations 2. Training (1) Local seminars and workshops (2) Training course in Japan 3. Provision of necessary equipment 4. Local cost Necessary expenses for activity of JICA Experts	3-1 DAAP and the relevant agencies elaborate a draft MNS on an emission measurement method of improved fuel and fuel quality, and propose it to MASM. 3-2 ME with JICA Experts elaborates safety standards on the household gas distribution. 3-3 DAAP and the relevant agencies elaborate implementation plans and terms of reference for pilot projects such as improved fuel, HOB, traffic signal control, eco-driving, RSD, smoke belching program based on portable emission device, DPF, low sulfur fuel and low emission vehicles. 4-1 DAAP and NAMEM submit to the decision makers the analysis of air pollution status, short-, medium- and long-term air pollution control strategies (including BAU analysis) and evaluation of air pollution control measures (including implemented and planned). 4-2 Relevant agencies with pilot projects elaborate technical guidelines and utilizes them. 4-3 The relevant agencies discuss and endorse the selection of pilot projects. 4-4 NCEPR and the relevant agencies approve large scale investments based on pilot projects implementation and assessment. 4-5 NCEPR utilizes the Outputs of the Projects and pilot projects implementation and assessment for operation of Anti-air Pollution Fund.	5-1 DAAP with Health Department of Capital City and the relevant agencies implements public awareness and advisory activities for citizens including school students and parents. 5-2 MET and DAAP publish progress of the Project by newsletter, newspaper articles, web-site and other medias. 5-3 DAAP and JICA Experts provide technical guidance to manufacturers for improved fuel production. 5-4 The relevant agencies with JICA Experts implement pilot projects according to the implementation plan by Activity 3-3. 5-5 The relevant agencies with JICA Experts evaluate pilot projects results in terms of emission reduction, air quality improvement and exposure to citizens, and extract lessons learned. 5-6 The relevant agencies with JICA Experts report the pilot projects results to NCEPR. 5-7 TPP3 and TPP4 analyze CEMS data, and examine viable air pollution control measures. 5-8 TPP3 and TPP4 with JICA Experts elaborate emission reduction plans.	Pre-conditions 1. Appropriate number of qualified staff of C/P and C/P-WG is assigned. 2. Adequate amount of budget related with the Project
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6-1 The relevant agencies discuss and elaborate written agreements on demarcation of roles in air quality management related with each Output and Activity of the Project. 6-2 DAAP with JICA Experts submits technical documents to NCEPR for improved fuel standard, emission standard on stationary sources, mobile sources and other emission sources, and revision of ordinance. 6-3 NCEPR and the relevant agencies elaborate fuel standard and emission standard, and submit them to MASM. 6-4 Relevant ministries / relevant agencies of UB city elaborate laws, regulations and ordinances on air pollution control measures, and submit them to national parliament / city council. 6-5 JICA Experts provide training on air pollution control measures for Anti-air Pollution Fund staff. 6-6 Fund staff with JICA Experts improve relevant operations with funding for air pollution control measures, if necessary. 6-7 Mongolian side enhances donor coordination in air pollution control. 6-8 Relevant agencies of pilot projects with JICA Experts develop an operational guideline for elaboration, implementation and evaluation of air pollution control measures based on pilot projects implementation.	implementation is secured. 3. Necessary human resources mobilization related with pilot projects is secured by Mongolian side.
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AQMS: Air Quality Monitoring Station

BAU: Business as Usual

CEMS: Continuous Emission Monitoring System

CFWH: Coal Fired Water Heater

C/P: Counterpart

C/P-WG: Counterpart Working Group

DAAP: Department of Against Air Pollution of Capital City

DPF: Diesel Particulate Filter

FRM: Federal Reference Method

HOB: Heat Only Boiler

IACC: Inspection Agency of the Capital City

MASM: Mongolian Agency for Standardization and Metrology

MET: Ministry of Environment and Tourism

MMHI: Ministry of Mining and Heavy Industry

MNS: Mongolian National Standard

MRPA: Mineral Resources and Petroleum Authority

MRTD: Ministry of Road and Transport Development

NAMEM: National Agency for Meteorology and Environment Monitoring

NCEPR: National Committee for Environment Pollution Reduction

NPREP: National Program on Reducing Environment Pollution

PM: Particulate Matter

TCC: Traffic Control Center of the Capital City

TDCC: Transportation Department of the Capital City

RSD: Remote Sensing Device

TPP: Thermal Power Plant

MINUTES OF MEETING OF
THE THIRD JOINT COORDINATING COMMITTEE MEETING
ON JAPANESE TECHNICAL COOPERATION FOR
CAPACITY DEVELOPMENT PROJECT FOR AIR POLLUTION CONTROL IN
ULAANBAATAR CITY PHASE 3 in MONGOLIA

The Japan International Cooperation Agency (hereinafter referred to as "JICA") Advisory Team and JICA Expert Team visited Mongolia from December 2, 2019 to December 11, 2019 to discuss on the Progress Report 1 and the Monitoring Sheet Vol.2 and held the Counterpart Working Group (hereinafter referred to as "C/P-WG") meeting and the third Joint Coordinating Committee (hereinafter referred to as "JCC") of "the Capacity Development Project for Air Pollution Control in Ulaanbaatar City Phase 3 in Mongolia" (hereinafter referred to as "the Project") on December 3 and December 5, 2019 respectively. Participants lists of the meetings are shown in ANNEX I.

Japanese side and the Mongolian authorities had a series of discussions. As a result of discussions, both sides agreed on matters referred to the document attached hereto.

Ulaanbaatar, December 10, 2019

山田 泰造

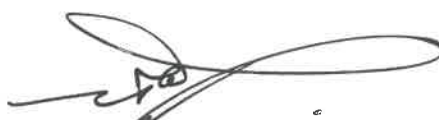
Mr. Taizo YAMADA
Leader, JICA Advisory Team,
Japan International Cooperation
Agency, Japan,

田畑 亨

Mr. Toru TABATA
Leader, JICA Expert Team,
Japan



Ms. Munkhjargal DASHNYAM
Project Leader of Capital City,
Mongolia



Mr. Batkhuyi IDESH
Director General
Development Financing Department
Ministry of Finance, Mongolia

ATTACHED DOCUMENT

I. The Progress Report 1 and the Monitoring Sheet Vol.2

The JICA Expert Team (hereinafter referred to as "JET") presented the Progress Report 1 and the Monitoring Sheet Vol.2. After the active discussions, the JCC approved them in principle.

II. Revision of the Output Indicators of Project Design Matrix

1. Indicator 1-1

"1-1. XX % of inspections for boiler registration based on emission measurements (including standard and simplified methodologies) are implemented by DAAP and IACC."

will be replaced by;

"1-1. During the Project duration, at least 50 % of inspections for boiler registration based on emission measurements (including standard and simplified methodologies) are implemented by DAAP and IACC."

* (Number of heat only boiler (hereinafter referred to as "HOB") measured by standard and simplified methodologies of on-site stack gas measurement) / (Total number of HOBs in operation) $\geq$ 50 %.

2. Indicator 3-2

"3-2. At least XX of implementation plans of the pilot projects are prepared."

will be replaced by;

"3-2. At least three of implementation plans of the pilot projects are prepared."

* The pilot projects may include Household improved fuel, Traffic signal control, Eco-driving and Remote Sensing Device (hereinafter referred to as "RSD").

3. Indicator 5-1

"5-1. XX pilot projects selected by C/P-WG are implemented."

will be replaced by;

"5-1. At least three pilot projects selected by C/P-WG are implemented."

* The pilot projects may include Household improved fuel, Traffic signal control, Eco-driving and RSD.

4. Indicator 6-1

"6-1. XX of drafts on laws and regulations, such as fuel regulations, MNS emission standards and ordinances of UB City, are submitted."

will be replaced by;

"6-1. At least three of drafts on laws and regulations, such as fuel regulations,

MNS emission standards and ordinances of UB City, are submitted.”.

- * Those may include safety standards on the household gas distribution, MNS draft for fuel combustion test of household improved fuels, emission standards for RSD equivalent with the existing emission standards of MNS (40 % value by opacity meter measurement) and performance test protocols of Diesel Particulate Filter (hereinafter referred to as “DPF”).

5. Indicator 6-3

“6-3. XX agreements are made on demarcation of roles of the relevant agencies for air pollution control measures in the Project.”

will be replaced by;

“6-3. At least three agreements are made on demarcation of roles of the relevant agencies for air pollution control measures in the Project.”.

III. Important issues discussed regarding with the project implementation

1. Appointment of the JCC chairperson

Ms. Munkhjargal DASHNYAM, the Project Leader of Capital City is appointed for the JCC Chairperson by the Governor’s order A/808 as of August 9, 2019.

2. Expansion of C/P-WG

Japanese side and Mongolian side agreed that National Road Transport Center (hereinafter referred to as “NRTC”) and Information and Research Institute of Meteorology, Hydrology and Environment (hereinafter referred to as “IRIMHE”) will join the C/P-WG.

3. The rule for providing data of household fuel combustion test in the Project to respond Tavan Tolgoi Tulsh LLC’s (hereinafter referred to as “TTT”) requests

Both sides agreed that DAAP will provide such data to the TTT after discussions among JET and DAAP with no objection by JICA and with approval by the Head of DAAP, in the event that TTT requests provision of the data of household fuel combustion tests in the Project to Department of Against Air Pollution of Capital City (hereinafter referred to as “DAAP”), JET or JICA Mongolia office.

4. Official announcement and news coverage on the Project and JICA by mass media in Mongolia

Japanese side strongly requested the Mongolian side that official announcement and news coverage on the Project shall be released based on the correct facts, after expressing deep concerns on the recent misleading information, that JICA as if assisted production of improved household fuels by TTT being distributed in this winter, which might have been contributing recent increase of carbon mono-oxide toxication

incidences in the Ger area.

5. Implementation of Safety measures by the Mongolian side in distributing household improved fuels

Japanese side requested that Mongolian side shall take appropriate safety measures addressing various causes for carbon mono-oxide toxication including ventilation issues.

6. Activity 5-3 "DAAP and JICA Experts provide technical guidance to manufacturers for household improved fuel production."

Mongolian side requested that the Project contribute technically to reduction of SO₂ emissions from the existing household improved fuel produced by TTT. Japanese side agreed that JET will assist DAAP's technical instructions to TTT provided that:

- (1) Ministry of Energy (hereinafter referred to as "ME") and relevant authorities shall cooperate with DAAP; and
- (2) Mongolian side shall be in charge of implementing appropriate safety measures for carbon mono-oxide toxication in disseminating the household improved fuels of TTT.

7. Direction for implementation of household improved fuel pilot project for Ger area
Both sides agreed direction for implementation of household improved fuel pilot project for Ger area as follows.

- (1) The scope of the household improved fuel pilot project in the Project:
 - (i) Preparation of technically viable options of household improved fuel including biomass middling briquette (hereinafter referred to as "BMB"), semi-cokes middling briquette (hereinafter referred to as "SMB") among others; and
 - (ii) Identification of issues for production and distribution.
- (2) Technical criteria for options of the household improved fuel:
 - (i) Emissions of Dust, SO₂ and CO shall not exceed those of existing TTT's household improved fuel in combustion test;
 - (ii) Safeness of household improved fuels in Ger area consumption will be improved;
 - (iii) Ambient concentration level of PM₁₀ and PM_{2.5} will be decreased;
 - (iv) Health damage will not be generated due to toxic substances and heavy metals; and
 - (v) Any hygienic problems will not be generated.
- (3) Field verification test policy:
 - (i) Previously planned field verification test in the Ger area community will be canceled; and
 - (ii) Technical workers contracted by the Project will perform the field verification test

in camping sites to avoid any risks to ordinary citizens.

(4) Steps towards full scale implementation by the Mongolian side:

Step 1: Preparation of technical viable options of household improved fuel including BMB and SMB among others in the Project;

Step 2: Identification of issues for production and distribution including related technical standards and regulations in the Project;

Step 3: An appropriate study for full scale production and distribution by Mongolian side; and

Step 4: Execution of the full scale production and distribution of household improved fuel by Mongolian side.

8. Postponement of the field verification test

Both sides agreed that the field verification test be postponed by one year for January 2021, because production of household improved fuels has become impossible due to the delay in obtaining middling and semi-cokes, although JET originally proposed the field verification test for January 2020.

9. Requests by JET related with combustion tests of household improved fuels in the pilot project

Japanese side requested Mongolian side the following cooperation. The Mongolian side agreed on them.

Contents of the cooperation	Responsible stakeholders	Timeline
-DAAP and JET obtain semi-cokes and biomass; -DAAP requests TTT to produce samples; and -TTT produces samples.	DAAP, JET and TTT	January 2020
-TTT requests DAAP to implement combustion tests of the sample including emission measurements; and -DAAP with JET implements the tests.	TTT, DAAP and JET	February 2020
-DAAP reports the results of the tests to the relevant stakeholders and authorities of the Mongolian side.	DAAP	April 2020

10. Securing necessary human resources for the Project implementation

(1) Emission inventory and simulation modeling

National Agency for Meteorology and Environment Monitoring (hereinafter referred to as "NAMEM"), DAAP and IRIMHE requested the Project to provide trainings again regarding emission inventory and simulation modeling due to frequent turnovers of the staff in the Mongolian government and difficulties to sustain institutional capabilities in

technical works. Japanese side agreed to provide such trainings in condition that the corresponding agencies designate at least two staff for each subject.

(2) On-site stack gas measurements for HOB

Japanese side requested DAAP to assign additional one staff for on-site stack gas measurements in order to establish two measurement teams. DAAP agreed to increase the number of staff from three to four.

(3) Auto vehicle emissions measurement utilizing the on-board emission measurement system

Mongolian side requested the Project to provide trainings again DAAP and NRTC regarding auto vehicle emissions measurement and data analysis utilizing the on-board emission measurement system provided previously by the Capacity Development Project for Air Pollution Control in Ulaanbaatar City Phase 2 (hereinafter referred to as "Phase 2"), which was transferred to NRTC from Central Laboratory of Environment and Metrology (hereinafter referred to as "CLEM"). Japanese side agreed to provide such trainings in condition that the corresponding agencies designate at least two staff for each subject.

11. The status of restructuring anti-air pollution fund

"Anti-air pollution fund" described in the PDM was planned to be restructured. However, relevant amendments of law of Government Special Fund had been suspended. Japanese side considers that sustainable funding mechanism of Mongolian government for air pollution control is critically important. Japanese side requested Mongolian side to establish such system as soon as possible and to provide information to update the status to Japanese side. Mongolian side stated that presently National Committee for Environmental Pollution Reduction (hereinafter referred to as "NCEPR") is in charge of allocating necessary funds to air pollution control related activities.

12. Periodical meetings in the Project implementation

Japanese side proposed following periodical meetings throughout the Project implementation. Mongolian side agreed on them.

(1) Project management level periodical meetings

Bi-monthly meetings, subject to change according to the timing of the project leader and sub leader visit to Mongolia, shall be held for discussion on the progress of the Project with Project Leader of Capital City, Head of DAAP and JICA Mongolian office.

(2) C/P-WG general assembly meetings

CP-WG general assembly meetings will be held quarterly, in order for the stakeholders of the Project to share common understandings of the Project progress and to interact among various technical areas involved in the Project.,

13. Comments by Project Leader of Capital City

Project Leader concluded the JCC meeting by expressing opinions for which Japanese side and Mongolian side discussed and agreed as follows:

(1) Application of Euro V

Project Leader requested technical advices by JET based on the result of automobile fuel survey in the Project for establishing relevant rules and regulations to introduce Euro V auto vehicle fuels to UB city based on MNS for auto vehicle fuels promulgated in May 2019. Japanese side took a note.

(2) Ongoing automobile inspection on roads from 2020

Project Leader requested the JET to support technical capacity building of Inspection Agency of Capital City (hereinafter referred to as "IACC") in executing automobile inspection on roads from 2020. JET responded that current RSD pilot project activities will accommodate such request.

(3) RSD

Project Leader requested accelerated implementation of RSD pilot project as procurement of RSD by UB city has been applied for the city budget in 2020. JET responded that current RSD pilot project fits to the procurement schedule if approved by the UB city.

(4) Pilot project of household improved fuel

Both sides agreed that combustion tests of household improved fuel will be executed according to the schedule as quickly as possible discussed in the JCC meeting. Mongolian side expressed their desire to implement field verification test as originally planned at Moringiin Davaa in January 2020 because such test can reflect real setups in Ger area household daily life and because such test will enhance public awareness of Ger community. Japanese side stated that production of household improved fuel in the pilot project will not be realized physically any time before April 2020 and that Advisor to the Prime Minister instructed the JET to avoid any field verification test involving ordinary residents in Ger area for safety concerns. JICA headquarter will not approve any field verification tests which might risk safety of ordinary citizens. Both side agreed that field verification test as proposed in the JCC meeting will be implemented.

(5) Ongoing efforts of improving insulation and thermal efficiency of Ger

Both sides agreed the importance of ventilation in the ongoing efforts of improving

insulation and thermal efficiency of Ger to decrease CO toxication risk.

(6) UB city official press conference on Monday and Thursday

Project Leader invited JET to participate in the UB city official press conference in order to provide correct information on the Project. Japanese side mentioned that the Project will not participate in the UB city official press conference and requested the Mongolian side to announce the correct relevant information in such official press conference through DAAP provided by the Project if necessary.

IV. Other issues

(1) TTT has been sending a series of letters to request assistances for its improved fuel production to JICA directly. Regarding this issue, both sides agreed the following:

(i) In the event that TTT requests assistances for its production of improved fuels to JICA, JICA is not able to assist TTT directly due to the rules of bi-lateral Official Development Assistance by the Government of Japan. Any form of assistance for TTT will be taken up through the Project;

(ii) TTT shall submit its request for assistance to DAAP when TTT needs assistances for its improved fuel production from the Project;

(iii) Head of DAAP, JET and JICA will examine viability of the assistance requested by TTT by looking at technical and project resource aspects, and will make a judgement. If necessary, JCC meeting will discuss and approve such assistance by the Project for TTT; and

(iv) The assistance for TTT will be executed in the form of technical instructions to TTT given by DAAP.

(2) In the C/P-WG meeting, Thermal Power Plant number 3 (hereinafter referred to as "TTP3") expressed necessity of additional continuous emission monitoring system (hereinafter referred to as "CEMS") for the medium pressure boilers. Japanese side advised the Mongolian side to clarify its priority regarding investments for pollution control at the thermal power plant sector in the relevant Mongolian plans so that any donor could take up such issue.

(3) Head of DAAP requested the Project to provide trainings again regarding operation, maintenance and reporting of Air Quality Monitoring Stations due to sudden leave of the trained staff. Also, he expressed coming difficulties in filling up staff positions in DAAP along with implementation of the new regulations of public servants. Japanese side requested DAAP to train new staff by utilizing officers already trained in the Phase 2. After such efforts by DAAP, the Project may identify additional training activities in the Project.

END

ANNEX I Participants of C/P-WG meeting

ANNEX II Third Joint Coordination Committee

ANNEX III Presentation of Progress Report 1 and Important Issue

ANNEX IV PDM (ver. 1.2)

ANNEX I Participants of C/P-WG meeting

The Participants of C/P-WG meeting are as follows.

	Name	Organization	Position
1	G. Gantuya	Office of the National Committee for Air Pollution Reduction	Officer
2	J. Batbayar	National Agency for Meteorology and Environment Monitoring	Head of Environmental Monitoring Division
3	B. Barkhasragchaa	Central Laboratory of Environment and Metrology	Senior officer
4	J.Enkhjin	Inspection Agency of the Capital City Division of Air Quality Control Air Pollution Reducing Department	Officer
5	B.Zolzaya	Traffic Control Center of the Ulaanbaatar City	Officer
6	S.Nyamdorj	Public Transportation Service Department of the Capital City	Officer
7	Ts.Tsolmon	Department of Against Air Pollution of the Capital City	Head of Division
8	O.Altangerel	Department of Against Air Pollution of the Capital City	Officer
9	S.Altanzul	Department of Against Air Pollution of the Capital City	Officer
10	E.Enkhbat	Thermal Power Plan-3 Technical policy Division	Engineer
11	Taizo YAMADA	JICA Headquarter	Senior Advisor
12	Itaru CHIBA	JICA Global Environment Department Environmental Management Group Environmental Management Team 1	Assistant Director
13	Makiko INAMORI	JICA Mongolia Office	Project Formulation Advisor
14.	Toru TABATA	JICA Expert Team	Leader
15.	Natsuji SAWAKI	JICA Expert Team	Vice Leader
16.	Hajime Endo	JICA Expert Team	Clean Coal Technology / Pilot Project for Improved Fuel 1

ANNEX II Participants of Joint Coordination Committee

The participants of the JCC are as follows.

	Name	Organization	Position
1	D. Munkhjargal	Ulaanbaatar City	Project Leader of the Capital City
2	G. Gantuya	Office of the National Committee for Air Pollution Reduction	Officer
3	D. Davaabayar	Ministry of Mineral and Heavy Industries	Officer
4	J. Sereeter	Ministry of Road and Transport Development	Head of Division
5	Ts. Munkhbat	Ministry of Environment and Tourism	Officer
6	Kh.Galiimbek	Department of Against Air Pollution of the Capital City	Acting Head of DAAP
7	J. Batbayar	National Agency for Meteorology and Environment Monitoring	Head of Division
8	D. Odbayar	Traffic Control Center of the Ulaanbaatar City	Head of Department
9	N. Shine- Orgil	Inspection Agency of the Capital City Division of Air Quality Control	Head of Division
10	Ts. Undral	Health Department of Capital City Division of Social Health	Officer
11	R. Amarsanaa	City Standard, Environmental Safety Control and Coordination Department	Officer
12	Ch. Altanabagana	City Standard, Environmental Safety Control and Coordination Department	Head of Division
13	G. Amartuvshin Batbold	Thermal Power Plan-3 Technical policy Division	Head of Division
14	Taizo YAMADA	JICA Headquarter	Senior Advisor
15	Itaru CHIBA	JICA Global Environment Department Environmental Management Group Environmental Management Team 1	Assistant Director
16	Erico Tamura	JICA Mongolia Office	Chief Representative
17	Makiko INAMORI	JICA Mongolia Office	Project Formulation Advisor
18	Ch. MUNKHMANLAI	JICA Mongolia Office	National Staff
19	Toru TABATA	JICA Expert Team	Vice Leader
20	Natsuji SAWAKI	JICA Expert Team	Chief Sub Group Leader
21	Hajime Endo	JICA Expert Team	Clean Coal

			Technology / Pilot Project for Improved Fuel 1
22	Misato AKATSUKA	JICA East Asia division	Officer
23	B. Munkhtuya	JICA Mongolia Office	National Staff

ANNEX III Presentation of Progress Report 1 and Important Issue

Монгол улс Улаанбаатар хотын Агаарын
бохирдлын хяналтын чадавхыг бэхжүүлэх
төсөл (3-р үе шат)
ХЗХ-ны 3 дугаар хуралдаан

2019 оны 12 дугаар сар
ЖАЙКА төслийн баг

Төслөөс бий болгохоор зорьж буй агаар орчны хяналт, удирдлагын цикл



ХЗХ-ны 3 дугаар хуралдааны
зорилго

- Төслийн явцын тайлан (Дугаар-1: 2018/11-2019/10)-ыг баталгаажуулах
- Төслийн гүйцэтгэлийн тайланг баталгаажуулах
- Төслийн хэрэгжилтэд тулгарч буй асуудалтай танилцаж, хэлэлцэж шийдвэрлэх
- Монгол талд үүссэн нөхцөлд тулгуурлан үр дүнгийн шалгуурт хамаарах ТТМ-ыг шинэчлэх



Эрхэм зорилго, төслийн зорилго

Эрхэл зорилго	Улаанбаатар хотын газрын нөлөөг сайжруулж, тойрог дэх хүнсэрхүүдээ ялгахад бичигдүүлэх болонсн ялгарах суурийг
Төслийн ворилго	Агаарын бохирдлыг бууруулах үүднээс хэрэглэж, АБТГ, Төрийн болон Нийслэлийн нөлөөлөгч бичигдүүлэх хамтын ажиллагааны тойрогдог сөрөгээрхүүд болон энэвэр, Уд хурын агаарын бохирдлыг бууруулах үүднээс хэрэглэж, хэрэглэж чаднах суурийг

Үр дүн

1	Гарантия на удостоверение личности гражданина Республики Беларусь и право вносить изменения в документацию, удостоверяющую личность
2	Удостоверение личности гражданина Республики Беларусь (далее - РБ) - kein документ, удостоверяющий личность, удостоверяющий личность гражданина РБ
3	Акт о признании гражданина Республики Беларусь гражданином Республики Беларусь, удостоверяющий личность гражданина Республики Беларусь
4	АКТ, ПОДПИСАНЫ: 1. Акт о признании гражданина Республики Беларусь гражданином Республики Беларусь, удостоверяющий личность гражданина Республики Беларусь (далее - РБ) 2. Акт о признании гражданина Республики Беларусь гражданином Республики Беларусь, удостоверяющий личность гражданина Республики Беларусь (далее - РБ)
5	Акт о признании гражданина Республики Беларусь гражданином Республики Беларусь, удостоверяющий личность гражданина Республики Беларусь (далее - РБ) 2. Акт о признании гражданина Республики Беларусь гражданином Республики Беларусь, удостоверяющий личность гражданина Республики Беларусь (далее - РБ)
6	Удостоверение личности гражданина Республики Беларусь (далее - РБ) - kein документ, удостоверяющий личность, удостоверяющий личность гражданина Республики Беларусь (далее - РБ) 2. Акт о признании гражданина Республики Беларусь гражданином Республики Беларусь, удостоверяющий личность гражданина Республики Беларусь (далее - РБ)

1. Хамтарсан Зохицуулах Хорооны хурал (ХЗХ), Нээлтийн семинар

- ❑ 2018 оны 12 сарын 10-ны өдрийн үдээс өмнө төслийн нээлтийн семинар, үдээс хойш ХЗХ-ны хурлыг тус тус зохион байгуулсан.
- ❑ ХЗХ-ны анхдугаар хурлаар ХЗХ-ны гишүүдийг томилж, ХТ-АХ-ын гишүүдийн үүрэг оролцооны хуваарилалтыг батласан. Түүнчлэн АМТТ болон ЗХУТ-ийг ХТ-АХ-ийн гишүүнээр нэмж оруулаар шийдвэрлэсэн.
- ❑ Монгол талын одоогийн нөхцөл байдалд уялдуулан “Төсөл төлөвлөлтийн матриц” хувилбар-1.1-д өөрчлөлт оруулсан.
- ❑ 2019 оны 6 сард ХЗХ-ны 2 дугаар хурлыг зохион байгуулж төслийн гүйцэтгэлийн тайлан-1-ыг баталгаажуулсан.

3.2 Үр дүн-2 Бүтэн жилийн РМ-ын бүтцийн шинжилгээ болон үнэлгээний чадавхыг сайжруулах

Хөдөлгөөний эрчмийн судалгааны байдал



Ялгарлын инвентар шинэчлэх ажлын төлөвлөгөө (төсөл)

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84. Төсвийн үнэмлэхүй үнэ												
85. Төсвийн үнэмлэхүй үнэ												
86. Төсвийн үнэмлэхүй үнэ												
87. Төсвийн үнэмлэхүй үнэ												
88. Төсвийн үнэмлэхүй үнэ												
89. Төсвийн үнэмлэхүй үнэ												
90. Төсвийн үнэмлэхүй үнэ												
91. Төсвийн үнэмлэхүй үнэ												
92. Төсвийн үнэмлэхүй үнэ												
93. Төсвийн үнэмлэхүй үнэ												
94. Төсвийн үнэмлэхүй үнэ												
95. Төсвийн үнэмлэхүй үнэ												
96. Төсвийн үнэмлэхүй үнэ												
97. Төсвийн үнэмлэхүй үнэ												
98. Төсвийн үнэмлэхүй үнэ												
99. Төсвийн үнэмлэхүй үнэ												
100. Төсвийн үнэмлэхүй үнэ												

3.2 Үр дүн-2 Бүтэн жилийн РМ-ын бүтцийн шинжилгээ болон үнэлгээний чадавхыг сайжруулах

1. Хэрэгжилтийн байдал (2018/11-2019/10)

Голлох үйцэрлэг: Эх үүсвэрийн инвенторыг шинэчлэх төлөвлөгөө боловсруулсан.

2017, 2018 оны инвентор шинэчлэл хийгдэж байна.

Солонгос улсын хөнгөлтэй эзлээр БОХЗТЛ-оос худалдан авахаар төлөвлөж буй бүтцийн шинжилгээний зориулалтай багажны талаар мэдээлэл өгсөн.

- Хөдөлгөөний эрчим, зорчих хурдны судалгаа (2019/09)

Асуулт: Өмнөх ажлын наас дараагийн ажилтан д ажил шилжүүлэлт хангалтгүй байсан учир хэмжилтийн дүн боловсруулалтын суртал, инвентор боловсруулалтын тогтоцоог бүрдүүлж шаардлагагай болсон.

2. Цаашид хэрэгжүүлж үйц (2019/11-2020/05)

- РМ-ын сорил авах төлөвлөгөө боловсруулах
- Өмнөх үйлдлийн хөдөлгөөний эрчим, зорчих хурдны судалгаа (2019/12)
- Гүйцэтгэх хурдтай байдал судалгааны багцтай (2019/12-2020/02)
- Ирээдүйн болон ВАУ (синарга) хувилбарыг тооцоолох, ялгарлын инвенторыг параметрыг тооцоолох

3.3 Загвар төслийн ажил: Үр дүн 3, 4, 5, 6



1. Хэрэгжилтийн байдал (2018/11-2019/10)

Сайжруулсан түлшний чанарыг шаталтын туршилтаар тодорхойлсон.

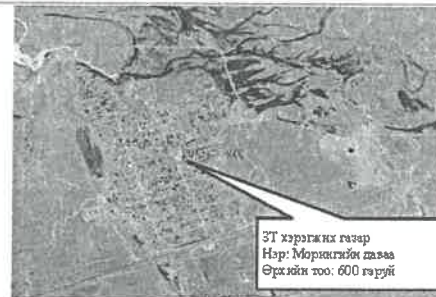
Сайжруулсан түлшний 3Т-ийг хэрэгжүүлэх газрын судалгааг зийсэн.

2. Ирэх хугаас жилд хэрэгжүүлэх ү/а (2019/11-2020/5)

- Гэр хорооллын сайжруулсан түш, зууны хэргэлзэний судалгаа
- 2021 оны 2 сард хэрэгжүүлсэн хүйн хэрэгэлзэний сайжруулсан түшлэйн загвар төсөлд ашиглас жиймэл түшлэйн судалгаа
- Хотын төвийн 13 уулзварт гэрлэн дохионы зохицуулалтыг сайжруулах ажил дэмжлэг үзүүлэ.
- Эко-жолоодлого

19

3. Төслийг хэрэгжүүлэх газар (төлөвлөж буй)



ЗТ хэрэгжих газар
Нэр: Морингийн даваа
Өрхийн тоо: 600 гаруй

22

туршилтын ажлын агуулга

1.3 Хэрэгжүүлэх газар

20

4. Эхний шатны загвар төслийн хугацааг хойшлуулах тухай

Tahap	D-1		D-2		D-3
	1	2	3	4	
1. Mengumpulkan data lapangan					
2. Data wawancara ke PPK					
3. Seleksi responden					
4. Seleksi responden yang akan diwawancarai					
5. Pengumpulan data lapangan, pengisian					
6. Analisis, wawancara dan pengisian pengisian					
7. Analisis wawancara dan pengisian pengisian					
8. Seleksi responden					
9. Pengisian wawancara dan pengisian pengisian					
10. Analisis wawancara dan pengisian pengisian					

23

2. Төслийн цар хүрээ (төсөл)

Үзүүлэлт	Агуулга
1. Айл өрхсний тоо	Гэр хорооллын 600 гаруй өрх, 1 айл нэг туух гэж тооцог
2. Түшнний хэмжээ	$\sim 3,000\text{кг} \div 7 \text{ сар} \div 30 \text{ өдөр} \approx 15\text{кг/туух} \cdot \text{өдөр} \Rightarrow 20\text{кг}$
3. Жинхмэл түшнний пээрдийгатай хэмжээ	$20\text{кг} \times 30 \text{ өдөр} \times 600 \text{ айл} \times 1\text{туух} = 360\text{тнн}$
4. Хэрэгжүүлэх хугацаа	Өмнөх хэмжилт: 12 сар, Сайж. түшнний туршилт: 1 сар, Дараах хэмжилт: 2 сард гаж төвлөвлөх
5. Хэмжилтийн өдөр	Салхигүй, цасгүй 3-аас доошгүй өдрийг сонгох
6. Хэмжилтийн өргөчлөл, хугацаа	АБТ-ын хөдөлгөөнт заруулах тасал хэрэгжих газарт байгаж, PM10, PM2.5, SO2 зэрэг агваар бохирдуулагч бодисын агууламжийг хэмжих; Хэмжилтийн цагийн хувьд тусд нь яригдаж судлах

21

судалгаа (2021 оны 2 сард төлөвлөгдөж байгаа)

① Харгас нэг эсвэл буюмассын хольцтой мэдэлснийг шахмал түлшний цээж

бэлтгэж, АБТГ-ын зуухны лабораторт шаталтыг туршилт хийнэ.

② Штаталык туршилтын дүнг сайжруулсан түлшний өсүүдэл эрхэлсэн байгууллагын талаарх өөр хэлэлцүүлээ.

② Баталгаажсан үрдүгд хүриэл дараагийн загвар төсөл эшиглана.

④ Үйлдвэрлэх тогтолцооны талаар судалгаа хийнэ.



ΔΙΕΥΘΥΝΣΗ ΠΟΛΙΤΙΚΗΣ ΕΚΔΟΣΕΩΣ

А.И.Г. info@studinfo.ru

24

4B

Illmof-8 

Анхаарал хандуулсанд баярлалаа

31

245
Dulluf-8 

Монгол улс Улаанбаатар хотын
Агаарын бохирдлын хяналтын
чадавхыг бэхжүүлэх төслийн
3 дугаар үе шат

Төслийн хэрэгжилтэд
тулгамдсан асуудал болон
ТТМ-ын үр дүнгийн шалгуур
үзүүлэлт
2019 оны 12 дугаар сар

1

1.1 ТТТүлш ХХК-наас ЖАЙКА-д
хандсан хүсэлтийн тухай

ТТТүлш ХХК-наас ЖАЙКА-д хандаж сайжруулсан түлшний
хэмжилтийн дата авах хүсэлтийн асуудлыг ЖМБ нь НАБТГ-
тай хамтран авч хэлэлцэж ЖАЙКА болон НАБТГ-аас
зөвшөөрсөн тохнолдолд НАБТГ-аас ТТТүлш ХХК-д, ЖМБ-
аас ЖАЙКА-д гаргаж өгч болно.



ТТТүлш ХХК-д хэмжилтийн дата өгөгдөл илгээх схем

4

Гарчиг

1. Төслийн хэрэгжилтэд тулгамдсан асуудал
2. ТТМ-ын үр дүнгийн шалгуурын тоон үзүүлэлт

2

1.2 Үйл ажиллагаа 5-3-ын тухай

Ү/а 5-3 Сайж/түлш үйлдвэрлэгчид үйлдвэрлэлийн
технологийг сайжруулахтай холбоотой зөвлөмжийг НАБТГ
болон ЖМБ-аас өгөх

1. НАБТГ-ын санал

- ТТТүлш ХХК-д сайж/түлшнээс ялгарах SO_2 бууруулахад чиглэсэн зөвлөгөөг НАБТГ-аас өгөхөд дэмжлэг үзүүлэх.

Урьдчилсан нөхцөл

- 1) Мэргэжлийн зөвлөгөөг өгөхдөө ЭХЯ болон холбогдох байгууллагын дэмжлэгийг авах
- 2) Сайж/түлшнийг хэрэглээнд нэвтрүүлэхэд угаарын хийний эрсдэлээс хамгаалах арга хэмжээг Монгол тал харнуцах.

5

1. Төслийн хэрэгжилтэд тулгамдсан асуудал

- 1.1 ТТТүлш ХХК-наас ЖАЙКА-д хандсан хүсэлтийн тухай
- 1.2 Үйл ажиллагаа 5-3-ын тухай
- 1.3 Сайжруулсан шахмал түлшний загвар төслийн чиглэл
- 1.4 Сайжруулсан шахмал түлшний загвар төслийн туршилтын ажлыг хойшлогдсонтой холбогдуулан төслийн төлөвлөгөөг өөрчлөх тухай
- 1.5 Монгол талын бүтцийн өөрчлөлт
- 1.6 Монгол талын боловсон хүчний нөөц
- 1.7 АТУТ-ийг ХТ-АХ-т нэмэх тухай
- 1.8 Ээлжит хурлыг зохион байгуулах тухай
- 1.9 АБЭС-ын тухай

3

1.3 Сайж/шахмал түлшний загвар төслийн
чиглэл

□ Хамрах хүрээ

• Технологийн хувьд ахуй хэрэглээнд нийцтэй сайж/шахмал түлшнийг судлаж гаргах нрэг хүртэл (Биомасс болон хагас кожсын хольцтой модлогийн шахмал гэх мэт)

• Нийлүүлэлтэд шаардлагатай асуудлыг цэгцлэх

□ Сайж/ шахмал түлшнийг сонгох шалгуурууд

• Шахмалын туршилтаар РМ, SO_2 болон CO -ын ялгарлын хэмжээ одоо ашиглаж байгаа түлштэй харьцуулж буурсан байх

• Ахуйн хэрэглээний асуулгүй байдал сайжирсан байх,

• Орчны агаар дэх РМ-ын агууламж буурсан байх,

• Хорт бодис, хүнд металлууд үүрэлтэй хор хөнөөлгүй байх,

• Эрүүл ахуйн орчны асуудалгүй байх,

□ Ахуйн хэрэглээний сайж/шахмал түлшний туршилтын ажлын чиглэл

• Оршин суугчдын бүсийг сонгож туршилтын ажлыг хэрэгжүүлэхгүй байх,

• Амралтын газрыг сонгож судалгааны баг туршилт хийхээр зохицуулалт хийх,

6

1.3 Сайж/шахмал түлшний загвар төслийн чиглэл

□ Монгол талын бодит арга хэмжээнд шилжүүлэх алхам

Загвар төслийн туршилтын ажлыг (Төсөл хариуцах)
Алхам-1: Шаталтын туршилт болон туршилтын ажлын үр дүнд тулгуурлаж сайж/шахмал түлшний хувилбар дэвшүүлэх
Алхам-2: Асуудлыг цэгцлэх (Холбогдох хууль эрх зүйн орчин болон нийлүүлэгч холбоотой асуудал гэх мэт)

Бодит арга хэмжээ (Монгол тал)
Алхам-3: Нийлүүлэгчид чиглэсэн бодит судалгаа
Алхам-4: Үйлдвэрлэлт болон түгээлт (Монгол тал)

7

1.5 Монгол талын бүтцийн өөрчлөлт

Х/Т-АХ-т орсон гишүүд төслөөс хэрэгжүүлэх үйл ажиллагаанд оролцоотой байлгахын тулд тухай байгууллагын хэрэгжүүлэх үүрэгт төслийн үйл ажиллагааг тусгаж өгөхийг хүсэж байна. Тухайн байгууллагад бүтцийн өөрчлөлт орсон тохиолдолд ч Х/Т-АХ-т орсон гишүүн төслийн ажлыг үргэлжлүүлэн хүлээцдэг байхад анхаарч өгөхийг хүсэж байна.

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1.4 Сайжруулсан шахмал түлшний загвар төслийн туршилт хойшлогдсонтой холбогдуулан төслийн төлөвлөгөөг өөрчлөх тухай

- Эхний шатны загвар төсөлд хагас коксын хольцтой мидлингийн шахмал түлшийг оруулахаар төлөвлөж байсан боловч хагас коксын нийлүүлэлт хойшлогдож мидлингийн шахмал түлш үйлдвэрлэх боломжгүй учраас загвар төслийн туршилтыг 1 жилээр хойшлуулсан.
- Загвар төсөлд ашиглах жишмэл түлш нь одоо хэрэглээнд байгаа мидлингийн шахмал түлшнээс илүү сайжруулсан байх шаардлагатай. Одоогийн байдлаар хагас кокс эсвэл биомассын хольцтой мидлингийн шахмал түлшийг судлаж байна. Биомассын хольц болгож модны үртэс, аргал, үр тарианы хаялдал, цэвэрлэх байгууламжийн лаг зэргийг судлаж байна.

8

1.6 Монгол талын боловсон хүчний нөөц

□ Инвентор-загварчлал

Монгол талын ажил хүлээлцэх явдал бүрэн хийгдэгүйгээс үүдэн Япон талаас шинэ ажилтаныг дахин сургах, байгууллагын төвшинд инвентор боловсруулахтай холбоотой бүтцийг бий болгох шаардлагатай гэж үзэж байна.

ЦУОШХ-ийн мэргэжилтнийг Х/Т-АХ-т оруулж, загварчлалын ү/а-г АБТГ, ЦУОШГ, ЦУОШХ гэсэн 3 байгууллагад хэрэгжүүлэхийг санал болгож байна.

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1.4 Сайжруулсан шахмал түлшний загвар төслийн туршилт хойшлогдсонтой холбогдуулан төслийн төлөвлөгөөг өөрчлөх тухай

□ Монгол талд тавих хүсэлт

Хүснэгт 1	Хариуцагч	Хугацаа
НАБТГ, ЖМБ нь биомасс болон хагас кокс нийлүүлэх, НАБТГ-аас ТТТүлш ХХК-д дээж бэлтгүүлэх хүсэлт, ТТТүлш ХХК нь дээжийг үйлдвэрлэх	НАБТГ, ЖМБ, ТТТүлш ХХК	2020/1
ТТТүлш ХХК-аас НАБТГ-т шаталтын туршилт хийлгэх хүсэлт гаргаж, ХУ-ны хэмжилт хийлгэх	ТТТүлш ХХК, НАБТГ, ЖМБ	2020/2
НАБТГ-аас Монгол талд хэмжилтийн дүнг танилцуулах	НАБТГ	2020/4

- Аюулгүй байдал
 - ⇒ Туршилтын ажлыг аюулгүй байдлыг хангах зорилгоор орчин суутчиггүй орчин амралтын газарт хэрэгжүүлэх
- Айл орхид тараасан угарцын газыг мэдэгдчийг судалгааны багт эзэлдэг ажлыг
- СМБ эсвэл БМБ-ны үйлдвэрлэлт, шаталтын туршилтад дэмжлэг
- Шаталтын туршилт үр дүнтэй гарсан тохиолдолд загвар төсөлд шаардлагатай жишмэл түлш үйлдвэрлэлтэд дэмжлэг

9

1.6 Монгол талын боловсон хүчний нөөц

□ УХЗ-ны хэмжилтийн 2 багийн тухай

Одоо 3 ажилтан хэмжилт хариуцаж байгаа боловч 2 баг бүрдүүлэхэд багадаа 4 ажилтантай байх шаардлагатай. Мөн Хоригбагийн автомат тоосны багажийг 3 жилд 1 удаа их засварт оруулах зардлыг төсөв суулгаж өгөх шаардлагатай байна.

□ УХЗ-ны хэмжилтийн 2 дахь багийн сургах тухай

НАБТГ бол УХЗ-ны хэмжилтийн чадвартай байгууллага. Мөн НАБТГ бие дааж 2 дахь хэмжилтийн багийг сургаж бэлтгэх нь байгууллага болоод хувь хүний чадавхыг хөгжилд ач холбогдолтой. Иймд ЖМБ нь НАБТГ-ын 2 дахь багийг сургах үйл ажиллагааны хүрээнд зөвхөн шаардлага гарсан тохиолдолд л зааварчилгаа өгдөг оролцоотой байна.

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1.6 Монгол талын боловсон хүчний хангалт

- АСХУХ-ийг ашигласан автотээврийн хэрэгслийн хаягдал утааны хэмжилт

АСХУХ багаж ашиглан хийгдэх хэмжилтийн аргачлал болон дата өгөгдөл боловсруулах технологийн тухайд НАБТГ-ын хариуцсан ажилтан өөр ажилд томилогдох, хүүхэд асарсаны амралт зэргээс үүдэн шинээр хариуцсан ажилтан нь ажил хүлээлцэж аваагүйн улмаас хэмжилтийн дата боловсруулалт хийж чадахгүй. Мөн төслийн 2 дугаар үе шатанд БОХЗТЛ-д нийлүүлэгдсэн АСХУХ багажны эзэмшил АТҮТ-д шилжсэн. Гэвч тус багажны хэмжилтийн аргачлал, дата боловсруулалтийн технологийг хараахан эзэмшээгүй. Япон талаас сургалт явуулахын тулд холбогдох байгууллагуудаас хэд хэдэн мэргэжилтэн томилж өгөхийг хүсч байна.

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1.9 АБЭС-ын тухай

- АБЭС-г татан буулгасаны дараа, тусгай санг шинэчлэн байгуулах хуулийн төслийг хэлэлцүүлж байгаа. АБЭС-ын асуудал тодорхой болвол төслийн үйл ажиллагаанд тусгах шаардлагатай. Агаарын бохирдлын эсрэг арга хэмжээ авахад зориулж хөрөнгө оруулдаг Монгол Улсын тогтвортой механизм чухал ач холбогдолтой тул Монгол Улс тогтвортой механизм бий болгохтой холбоотой мэдээллийг хуваалцаж өгөхийг хүсч байна.

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1.7 АТҮТ-ийг Х/Т-АХ-т нэмэх тухай

- БОХЗТЛ-ын эзэмшилд байсан АСХУХ-ийг АТҮТ-д шилжүүлсэн. Гэвч АТҮТ нь АСХУХ-аар хэмжилт болон хэмжилтийн дүнгийн боловсруулалтын дадал суугаагүй байна. АСХУХ-ийг ашиглах төслийн үйл ажиллагаанд АТҮТ-ийн багажийг боловсон хүчний хамт оролцуулахын тулд АТҮТ-ийг Х/Т-АХ-т нэмж оруулах саналтай байна.

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2. ТТМ-ын шалгуурын тоон үзүүлэлт (1)

ТТМ-ын хувилбар 1-1	ТТМ-ын шинэчлэл
Үр дүн-1 Шалгуур 1-1. АБТГ, НМХГ нь хаягдал утааны хэмжилтийн нэрийг бичигсэн болон хялбарчилсан аргачлалд тулгуурласан зуухны магадлан итгэмжлэх, <u>хяналт</u> <u>цагаарч</u> ажлын <u>УХЗ</u> хэрэгжүүлсэн байх.	Шалгуур 1-1. АБТГ, НМХГ нь хаягдал утааны хэмжилтийн нэрийг бичигсэн болон хялбарчилсан аргачлалд тулгуурласан зуухны магадлан итгэмжлэх, <u>хяналт</u> <u>цагаарч</u> ажлын <u>төслийн</u> <u>хэрэгжүүлэх</u> <u>хувиар</u> <u>50%</u> хэрэгжүүлсэн байх.

※Нэмэлт: Тооцоолох томьёо = (Төслийн хугацаанд стандарт аргачлалаар хэмжсэн УХЗ-ны тоо) / (ашиглалтад байгаа нийт УХЗ-ны тоо)

Жил бүр АБТГ нь нийт УХЗ-ны 20%-тай тэнцэх 60 гаруй халаалтын зууханд хийж байгаа учраас төслийн хэрэгжилтийн хугацаанд нийт УХЗ-ны 50%-д хяналт шалгалтын ажлыг хэрэгжүүлэхээр тусгав.

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1.8 Ээлжит хурлыг зохион байгуулах тухай

- Төслийн үйл ажиллагааны хэрэгжилтийн байдал, тулгамдсан асуудлыг холбогдох байгууллагуудад танилцуулж мэдээлэх зорилгоор менежментийн болон Х/Т-АХ-ийн хурлыг зохион байгуулна. Үүнд:

1. Менежментийн хүрээний хурал

Төслийн ахлагч, дэд ахлагч нарыг Монголд ирж ажиллах цаг хугацаанд тохируулж төслүүдийн удирдагч, НАБТГ-ын дарга, ЖАЙКА-ын төлөөлөгчийн газрыг хамруулан явцын тайланг танилцуулах хурал

2. Х/Т-АХ-ийн нэгдсэн хурал

Төслийн үйл ажиллагаанд холбогдолтой гишүүдийн дунд хэрэгжилтийн явц байдлыг тодорхойлох, тулгарсан асуудлыг хэлэлцэх зорилготой нэгдсэн хуралдааныг улирал бүр зохион байгуулна.

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2. ТТМ-ын шалгуурын тоон үзүүлэлт (2)

ТТМ-ын хувилбар 1-1	ТТМ-ын шинэчлэл
Үр дүн-3 Шалгуур 3-2. <u>Загвар төслийн ХХ доошгүй хэрэгжүүлэх төлөвлөгөө</u> боловсруулсан байх.	Шалгуур 3-2. <u>Загвар төслийн 3-аас доошгүй хэрэгжүүлэх төлөвлөгөө</u> боловсруулсан байх.

※Нэмэлт: Загвар төсөлд сайжруулсан түлш, гэрлэн дохионы зохицуулалтыг сайжруулах, эко-жолоодлого, RSD зэрэг үйл ажиллагааг төлөвлөж байна.

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2. ТТМ-ын шалгуурын тоон үзүүлэлт (3)

ТТМ-ын хувилбар 1.1	ТТМ-ын шинэчлэл
Үр дүн-5 Шалгуур 5-1. <u>ХТ-АХ-ээс сонгосон ХХ загвар төсөл</u> хэрэгжисэн байх	Шалгуур 5-1. <u>ХТ-АХ-ээс сонгосон 3-аас доошгүй загвар төсөл</u> хэрэгжисэн байх

※ Нэмэлт: Загвар төсөлд сайжруулсан түлш, гэрлэн дохионы зохицуулалтыг сайжруулах, эко-жолоодлого, RSD зэрэг үйл ажиллагааг төлөвлөж байна.

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Анхаарал тавьсанд баярлалаа

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2. ТТМ-ын шалгуурын тоон үзүүлэлт (4)

ТТМ-ын хувилбар 1.1	ТТМ-ын шинэчлэл
Үр дүн 6 Шалгуур 6-1. Холбогдох хууль, журам (түлшний стандарт, ялгарлын стандарт, MNS, нийслэлийн захирамж, тогтоол журам зэрэг) -ын <u>төсөл ХХ-ыг</u> боловсруулсан байх	Шалгуур 6-1. Холбогдох хууль, журам (түлшний стандарт, ялгарлын стандарт, MNS, нийслэлийн захирамж, тогтоол журам зэрэг) -ын <u>төсөл 3-аас доошгүй</u> боловсруулсан байх.

※ Нэмэлт: Ахуйн хийний аюулгүйн стандарт, сайжруулсан түлшний шаталтын туршилтын протокол (MNS), RSD-ын MNS-ээр тогтоох ялгарлын стандартыг тортогжилтын хүлцэх хэмжээ 40%-тай байх үеийн RSD-ын босго утга болон DPF-ын үр ашгийг тодорхойлох аргачлал зэргийг төлөвлөж байна.

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2. ТТМ-ын шалгуурын тоон үзүүлэлт(5)

ТТМ-ын хувилбар 1.1	ТТМ-ын шинэчлэл
Үр дүн 6 Шалгуур 6-3. Тус төслийн агаарын бохирдлыг бууруулах арга хэмжээний хэрэгжилтийг хангах хүрээнд холбогдох байгууллагын үүрэг оролцоог тодорхойлсон <u>ХХ хэлэлцээр</u> байгуулсан байх.	Шалгуур 6-3. Тус төслийн агаарын бохирдлыг бууруулах арга хэмжээний хэрэгжилтийг хангах хүрээнд холбогдох байгууллагын үүрэг оролцоог тодорхойлсон <u>3-аас доошгүй хэлэлцээр</u> байгуулсан байх.

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Project Design Matrix (PDM)

Ver.1.2
Dated: December 5, 2019

Project Title: Capacity Development Project for Air Pollution Control in Ulaanbaatar City Phase 3

Implementing Agency: Department of Against Air Pollution (DAAP) of Ulaanbaatar (UB) City, Ministry of Environment and Tourism (MET) and Counterpart Working Group (C/P-WG)

Target Group: DAAP, MET, C/P-WG and Relevant Agencies

Period of Project: November 2018 – April 2023 (4 years and six months)

Project Site: UB City

Narrative Summary		Objectively Verifiable Indicators	Means of Verification	Important Assumptions
Overall Goal Emission reduction at major emission sources is enhanced towards air quality improvement in Ulaanbaatar City.	1. XX% of emissions from major pollution sources is reduced compared with the BAU baseline.		1. Comparison between BAU and updated inventory for target year (3 to 5 years after completion of the Project)	
Project Purpose Capacity for air pollution control in Ulaanbaatar City is strengthened, paying special attentions to implementation of effective pollution control measures and to the necessary coordinating mechanism of DAAP and the relevant agencies.	1. XX of pilot projects are adopted as full scale implementation by relevant authorities. 2. XX cases of lessons learned from the pilot projects are utilized by the decision makers. 3. Relevant laws, regulations and standards on air pollution control measures are implemented in UB City. (such as XX of newly established MNS standards, XX% of achievements of existing MNS emission standards)		1. The Project reports 2. Interview survey to the relevant agencies 3. Laws, regulations, MNS standards, and ordinances of UB City	
Outputs Output 1: Capabilities of emission monitoring for the major pollution sources and of air quality monitoring are strengthened.	1-1. During the Project duration, at least 50 % of inspections for boiler registration based on emission measurements (including standard and simplified methodologies) are implemented by DAAP and IACC. 1-2. The emission measurement reports are submitted to the Deputy Governor of UB City at least 3 times during the Project period. 1-3. Emission monitoring for the major pollution sources and air quality monitoring information are shared regularly among the relevant agencies through coordination between DAAP and NAMEM. 1-4. The CEMS measurement is compared with the standard measurement once in a year. 1-5. Distribution of emission measurements from vehicles in UB City is prepared based on the study with RSD at least once a year.		1. Emission measurement reports by DAAP / IACC 2. The Project reports 3. Boiler registration database 4. Air quality monitoring monthly reports and annual reports 5. CEMS data	1. Legal and political framework for air quality management is maintained, which defines decision making mechanism such as NCEPR and professional agencies like DAAP and NAMEM.
Output 2: Capabilities to analyze and evaluate pollution structure of PM, SO ₂ , and NO _x throughout the year are strengthened.	2-1. The results of PM apportionment study are reported at least three times during the Project. 2-2. Pollution structures are assessed at least 3 times during the Project period including emission inventory, simulation model, PM speciation, receptor model, air quality monitoring and population exposure throughout the year.		1. The Project reports	
Output 3: Capabilities of technical evaluation and preparation of air pollution control measures for implementation are strengthened.	3-1. Drafts of emission measurement methods and quality standards of improved fuel for households in Ger area are submitted to MASM. 3-2. At least three of implementation plans of the pilot projects are prepared.		1. The Project reports	
Output 4: Decision making process for air pollution control is improved by utilizing the Professional agencies including DAAP, NAMEM and the relevant agencies.	4-1. Analysis of air pollution status, short-, medium- and long- term air pollution control strategies (including BAU analysis) and evaluation of air pollution control measures (including implemented and planned) are presented to decision makers at least 2 times. 4-2. Results of pilot project implementation and other Project results are utilized for the revision of NCEPR and for decision making on implementation/non-implementation of pollution control measures at least once.		1. The Project reports 2. Reports on NPREP	

Output 5: Air pollution control measures are enhanced for PM, SO ₂ and NO _x emission reduction at major sources.	5-1. At least three pilot projects selected by C/P-WG are implemented 5-2. The results of each pilot project (emission reduction, improvement of ambient air quality and population exposure for PM, SO ₂ and NO _x) are presented to the relevant agencies.	1. The Project reports	
Output 6: Legal framework, resource allocation and coordinating mechanism as a Platform for the Air Quality Management Cycle are strengthened for the Outputs 1 to 5.	6-1. At least three of drafts on laws and regulations, such as fuel regulations, MNS emission standards and ordinances of UB City, are submitted. 6-2. More than 3 pollution control measures and technologies are funded by Air Pollution Against Fund by utilizing technical appraisal guideline provided by the Project. 6-3. At least three agreements are made on demarcation of roles of the relevant agencies for air pollution control measures in the Project. 6-4. The operational guideline is distributed to relevant agencies.	1. Laws and regulations, fuel regulations, MNS emission standards and ordinances of UB City 2. Air Pollution Against Fund Operation reports 3. Official documents including UB city Governor's orders 4. Operational guideline	
Activities	Inputs		
1-1 DAAP and IACC reinforce HOB inspections based on on-site stack gas measurements. 1-1-1 DAAP and JICA Experts assess the technical transfer on-site stack gas measurement. 1-1-2 DAAP with JICA Experts re-constructs 2 teams of stack gas measurement. 1-1-3 IACC and the relevant agencies with JICA Experts implement HOB inspection, based on on-site stack gas measurement. 1-1-4 IACC with JICA Experts introduces simplified measurement method by using IACC's portable gas measurement equipment including parallel measurement with JIS method, elaboration of manuals and manufacturer's calibration. 1-1-5 DAAP and IACC with JICA Experts elaborate emission measurement reports. 1-2 TPP3 and TPP4 with JICA Experts enhance emission gas control by utilizing CEMS. 1-2-1 TPP3 and TPP4 with JICA Experts elaborate and implement CEMS operation and maintenance plan. 1-2-2 TPP3 and TPP4 with JICA Experts perform quality control of emission gas data of CEMS. 1-2-3 TPP3 with MET and the relevant agencies elaborates online emission data reporting system for the CEMS. 1-2-4 NAMEM and the relevant agencies share and evaluate CEMS emission data. 1-2-5 NAMEM complies monitoring data of emissions from TPP2, TPP3, TPP4 and new large heat supply facilities and share them with relevant agencies.	Japanese side 1. JICA experts (necessary fields) (1) Chief Advisor (2) Air Pollution Control Planning and Policy (3) Emission Measurement for Stationary Sources (4) Ambient Air Quality Monitoring (5) Ambient Air Quality Analysis (6) PM10 and PM2.5 Sampling (7) PM10 and PM2.5 Apportionment Study (8) Emission Inventory (Stationary, Mobile and Others) (9) Air Quality Simulation Modeling / Air Pollution Control Measures Evaluation (10) Auto-mobile Emission Control 1 (Traffic Signal Control) (11) Auto-mobile Emission Control 2 (RSD and others) / Emission Measurement 2 (12) Clean Coal Technology for Air Pollution Control Measures (13) CEMS Data Analysis (14) Stationary Source Emission Control	Mongolian side 1. C/P and C/P-WG (1) JCC Chairperson (2) JCC Vice-Chairperson (3) Project Director (4) Project Manager (5) Necessary C/P and C/P-WG staff according to the fields of JICA Experts 2. Facility (1) Provision of necessary office space in DAAP and MET (including internet access) (2) CLEM Laboratory Equipment (3) Storage Space for 3. Local cost (1) Counterpart expenses such as salary, allowance, travel cost and accommodation (2) Project administrative expenses	1. There are no frequent leaves, transfers or resignations of C/P and C/P-WG members. 2. Necessary coordination among UB city, districts, khoroos and communities in Ger area is secured by Mongolian side for implementation of pilot projects.
1-3 MRTD and TDCC introduce relevant regulations of vehicles based on emission measurement. 1-3-1 MRTD and TDCC with JICA Experts implement vehicle emission measurements by RSD, assess distribution of vehicles emission intensity and define target vehicles to be regulated. 1-3-2 MRPA and IACC with JICA Experts implement automobile fuel surveys. 1-4 DAAP and NAMEM with JICA Experts strengthen AQMS utilization. 1-4-1 CLEM and JICA Experts assess the current status of equipment in reference laboratory of CLEM and identify necessary actions if necessary. 1-4-2 DAAP reinforces AQMS operation and maintenance based on the plan by Phase 2. 1-4-3 DAAP with JICA Experts starts air quality monitoring at pilot project area for improved household fuels by utilizing mobile AQMS. 1-4-4 DAAP with JICA Experts reinforces the AQMS at Bayankhoshuu station. 1-4-5 DAAP and NAMEM with JICA Experts implement parallel measurement by FRM sampler for PM concentration, and implement quality control of PM measurements of AQMS. 1-4-6 DAAP and NAMEM with JICA Experts maintain the online information system of AQMS. 1-4-7 DAAP and NAMEM share real-time monitoring data with the relevant agencies through the online information system. 1-4-8 DAAP and CLEM with JICA Experts analyze air quality monitoring data and elaborate air quality monitoring reports. 1-4-9 The relevant agencies utilize air quality monitoring data.	Japanese side 1. JICA experts (necessary fields) (1) Chief Advisor (2) Air Pollution Control Planning and Policy (3) Emission Measurement for Stationary Sources (4) Ambient Air Quality Monitoring (5) Ambient Air Quality Analysis (6) PM10 and PM2.5 Sampling (7) PM10 and PM2.5 Apportionment Study (8) Emission Inventory (Stationary, Mobile and Others) (9) Air Quality Simulation Modeling / Air Pollution Control Measures Evaluation (10) Auto-mobile Emission Control 1 (Traffic Signal Control) (11) Auto-mobile Emission Control 2 (RSD and others) / Emission Measurement 2 (12) Clean Coal Technology for Air Pollution Control Measures (13) CEMS Data Analysis (14) Stationary Source Emission Control	Mongolian side 1. C/P and C/P-WG (1) JCC Chairperson (2) JCC Vice-Chairperson (3) Project Director (4) Project Manager (5) Necessary C/P and C/P-WG staff according to the fields of JICA Experts 2. Facility (1) Provision of necessary office space in DAAP and MET (including internet access) (2) CLEM Laboratory Equipment (3) Storage Space for 3. Local cost (1) Counterpart expenses such as salary, allowance, travel cost and accommodation (2) Project administrative expenses	1. There are no frequent leaves, transfers or resignations of C/P and C/P-WG members. 2. Necessary coordination among UB city, districts, khoroos and communities in Ger area is secured by Mongolian side for implementation of pilot projects.

2-1 NAMEM and JICA Experts conduct PM apportionment study based on PM speciation throughout the year. 2-1-1 CLEM and JICA Experts elaborate PM sampling plan throughout the year, and implement PM samplings. 2-1-2 JICA Experts perform PM speciation analysis in Japan. 2-1-3 NAMEM and CLEM with JICA Experts learn PM speciation technologies (on analysis, element analysis and carbon analysis). 2-1-4 NAMEM and CLEM with JICA Experts formulate equipment and laboratory plan for PM speciation. 2-1-5 DAAP and NAMEM with JICA Experts perform PM apportionment study based on receptor modeling. 2-2 DAAP and NAMEM with JICA Experts evaluate air pollution structure and health impact based on air quality simulation model and receptor model. 2-2-1 DAAP and NAMEM elaborate plans for updating emission inventory. 2-2-2 DAAP, TCC and TDCC implement studies for mobile sources including update of emission inventory, examination of traffic signal control, traffic volume and vehicle traveling speed. 2-2-3 DAAP and JICA Experts select the pilot areas and assess Ger stoves usage pattern (type and model of stoves, seasonal pattern of usage, insulation of Ger housing and coal consumption). 2-2-4 DAAP and NAMEM with JICA Experts implement studies for other emission sources as necessary. 2-2-5 DAAP and NAMEM with JICA Experts elaborate BAU (Business as usual) scenario for the future year based on TPPs future development plans, projection of number of vehicle, population, economic growth, emission regulation, fuel quality regulation and so on. 2-2-6 DAAP and NAMEM update emission inventory for the present year and the future year for the BAU scenario. 2-2-7 DAAP and NAMEM update the air quality simulation model for PM10, SO₂ and NO_x. 2-2-8 DAAP and NAMEM evaluate the air pollution structure of UB city. 2-2-9 DAAP and NAMEM evaluate indicative population exposure of PM10 based on population weighted concentration and so on. 3-1 DAAP and the relevant agencies elaborate a draft MNS on an emission measurement method of improved fuel and fuel quality, and propose it to MASM. 3-2 ME with JICA Experts elaborates safety standards on the household gas distribution. 3-3 DAAP and the relevant agencies elaborate implementation plans and terms of reference for pilot projects such as improved fuel, HOB, traffic signal control, eco-driving, RSD, smoke belching program based on portable emission device, DPF, low sulfur fuel and low emission vehicles. 4-1 DAAP and NAMEM submit to the decision makers the analysis of air pollution status, short-, medium- and long-term air pollution control strategies (including BAU analysis) and evaluation of air pollution control measures (including implemented and planned). 4-2 Relevant agencies with pilot projects elaborate technical guidelines and utilizes them. 4-3 The relevant agencies discuss and endorse the selection of pilot projects. 4-4 NCEPR and the relevant agencies approve large scale investments based on pilot projects implementation and assessment. 4-5 NCEPR utilizes the Outputs of the Projects and pilot projects implementation and assessment for operation of Anti-air Pollution Fund. 5-1 DAAP with Health Department of Capital City and the relevant agencies implements public awareness and advisory activities for citizens including school students and parents. 5-2 MET and DAAP publish progress of the Project by newsletter, newspaper articles, web-site and other medias. 5-3 DAAP and JICA Experts provide technical guidance to manufacturers for improved fuel production. 5-4 The relevant agencies with JICA Experts implement pilot projects according to the implementation plan by Activity 3-3. 5-5 The relevant agencies with JICA Experts evaluate pilot projects results in terms of emission reduction, air quality improvement and exposure to citizens, and extract lessons learned. 5-6 The relevant agencies with JICA Experts report the pilot projects results to NCEPR. 5-7 TPP3 and TPP4 analyze CEMS data, and examine viable air pollution control measures. 5-8 TPP3 and TPP4 with JICA Experts elaborate emission reduction plans.	Measures (15) Air Quality Administration (16) Public Awareness and Public Relations 2. Training (1) Local seminars and workshops (2) Training course in Japan 3. Provision of necessary equipment 4. Local cost Necessary expenses for activity of JICA Experts	Pre-conditions 1. Appropriate number of qualified staff of C/P and C/P-WG is assigned. 2. Adequate amount of budget related with the Project
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6-1 The relevant agencies discuss and elaborate written agreements on demarcation of roles in air quality management related with each Output and Activity of the Project.

6-2 DAAP with JICA Experts submits technical documents to NCEPR for improved fuel standard, emission standard on stationary sources, mobile sources and other emission sources, and revision of ordinance.

6-3 NCEPR and the relevant agencies elaborate fuel standard and emission standard, and submit them to MASM.

6-4 Relevant ministries / relevant agencies of UB city elaborate laws, regulations and ordinances on air pollution control measures, and submit them to national parliament / city council.

6-5 JICA Experts provide training on air pollution control measures for Anti-air Pollution Fund staff

6-6 Fund staff with JICA Experts improve relevant operations with funding for air pollution control measures, if necessary.

6-7 Mongolian side enhances donor coordination in air pollution control.

6-8 Relevant agencies of pilot projects with JICA Experts develop an operational guideline for elaboration, implementation and evaluation of air pollution control measures based on pilot projects implementation.

AQMS: Air Quality Monitoring Station

BAU: Business as Usual

CEMS: Continuous Emission Monitoring System

CFWH: Coal Fired Water Heater

C/P: Counterpart

C/P-WG: Counterpart Working Group

DAAP: Department of Against Air Pollution of Capital City

DPF: Diesel Particulate Filter

FRM: Federal Reference Method

HOB: Heat Only Boiler

IACC: Inspection Agency of the Capital City

MASM: Mongolian Agency for Standardization and Metrology

MET: Ministry of Environment and Tourism

MMHI: Ministry of Mining and Heavy Industry

MNS: Mongolian National Standard

MRPA: Mineral Resources and Petroleum Authority

MRTD: Ministry of Road and Transport Development

NAMEM: National Agency for Meteorology and Environment Monitoring

NCEPR: National Committee for Environment Pollution Reduction

NPREP: National Program on Reducing Environment Pollution

PM: Particulate Matter

TCC: Traffic Control Center of the Capital City

TDCC: Transportation Department of the Capital City

RSD: Remote Sensing Device

TPP: Thermal Power Plant

implementation is secured.
3. Necessary human resources mobilization related with pilot projects is secured by Mongolian side.

MINUTES OF MEETING OF
THE FOURTH JOINT COORDINATING COMMITTEE MEETING
ON JAPANESE TECHNICAL COOPERATION FOR
CAPACITY DEVELOPMENT PROJECT FOR AIR POLLUTION CONTROL IN
ULAANBAATAR CITY PHASE 3 in MONGOLIA

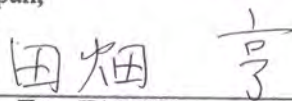
The Japan International Cooperation Agency (hereinafter referred to as "JICA") Supervisory Team for "Capacity Development Project for Air Pollution Control in Ulaanbaatar City Phase 3 in Mongolia (hereinafter referred to as "the Project"), JICA Mongolia Office, and JICA Expert Team (hereinafter referred to as "JET") had a series of online video meetings with Department of Against Air Pollution of Capital City (hereinafter referred to as "DAAP"), Ministry of Environment and Tourism (hereinafter referred to as "MET") and Joint Coordinating Committee (hereinafter referred to as "JCC") members from 12th January to 28th January 2021 to discuss the Progress Report 2, Monitoring Sheet No. 4, and held the third Counterpart Working Group (hereinafter referred to as "C/P-WG") meeting on 21st January and the fourth JCC meeting of the Project chaired by Mr. Tumurtumuu ZUNDUI on 28th January 2021. Participants list of the fourth JCC meeting is shown in Annex I.

Japanese side and the Mongolian authorities had a series of discussions. As a result of discussions, both sides agreed on matters referred to the document attached hereto.

The parties acknowledge and agree that this Minutes of Meetings may be executed by electronic signature, which is considered as an original signature for all purposes and has the same force and effect as an original signature. "Electronic signature" includes faxed versions of an original signature or electronically scanned and transmitted versions (e.g., via pdf) of an original signature.

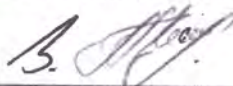
Tokyo and Ulaanbaatar, 22nd February 2021

Mr. Taizo YAMADA
Leader, JICA Supervisory Team,
Japan International Cooperation Agency,
Japan,

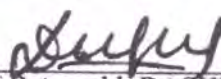


Mr. Toru TABATA
Leader, JICA Expert Team, Japan

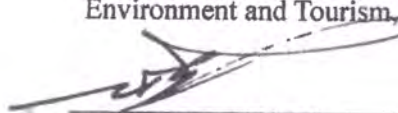
Mr. Tumurtumuu ZUNDUI
Project Leader of Capital City in
Charge of Air and Environmental
Pollution, Mongolia



Mr. Batmunkh DASHDEMBEREL
Director General
Environment and Natural Resources
Management Department, Ministry of
Environment and Tourism, Mongolia



Mr. Batkhuy IDESH
Director General
Development Financing
Department
Ministry of Finance, Mongolia



ATTACHED DOCUMENT

I. The Progress Report 2 and the Monitoring Sheet Vol. 4

JET presented the progress of the Project, future activity plan, and issues that the Project is facing since its beginning. After active discussions, the JCC approved the Progress Report 2 and the Monitoring Sheet No. 4.

II. Extension of the Project Duration

The Japanese side and the Mongolian side agreed that the Project duration should be changed from November 2018 to April 2023 (4 and half years) to November 2018 to July 2024 (5 years and 9 months).

III. Record of Discussion (hereinafter referred to as "R/D") and Amendment

The Japanese side and the Mongolian side agreed to conduct necessary revision of R/D to extend the project duration later. Based on the agreement on M/M of this JCC, JICA Headquarters and JICA Mongolia Office will start the procedure of RD revision. Draft of R/D and Amendment is attached as Annex IV.

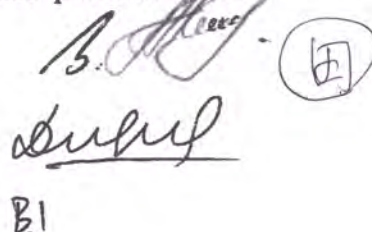
Revision of the Project Design Matrix (IV to VI)

IV. Revision of the Project Design Matrix (Objectively Verifiable Indicators, Means of Verification, Activities)

Regarding Output 6, the Air Pollution Against Fund has been abolished and revenue from the air pollution charge has been decided to be consolidated into the Environment and Climate Fund according to the amended law and the revision of the Air Law, but it is not yet functioning. The budget is spent by the related ministries to implement environmental pollution control measures, according to the implementation plan (action plan) which was approved by the board members of the National Committee for Environment Pollution Reduction (hereinafter referred to as "NCEPR"), including Vice Ministers of the related ministries, the Mayor of Ulaanbaatar City, and the Project Leader. Therefore, the Japanese side proposed to revise the description in the Project Design Matrix (hereinafter referred to as "PDM") from "Air Pollution Against Fund" to "sections of the relevant agencies in charge of allocating funds for air pollution control", and both sides agreed on the revision of the PDM. Such sections in charge of allocating funds for air pollution control, as which the secretariat of NCEPR is expected to be qualified, will be identified later, discussing with the Mongolian side. Annex II shows the changes to PDM.

1. Indicator 6-2

"6-2. More than 3 pollution control measures and technologies are funded by Air Pollution Against Fund by utilizing technical appraisal guideline provided by the

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Project.”

to be replaced by;

“6-2. More than 3 air pollution control measures and technologies are funded by the sections of the relevant agencies in charge of allocating funds for air pollution control by utilizing technical appraisal guideline provided by the Project.”

2. Means of Verification for Indicator 6-2

“Air Pollution Against Fund Operation reports”

to be replaced by;

“Minutes of meeting of NCEPR”

3. Activities

(1) Activity 4-5

“4-5 NCEPR utilizes the Outputs of the Projects and pilot projects implementation and assessment for operation of Anti-air Pollution Fund.”

to be replaced by;

“4-5 NCEPR, or the sections of the relevant agencies in charge of allocating funds for air pollution control in the Mongolian government such as the Environment and Climate Fund utilizes the Outputs of the Projects and pilot projects implementation and assessment.”

(2) Activity 6-5

“6-5 JICA Experts provide training on air pollution control measures for Anti-air Pollution Fund staff.”

to be replaced by;

“6-5 JICA Experts provide training on air pollution control measures and technical appraisal guidelines for staff of the sections of the relevant agencies in charge of allocating funds for air pollution control.”

(3) Activity 6-6

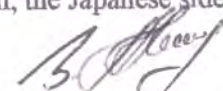
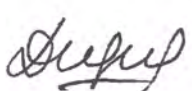
“6-6 Fund staff with JICA Experts improve relevant operations with funding for air pollution control measures, if necessary.”

to be replaced by;

“6-6 Staff of the sections of the relevant agencies in charge of allocating funds for air pollution control with JICA Experts improve relevant operations with allocating funds for air pollution control measures, if necessary.”

V. Proposal for additional Important Assumptions

Since the restriction on travel to Mongolia due to COVID-19 caused the significant delay of implementation of the project activities from its original plan, the Japanese side



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proposed the addition of Important Assumption 2 to PDM. Important Assumption 2 is: the COVID-19 pandemic situation will be improved and JICA will be able to send JICA Experts members to Mongolia toward April 2021 until the end of the Project. The Mongolian side approved it.

VI. Additional Activities

The on-board vehicle emission measurement system provided to National Agency for Meteorology and Environment Monitoring (hereinafter referred to as "NAMEM") in the Project phase 2 is no longer in use due to the absence of the person in charge. In 2019, the Ministry of Road and Transport Development (hereinafter referred to as "MRTD") requested NAMEM to transfer the system to the National Road Transport Center (hereinafter referred to as "NRTC"), which is an agency affiliated with MRTD, and the system was transferred to NRTC. In order to utilize the provided system and to conduct measurement for the pilot project, it became necessary to train NRTC staff.

The Japanese side proposed the following additional activity, and the Mongolian side agreed to add the Activity 1-3-3.

"Activity 1-3-3 JICA Experts conduct training to NRTC, in addition to DAAP, on vehicle emission measurement using on-board emission measurement system, and DAAP and NRTC implement vehicle emission measurement using on-board emission measurement system."

VII. Request from the Japanese side on the issues on the future project activities

1. Expansion of JCC member

The Japanese side and the Mongolian side agreed that "Traffic Control Center of the Ulaanbaatar City (hereinafter referred to as "TCC") is to join the JCC member.

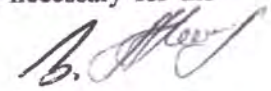
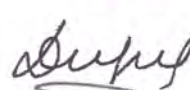
2. Expansion of C/P-WG

The Japanese side and the Mongolian side agreed that "Tavan Tolgoi Tulsh LLC" (hereinafter referred to as "TTT") is to join the CP-WG member after February 2021, through the Ministry of Energy (hereinafter referred to as "ME").

3. Providing samples of improved fuels from TTT

The samples of the improved fuels from TTT have not been provided in spite of the request from DAAP. Therefore, periodic combustion tests of the improved fuel are impossible, and JET cannot assess the status of the fuel produced by TTT. The Japanese side and the Mongolian side agreed that ME will provide the samples of the improved fuels to DAAP through TTT after February 2021 periodically.

4. Request for securing human resources and succession of duties necessary for the



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project

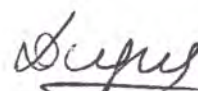
(1) Measurement of vehicle emission by the on-board emission measurement system
JET will train DAAP and NRTC staff based on the agreement in the third JCC on 5th December 2019. Regarding to this agreement, the Japanese side requested DAAP to recognize the importance of the succession of skills for emission gas measurement from the predecessors to the successors, and DAAP and NRTC to allocate at least two staffs in charge of the emission gas measurement of vehicles by April 2021. DAAP agreed on them.

(2) Japanese side requested DAAP that predecessors should transfer their skills of vehicle emission gas measurement using on-board emission measurement system to the successors when the person in charge is replaced, and DAAP agreed to it.

VIII. Requests regarding the issues and the obstacles for the pilot projects to expand to full-scale implementation by the Mongolian side

The small-scale pilot projects aim to verify the effectiveness of air pollution control measures, and the Japanese side requested the following points, which are necessary for the Mongolian side to implement full-scale project from the perspective of medium- and long-term air pollution control.

1. JET will propose technically improved fuels in the pilot project. JET indicated that the Mongolian side should clarify the roadmap to expand it to the full-scale project. JET requested that the ME should organize “the Committee for Reviewing Improved Fuel (tentative name)” by March 2021 including selecting members, where results of combustion tests in the first pilot project, a report of the pilot project, and the cost effectiveness will be discussed. The Project Leader agreed and responded that a working group would be established with the DAAP Director as the Chairman of the working group. The Mongolian side and JET agreed that the working group would be established by April 2021.
2. In the Implementation Plan of the National Program on Reducing Air and Environment Pollution, it is described as “3.3.3 Installation of Diesel Particulate Filter (hereinafter referred to as “DPF”), its regeneration system and constant service on diesel public buses”. However, this plan has not been implemented yet. JET will support to prepare the technical specification for the tender, and requested secretariat of NCEPR and MRTD to secure the budget and to prepare for the tendering (making specification) for DPF installation to public buses within 2021. Secretary General of NCEPR responded that the secretariat of NCEPR would fully cooperate in the installation of DPFs on diesel public buses.



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3. There is no legal basis to obligate the installation of DPFs on diesel vehicles in Mongolia. JET requested that the MRTD should establish the legal system by April 2023. The Secretary General of NCEPR responded that it is important to require all diesel vehicles including heavy-duty trucks, as well as public buses, to install DPFs in the future, and Secretariat of NCEPR would fully cooperate with installation of DPFs. JET will confirm the intention of MRTD regarding this request afterward.
4. The legal system such as regulations, penalties, elaboration of maintenance orders and ordinances to implement emission control using Remote Sensing Device (hereinafter referred to as "RSD") has not been established. JET requested that MRTD and the Public Transportation Service Department of the Capital City (hereinafter referred to as "PTSD") should elaborate the legal system by April 2023. JET will confirm the intention of MRTD and PTSD regarding this request afterward.
5. MRTD and the PTSD have not secured the budget to purchase at least one RSD. JET requested that MRTD and PTSD should prepare the budget to purchase at least one RSD by April 2023, in order to start RSD measurement after 2023. JET will confirm the intention of MRTD and PTSD regarding this request afterward.
6. JET requested the following issues regarding the expansion of the pilot projects to the full-scale implementation by the Mongolian side including the traffic signal control, the promotion of eco-driving, and distribution of low-sulfur fuel and low emission vehicles.

(1) Traffic Signal Control

The pilot project of traffic signal control will be completed by April 2023. JET requested that TCC should secure the budget and establish the operation system by April 2022, in order to start the traffic signal control for whole Ulaanbaatar city. JET will confirm the intention of TCC regarding this request afterward.

(2) Promotion of Eco-driving

The pilot project of eco-driving will be completed by April 2023. JET requested that MRTD and DAAP should develop legal system to oblige the public bus operators to install the equipment for driving management, and to purchase the equipment. JET will confirm the intention of MRTD and DAAP regarding this request afterward.

(3) Expansion of sales of low-sulfur fuel and low emission vehicles

JET requested that MRTD and Ministry of Mineral and Heavy Industries (hereinafter referred to as "MMHI") should develop a legal system to accommodate the use of low-sulfur fuel, importation and sales of low emission vehicles, in order to start full

scale project to expand low-sulfur fuel and low emission vehicle. MMHI responded that MMHI started legislation to expand usage of Euro 5.

IX. Project Director and Project Manager

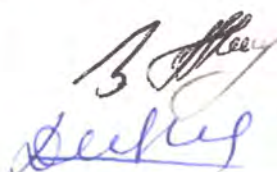
The Japanese side and Mongolian side agreed that Ms. Tsolmon, a Head of Policy Implementation Division and Deputy Director in DAAP, was assigned as acting Project Director, and a Head of the Air Quality Management Division in DAAP was assigned as acting Project Manager for the time being.

X. Coordination Rule between the Project and the relevant projects supported by other development partners such as the World Bank, the Asian Development Bank (hereinafter referred to as "ADB"), United Nations International Children's Emergency Fund (hereinafter referred to as "UNICEF") and Swiss Agency for Development Cooperation (hereinafter referred to as "SDC")

As stated in the agreement of the first JCC on 12th December 2018, the Japanese side and Mongolian side confirmed that the project director will be the focal point for coordination and collaboration between this project and related projects supported by the other development partners such as ADB, UNICEF, and SDC. Annex V shows the "Coordination Rule between the Project and the relevant projects supported by other development partners such as ADB, UNICEF and SDC". The same rule is applied to Ulaanbaatar Clean Air Project (hereinafter referred to as "UBCAP") supported by the World Bank.

XI. Other Issues

1. The Project Leader requested the Japanese side to explain details of the pilot project of improved fuel. The Japanese side responded that JET would explain it to the Project Leader later.
2. The Secretary General of NCEPR requested the following points to the Japanese side;
 - (1) The Secretary General of NCEPR requested that the Inspection Agency of Capital City and the Ecology Police Department should join to the capacity development of RSD and vehicle emission measurement using on-board emission measurement system. The Japanese side responded that Japanese side would answer in next JCC, after considering the needs and the mandates of those agencies.
 - (2) Secretariat of NCEPR regards the installation of filters to Ger stove chimneys as important for pollution control in short term in Ger area. Although the Mongolian side had already started the activity, it did not work well because Mongolian side failed to set up the filter correctly. Therefore, the secretary general of NCEPR



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requested the Japanese side to add an activity regarding filter installation to Ger chimney in the Project. The Japanese side responded that JET would assess the filter technology in question after JET could resume the travel to Mongolia. The Japanese side also mentioned that fundamental concept of JICA's measure for pollution control in Ger area are provision of improved coal based fuel usage in short term, and fuel shift from coal to gaseous or liquid fuels in long term.

3. Mr. Batbayar (NAMEM) mentioned that Sulfur reduction was becoming an important issue in Ulaanbaatar city these days, and requested to provide any report about analysis on air pollution structure to NCEPR if the Japanese side had any result of the analysis. JET responded that the analysis on air pollution structure of wintertime had done in the Phase 2 of the Project, and the activity is also included in the Phase 3 activity plan. In addition, it was mentioned that the analysis on air pollution structure was ongoing in this Project through PM component analysis and updating the emission inventory.
4. Mr. Dawaabayr (MMHI) requested the Japanese side to evaluate the difference between Euro 5 fuel and Euro 2 fuel by emission gas measurement from vehicles, since recent high concentration of sulfur in Ulaanbaatar city may be caused by vehicle emission. JET responded that on-board measurement system could measure concentration of NOx and PM, but not SOx. SOx concentration can be estimated from fuel consumption of the vehicle and sulfur content in the fuel.
5. DAAP requested the Japanese side to support connecting data of the Dambadarjaa air quality monitoring station to air quality monitoring network, since this station had not been connected online, and DAAP could not solve the issue both technically and financially. The Japanese side responded that JET would consider what kind of technical support JET could offer.
6. Mr. Barkhasragchaa (Central Laboratory of Environment and Metrology) requested to repair the equipment for calibration "SG741 (Kimoto Electric)", which was provided in the Phase 2 of the Project. The Japanese side responded that JET need to confirm the condition of the equipment at first, so JET would check the equipment and decide how to handle this issue after JET could resume the travel to Mongolia.

XII. Other comments from the Mongolian side

1. Mr. Dawaabayr (MMHI) mentioned that MMHI is starting two measures to legislate the usage of Euro 5 fuel. The first measure is revision of the Special Tax Law to reduce the difference between the sales price of Euro 2 and that of Euro 5

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by lower tax for Euro 5 fuel and higher tax for Euro 2 fuel. MMHI suppose that Euro 5 fuel will become popular when its price becomes almost the same as the current fuel. As the second measure, MMHI are proposing revision of the Air Law to related ministries in order to prohibit the usage of the fuel that doesn't meet with Euro 5 regulation in the Air Quality Improvement Areas.

JET responded that The Mongolian side's policies for fuel shift to Euro 5 would be very effective, and provision of low-sulfur fuel would lead to the Euro 5 vehicle introduction and domination, then the sulfur emission from vehicles will be reduced.

2. The Secretary General of NCEPR mentioned that;

The Secretary General of NCEPR appreciated installation of DPF and RSD in the pilot project of vehicles. NCEPR will cooperate with these pilot projects. NCEPR are also considering installation of gas fuel for domestic use in Ger area and they would like to discuss about it with the Japanese side.

XIII. Opening remarks by JCC chairperson, Mr. Tumurtumuu ZUNDUI

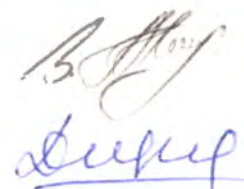
I greatly appreciate your participation today, and also appreciate JICA's cooperation until now. Mongolian side is making the most effort to reduce air pollution in Ulaanbaatar city. The progress and issues of the Project have been informed in advance, and the Mongolian side will cooperate to solve these issues. In this Project, which has been continuing for long time until Phase 3, I am aware that the most important issue is sustainability in securing staff. The Mongolian side will make efforts to secure staff as far as possible. I hope all relevant organizations will keep cooperation for smooth progress of this Project.

XIV. Conclusions by JCC chairperson, Mr. Tumurtumuu ZUNDUI

I believe that it is important for the personnel trained through the Project to keep working in their fields of responsibility. As for the impact of the turnover of trained personnel on the project activities, Mongolian side will make efforts to retain the trained personnel and to share their skills. Mongolian side is aware of all the issues facing the project and will keep discussing these issues with JET through Mr. Davaajargal, the acting Project Manager.

XV. Conclusions by leader of JICA Supervisory Team, Mr. Taizo YAMADA

JICA has been implementing this project based on an agreement between the Mongolian and Japanese governments since 2010. JICA has been cooperating with the Mongolian counterparts to develop their capacity to solve the air pollution in Ulaanbaatar city by their own hands based on scientific and technical evidences and data. The technical capacity of the C/Ps to solve various air pollution problems has improved remarkably



through Phase 1 and Phase 2 of this Project. However, from JICA's point of view, the remaining issue was that the technical capacities of these professional agencies might not be utilized for policy-making by the decision makers at higher position. In order to solve this remaining issue, this Project phase 3 aims to implement pilot projects for air pollution control, which will be developed into full-scale projects by the Mongolian side. By doing this process, I believe that the scientific and technical skills acquired by the professional agencies will help higher-level decision makers to make better decisions on policies and measures related to air pollution control and to implement more effective air pollution control measures. When this happens, I believe the blue sky will return to Ulaanbaatar city throughout the year.

END

Annex I Participants of Fourth Joint Coordination Committee

Annex II Presentation of Progress Report 2, Monitoring Sheet No. 4, Revised
Activity Plan and Important Issue

Annex III PDM (ver. 1.3)

Annex IV Draft of Record of Discussion and Amendment

Annex V Coordination Rules between the Project and the relevant projects
supported by development partners such as ADB, UNICEF and
SDC




Annex I Participants of Fourth Joint Coordination Committee

	Name	Organization	Position
1	Tumurtumuu Zundui	Ulaanbaatar City	Project Leader of Capital City in Charge of Air and Environmental Pollution
2	Batmunkh Dashdemberel	Ministry of Environment and Tourism, Environment and Natural Resources Management Department	Director General,
3	Altanzul	Secretariat of the National Committee for Air Pollution Reduction	Secretary- general
4	Ch. Chuluunbat	Ministry of Mining and Heavy Industry, Fuel Policy Department	Director General
5	D. Davaabayar	Ministry of Mining and Heavy Industry, Fuel Policy Department	Officer
6	A. Achbold	Ministry of Finance, Department of Grant Aid and Policy Development Fund Development Financing Department	Officer
7	J. Sereeter	Ministry of Road and Transport Development, Policy and Planning Department, Standard and Normative Division	Head of Division
8	D. Bolormaa	Ministry of Construction and Urban Development, division of Policy and Planning	Officer
9	J. Batbayar	National Agency for Meteorology and Environment Monitoring	Head of Division
10	B. Barkhasragchaa	Central Laboratory of Environment and Metrology	Senior officer
11	M. Munkhbayr	Mayor's office Development Policy Planning Department	Head of Division
12	Nyamdorj	Department of Public Transport service	Officer
13	Ugtakhbayar	Inspection Agency of the Capital City Division of Air Quality Control	Head of Division
14	S. Enkhtur	Traffic Planning, Coordination and Engineering Department of Capital City	Head of Division
15	Baldandorj	Governor's office Development Strategic Policy and Planning Department	Officer
16	T. Tsolmon	Department of Against Air Pollution of the Capital City	Acting Head of DAAP
17	G. Davaajargal	Department of Against Air Pollution of the Capital City, Department of Air Quality Management	Head of Department
18	G. Amartuvshin	Thermal Power Plan-3, Technical policy Division	Head of division
19	D. Lhagvadorj	Thermal Power Plan-4, Technical policy Division	Head of division
20	Taizo YAMADA	JICA Headquarter JICA Supervisory Team	Senior Advisor (Environment)
21	Hideaki MATSUOKA	JICA Global Environment Department Environmental Management Group Environmental Management Team 1 JICA Supervisory Team	Director
22	Itaru CHIBA	JICA Global Environment Department Environmental Management Group Environmental Management Team 1	Deputy Director

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		JICA Supervisory Team	
23	Eriko Tamura	JICA Mongolia Office	Chief Representative
24	Makiko INAMORI	JICA Mongolia Office	Project Formulation Advisor
25	Ch. MUNKHMANLAI	JICA Mongolia Office	National Staff
26	Toru TABATA	JICA Expert Team	Chief Advisor
27	Natsuji SAWAKI	JICA Expert Team	Sub Leader
28	Ei Edo	JICA Expert Team	Chief Sub Group Leader
29	Hajime Endo	JICA Expert Team	Clean Coal Technology / Pilot Project for Improved Fuel 1
30	Atsushi SATO	JICA Expert Team	Group Leader for Automobile
31	Shinya NAKATA	JICA Expert Team	Air Quality Simulation Model / Air Pollution Control Measures Evaluation / Emission Inventory
32	P. Ongonsar	ADB	Consultant
33	B. Mungunkhishig	UNICEF	Officer
34	Kh. Galimbek	Tavan Tolgoi Tulsh LLC	Expert
35	Tomoyuki Matsuhashi	Embassy of Japan in Mongolia	Second Secretary
36	Misato AKATSUKA	JICA East Asia Division	Officer

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Annex II Presentation of Progress Report 2, Monitoring Sheet No. 4, Revised
Activity Plan and Important Issue

Монгол улс Улаанбаатар хотын Агаарын
бохирдлын хяналтын чадавхийг бэхжүүлэх
төсөл (3 дугаар үе шат)

ХЗХ-ны 4 дүгээр хуралдаан

2021 оны 1 сар
ЖАЙКА мэргэжилтний баг

**1. Төслийн явцын тайлан
/Дугаар 2/-ын срөнхий агуулга**

ХЗХ-ны 4-р хурлын зорилго (1)

1. Төслийн явцын тайлан /Дугаар-2/ (2019.11-2020.10) бичлэх
2. Гүйцэтгэлийн тайлан /Дугаар-4-г/ бичлэх

1.1 Үрхэм зорилго, төслийн зорилго

Үр дүн

1. Төслийн үр дүнд үүсгэсэн хөрөнгийг хэрэглэхэд зориулсан төсвийн зарцуулалтын зардалтай холбоотой ажлаар
2. Үр дүнд хэрэглэхэд зориулсан хөрөнгийг хэрэглэхэд зориулсан төсвийн зарцуулалтын зардалтай холбоотой ажлаар
3. Агаарын бохирдлыг бууруулах зорилготой төслийн үр дүнд хэрэглэхэд зориулсан төсвийн зарцуулалтын зардалтай холбоотой ажлаар
4. Агаарын бохирдлыг бууруулах зорилготой төслийн үр дүнд хэрэглэхэд зориулсан төсвийн зарцуулалтын зардалтай холбоотой ажлаар
5. Үр дүнд хэрэглэхэд зориулсан хөрөнгийг хэрэглэхэд зориулсан төсвийн зарцуулалтын зардалтай холбоотой ажлаар
6. Үр дүнд хэрэглэхэд зориулсан хөрөнгийг хэрэглэхэд зориулсан төсвийн зарцуулалтын зардалтай холбоотой ажлаар

ХЗХ-ны 4-р хурлын зорилго (2)

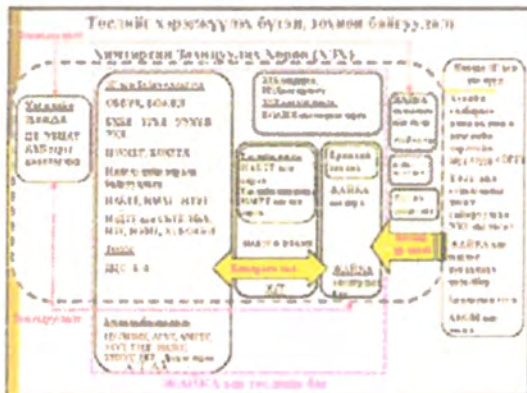
**Төслийн үр дүнд бий болгох агаар
орчны хяналтын цикл**

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чиглэл, шийдвэр] --> B[Үр дүн-2  
МЭХ-ийн үзүүлэлтийн  
харилцан үнэмлэхүй  
үр дүнгийн үнэмлэхүй]
    B --> C[Үр дүн-3  
Аб-ын дүнгийн  
харилцан үнэмлэхүй  
үр дүнгийн үнэмлэхүй]
    C --> D[Үр дүн-4  
Аб-ын дүнгийн  
харилцан үнэмлэхүй  
үр дүнгийн үнэмлэхүй]
    D --> E[Үр дүн-5  
Аб-ын дүнгийн  
харилцан үнэмлэхүй  
үр дүнгийн үнэмлэхүй]
    E --> A
  
```

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B.1





1.3. Үрдүгтийн хэрэгжилтийн явц

- КОМБІ-19 сар: тасвир төхөөтөгч 2020 оны 3 сарын 15 хошой Япон мэргэжилтний Монголд явж авч байх боломжгүй болж, 2020 оны 2 сарын дундаг ирүүл үнэ нь хэрэгсэлтэй болсон.
- 2020 оны 7 сараг хошой Япон мэргэжилтний ХТ-ийг цахим сулбарээр харилцан үнэ 2-2, үнэ 4-4-ийг хэрэгсэлтэй байв.
- КОМБІ-19 сар: тасвир төхөөтөгч байсан сайнхор, 2021 оны 4 сараг тасвир бүтээх хугацаа хүртэл Монголд ажиллах боломжгүй байхад бүх үйл ажиллагааг өөрчлөлт оруулсан.

12. Хамтарсан Зохицуулах Хорооны дүрэл (ХЗХ),
нээгтийн самбар

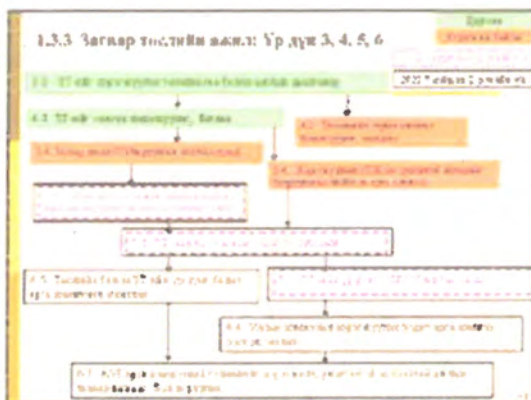
- 2019 оны 12 сарын 3-ны өдөр ХТ-АН-ийн 3-р хуралдаан, 2019 оны 12 сарын 5-ны өдөр ХХХ-ийн 3-р хуралдааныг тус бүр зохион байгуулсан
- ХХХ-ийн 3-р хуралдаанаар
 1. Үр дүнгийн нийтлүүр үзүүлэлтүүдийг баталж, ТТМ-ыг нийлэгтсөн. Хувиар 1.2;
 2. Азүйн хэргийн тэнийг сайжруулсан ниймэл түрлийн цагвар төслийн үр дүнг баталгаажуулах ажлыг 1 жил өр хойшлуулсан



1.2. Хүхтэрчин Зохицуулах Хорооны хурал
(ХХХ), иргэдийн сөмнөөр

3. АТФТ, МРСОМН-е ХТ-АК-ийн талуудыг
нэмж дэлгэвч
4. Мэргэж талууд ЦВОНГ, НАБГ-г ажлуулсны
ажлын үр дүнгүүд, тархалтын загварыг
боловсруулж, НАБГ, АТФТ-а АСМН-ын
хувьд, дана боловсруулж аргачлалт яаж сууцан
хүснэгт гаргаж, нийт талын жарганыг мэдэгдэж
тооц нэмж дуусж мэдэгдэж байх тохиромжтой



[illegible]

Монгол улс Улаанбаатар хотын агаарын бохирдлын хяналтын чадварыг бэхжүүлэх төсөл (3 дугаар үе шат)

Цаанцрын төлөвлөгөө

2021 оны 1 сар
ЖАЙХА төсвийн жил

3.1 Үйл ажиллагааны төлөвлөгөө (1)

□ COVID-19 цар таслын нөлөөгөөр хяналтын төлөвлөгөөн хоцрогдсон тул 2023 оны 4 сар хүртэл төсвийн үр дүн, шалгуурыг хангах боломжгүй гэж үзэж, төсвийн хугацааг 2024 оны 7 сар хүртэл сунгасан байдалар ажлын төлөвлөгөөг өөрчилсөн. 2021 оны 4 сараас жилийн хорио цэцэгдэхгүй төхөөрөлдөлд ажлын төлөвлөгөөг дахин өөрчлөх шаардлагатай болно.

Төрөл	Төлөвлөгөөний үйл ажиллагаа	Төлөвлөгөөний үйл ажиллагааны үр дүн	Төлөвлөгөөний үйл ажиллагааны үр дүн
Төлөвлөгөөний үйл ажиллагаа	Төлөвлөгөөний үйл ажиллагаа	Төлөвлөгөөний үйл ажиллагааны үр дүн	Төлөвлөгөөний үйл ажиллагааны үр дүн
Төлөвлөгөөний үйл ажиллагаа	Төлөвлөгөөний үйл ажиллагаа	Төлөвлөгөөний үйл ажиллагааны үр дүн	Төлөвлөгөөний үйл ажиллагааны үр дүн

ХЗХ-ны 4-р хурлын зорилго (1)

5 Цаанцрын үйл ажиллагааны төлөвлөгөөг батлах (Явцын төлөвлөгөө)

3.1 Үйл ажиллагааны төлөвлөгөө (2)

□ Цаанцрын хэлбэрээр хариуцаж, хэрэгжүүлэх боломжтой:

Үйл ажиллагаа 3.1.1 Агаар орчныг туслахын зорилготой үйл ажиллагааг хэрэгжүүлэх. Мөдөл, шинэ технологийн агаарын бохирдлын бүтэц, орчныг үнэмлэх.

Үйл ажиллагаа 3.1.2 Сайн дурын иргэдийн хамруулалтын үйл ажиллагааг зохион байгуулахад зориулах.

Үйл ажиллагаа 3.1.3 Зогсоо төсвийн бэлтгэл хангах зорилго.

2020 оны 10 сараас эхлэн, 2021 оны 5 сар хүртэл үргэлжилнэ.

Тусад үйл ажиллагааг мэдсэн хорио цэцэгдэхэд дараа үргэлжлүүлнэ.

ХЗХ-ны 4-р хурлын зорилго (2)

3.2 Үйл ажиллагаа 3.1-PM хийгчийн нийрлэлийн шийдэмгийлэлд тулгуурласнаар үйл ажиллагааг нөхөн, жилийн дүн шийдэмгийлэлд

1.1 PM-ийн үйл ажиллагааг зохион байгуулах зорилго

1. Духам: урьдчилан сэргийлэх, өмнөд бүсэд урьдчилан сэргийлэх зорилготой.

2. Төлөвлөгөөг бүтэцтэйгээр туршид сөрөг ачаа, урьдчилан сэргийлэх зорилготой.

1.2 Хэрэгжүүлэх зорилго

Төсвийн 1-р үйл ажиллагаа 1-ийн 1-р үйл ажиллагаа 1-ийн PM-ийн үйл ажиллагааг зохион байгуулах зорилготой. 2020 оны 3 сараас эхлэн, 2021 оны 4 сараас PM-ийн үйл ажиллагааг зохион байгуулах зорилготой. 2020 оны 4 сараас эхлэн, 2021 оны 5 сараас PM-ийн үйл ажиллагааг зохион байгуулах зорилготой. 2020 оны 5 сараас эхлэн, 2021 оны 6 сараас PM-ийн үйл ажиллагааг зохион байгуулах зорилготой.

Төрөл	Төлөвлөгөөний үйл ажиллагаа	Төлөвлөгөөний үйл ажиллагааны үр дүн	Төлөвлөгөөний үйл ажиллагааны үр дүн
Төлөвлөгөөний үйл ажиллагаа	Төлөвлөгөөний үйл ажиллагаа	Төлөвлөгөөний үйл ажиллагааны үр дүн	Төлөвлөгөөний үйл ажиллагааны үр дүн
Төлөвлөгөөний үйл ажиллагаа	Төлөвлөгөөний үйл ажиллагаа	Төлөвлөгөөний үйл ажиллагааны үр дүн	Төлөвлөгөөний үйл ажиллагааны үр дүн

Б.1

Б.1

Б.1

[illegible]

19. ԿՈՑԻՆՆ-19 արտադրող ընկերությունը իր արտադրվող
 ԷՔՐԱԿԵԿԵԿ ԹԻՓՆԵՐՆԵՐ ԸՆԴՈՒՄ ԽՈՒՄՈՒ ԸՆԴՈՒՄԱՆ ԱՄԵՐԻԿԱ
 ԷՔՐԱԿԵԿ ՍՏԱՆԴԱՐԴԱՆՈՒՄԸ:

[illegible]

Анхаарал тавьсангү баярлалаа

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
3	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
4	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
5	1	2	3	4	5	6																																																																																														



Монгол улс Уливинбатыр хотын газрын
бохирдлын хөгжлийн чадавхийг бэхжүүлэх
төсөл (3 дугаар үе шат)

Тулгарч буй асуудал, ТТМ, үр дүнгийн
шалгуур үзүүлэлтийг өөрчлөх тухай

2021 оны 1 сар

4. Төсөл хэрэгжих хугацааг сунгах санал

Төсөл 2018 оны 11 сараас эхлэн
Дуусах хугацаа 2022 оны 4 с. дунд (нийт 4.5
жилаа байсан) 2024 оны 7 сар хүртэл бөглөх, 9
сард сунгах санал гаргаж байна.

ХЗХ-ны 4-р хурлын зорилго (1)

4. Төсөл хэрэгжих хугацааг сунгах санал
5. Төслийн баримт бичиг (Record of Discussion)-ийг шинэчлэх шаардлага
6. Тулгарч буй асуудал, ХЗХ-ны хурлаар хэлэлцэх туйл
 - 6.1 Асуудал, холбогдох хүсэлт
 - 6.2 Загвар төслийг бодит арга хэмжээ болгох, холбогдох асуудал, шинэчлэх хүсэлт

5. Төслийн баримт бичиг (RD)-ийг шинэчлэх шаардлага

ХЗХ-ны хурлаар төслийн хугацааг сунгасан тогтоолол Төслийн баримт бичиг (Record of Discussion)-т өөрчлөлт оруулах шаардлагатай. Төслийн баримт бичигт оруулах өөрчлөлтийн тухай энэ удаатгийн ХЗХ-ны хурлын протоколд тусгаар тогтнолоонд тулгуурлаж ЖАЙКА-ын төлөөлөгчийн газар харинун Япон босон Монгол гэдэг төслийн баримт бичигт гарын үсэг зурж баталгаажуулна.

ХЗХ-ны 4-р хурлын зорилго (2)

- 6.3 Автоматтай холбоотой талар төслийг бодит арга хэмжээ болгох, шинэчлэх асуудал
- 7 Япон, монгол гэдэг харинун тогтоолох туйл
 - 7.1 ТТМ-ын үр дүнгийн шалгуур үзүүлэлт, үйл ажиллагаанд өөрчлөлт оруулах санал
 - 7.2 Төсөлд нөлөөлөх гадаад хүчин туйлст нэмэлт оруулах санал
 - 7.3 ТТМ-ын үйл ажиллагаа нэмэх санал
8. Төслийн дарга, төслийн менежерийг тогтоох тухай санал
9. Холбооны байгууллагуудтай хамтран, уялдаатай ажиллах талар

6. Тулгарч буй асуудал, хэлэлцэх туйл 6.1 Асуудал, холбогдох хүсэлт (1)

Асуудал	Хүсэлт
ТТТ хөгжлийн байгуулсан төслийн хугацааг сунгах шаардлага	ХЗХ-ны хурлаар шийдвэр гаргаж, ХЗХ-аар дэмжүүлэн ТТТ төслийн үйл ажиллагааны талар төслийг, төслийн ХТ-АХ-т нэмж оруулах боломжийг дүрдүүлж 2021 оны 2 сараас хойш
ТТТ сайжруулсан төслийн хугацааг сунгах шаардлага	2021 оны 2 сараас хойш ХЗХ-ны хурлаар шийдвэр гаргаж, ХЗХ-аар дэмжүүлэн ТТТ төслийн үйл ажиллагааны талар төслийг, төслийн ХТ-АХ-т нэмж оруулах боломжийг дүрдүүлж 2021 оны 2 сараас хойш

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6.1 Асуудал, холбогдох хүсэлт(2)

Агуулга	Хүснэ
Түрэмжлөхтөй эсвэл дутаа, зогсоо, алтны сайжруулах зориуд 15ийг зориулж ЗХУТ нь голчлон үүргийн эрэлцэх шаардлагатай.	ЗХУТ-ийг ХХХ-ийг гишүүнээр нэмж оруулан, цаашин ХХХ-ыг хурат хэлэлцүүртэйг эрэлцэх.

6.2. Загвар төслөөс бадит арга хэмжээ болгох
Асуудал, холбогдох хүсэлт(1)

Асуудал	Нүсхэ
Затвар төслөрө төсвийн албан хаагчид дэвшилтийг хийхээрүүлсэн хүснэгт түлээнийг туршиж синал болгохыг Монгол тэд хүлээн авч, богиносгор хэрэгжүүлэх боломжтой эсэх	ЭХЯ нь затвар төслөд ашигласнаас түлээнийг ашигласнаас үүсжээ утасны хэвдэ хэрэгжүүлсэн түлэ, төсвийн үр дүнгүйг тайллан тарвал да үр нийгмийг хэрэгжүүл хэл ашигласнаас ашиггүй байгуулж, түлэ үүднийг синал синал (2021 оны 8 сардас өмнө)

6.1 Асуудал, холбогдох хүсэлт(3)

Асуулцаж	Хариулт
НАБТ-ын хэрлэгчөөр тух үүсвэр хариуцажээ мэрэгшвидлээр АСХУХ-ийг шинэчилсэн хайгуул утаснаа хэрэглэсэн тухай мэдээлэл чиглэснээр эрхлүүхсэн бэлдсэн өөр ажлын шалгах, түүнээр тооцогдсон ашигтайд таныг суртал ажил хийгдээгүй тул бие дааш хэлэлцээт хойно бодожгүйг бэлдэн	НАБТ нь цаашд хариуцажээ мэрэгшвидлээр өөрчлөгдөх тохиолдлыг түүнэр хариуцаж дараахд нь хуулиг хариуцаж тух, таныг суртал ажил үүрэг бэлдэх, хариуцаж

6.2 Загвар төслөөс бодит арга хэмжээ бэлтгэх

Ազգային	Քաղաք
Կրթության հատված՝ 434 Higgleին տարրիկն արվել առնչությանը ցույց տալով սկսելով DPF, Կրթական լեզվաբանական տեսակետով հարմարացված, նվազեցնում լինի արդեն 40%: Իր հնգյունը և արհեստական լեզվին	Կրթության հատվածի տեղերի տեսակետից Կրթական ծրագրերը, արվելով արհեստ լեզվով, արհեստական  2021 թվ. ՀՀԿԿ, ՀՀԿԿ-ն նշում է, որ Կրթական ԿԿ-ի ցույցերը արհեստ առնչությանը ցույց տալով, տեսակետով, արհեստական

† ၂၀၀၀-၀၈-၆ ရက်နေ့တွင် ကွယ်လွန်သည်။

6.1 Асуудал, холбогдох хүсэлт(4)

Агууд	Хүснэ
ХЭХ-ны 4-р хуралдаанаар 2019.12.05 мөнгөн тэмдэгт гаргах нь хүснэгтлэн дунгуу НАБТ, АТҮТ, д.АСХУХ-ийг шингитгэсэн хянгат утганы хэмжээтэйгн төсөвөгдөн чадваргүй гэжүүлжээр болсон үз бодог хүдэтэн харьан байгуулагчуудын харьцах маргажигтнуудийг төмөрлөгчд байн	ХЭХ-ны хуралдаанаар төмөрлөгчд дунгуу: - НАБТ нь харьцах хэмжээтгн чадварлуулхад өнөрлөгчд мөсрэх - 2021 оны 4 сар гэхэд АТҮТ, НАБТ нь хянгат утганы хэмжээтгн харьдхх 2-оос дээш мөргөжигтгн тэмцэх хэмжүүлэх

6.2. Загвар төслөөс бодит арга хэмжээ болгох
Асуудал, холбогдох хүснэгт(3)

Асуудал	Хүснэгт
Монголд дотоод хөдөлгөөнтэй ТХ-д PDF суурилуулж, үүрэг бэлтгэсэн тогтоол, журам бэлтгүүлж, хяналтын гэрээгээ бүхэлдээ гүй.	ЗТХЯ-наас журам зөх гүйн эрчим нэмэгдэж бүрдүүлжээ. (2023 оны 4 сар)

B.1

7.1 ТТМ үр дүнгийн шатнуур үзүүлэлт, үйл ажиллагааны агуулгыг өөрчлөх санал (5)

Үр дүн-6 шатнуур үзүүлэлт-2-ыг хялгах биеэлтийн нөөцийг өөрчлөх

ТТМ Агуулгын 1.2	ТТМ-д оруулах өөрчлөлтний санал
АБЭС-ийн талын	ОББҮХ-ийн хуралын үр дүнд

7.1 ТТМ үр дүнгийн шатнуур үзүүлэлт, үйл ажиллагааны агуулгыг өөрчлөх санал (8)

ТТМ Агуулгын 1.2 ТТМ-д оруулах өөрчлөлтний санал

Үйл ажиллагаа 6.6 ЖАЙКА мөргөжлөлтөн нь АБЭС-ийн талын бодолыг бууруулах арга хэмжээний төсвийн бөртөт бичиг бүрэлдэх процедурыг сайжруулах чиглэлээр шаардлагатай гэж үнэлэж дэмжлэг үзүүлэх	Үйл ажиллагаа 6.6 ЖАЙКА мөргөжлөлтөн нь агаарын бохирдлыг бууруулах арга хэмжээний чиглэлээр хүмүүжилтэй хариуцах талар хүмүүжилтэй хариуцах талар хүмүүжилтэй хариуцах талар хүмүүжилтэй хариуцах талар хүмүүжилтэй хариуцах талар хүмүүжилтэй хариуцах талар
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7.1 ТТМ үр дүнгийн шатнуур үзүүлэлт, үйл ажиллагааны агуулгыг өөрчлөх санал (6)

ТТМ Агуулгын 1.2 ТТМ-д оруулах өөрчлөлтний санал

Үйл ажиллагаа 4.5 ОББҮХ нь АБЭС-ийн хүмүүжилтэй хариуцах талар бөртөт бичиг бүрэлдэх процедурыг сайжруулах чиглэлээр шаардлагатай гэж үнэлэж дэмжлэг үзүүлэх	Үйл ажиллагаа 4.5 ОББҮХ нь АБЭС-ийн хүмүүжилтэй хариуцах талар бөртөт бичиг бүрэлдэх процедурыг сайжруулах чиглэлээр шаардлагатай гэж үнэлэж дэмжлэг үзүүлэх
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7.2 ТТМ-ын гадаад хүчин зүйлс нэмж оруулах санал

КОВИД-19 хамгийн хэрмэлс уламжлалт ажиллагаа болохгүй, үйл ажиллагааны хэрмэлс хайлжидоор байна

ТТМ Агуулгын 1.2 ТТМ-д оруулах өөрчлөлтний санал

1. ОББҮХ мөргөжлөлтөн нь АБЭС-ийн талын бодолыг бууруулах арга хэмжээний төсвийн бөртөт бичиг бүрэлдэх процедурыг сайжруулах чиглэлээр шаардлагатай гэж үнэлэж дэмжлэг үзүүлэх	1. АБЭС-ийн талын бодолыг бууруулах арга хэмжээний төсвийн бөртөт бичиг бүрэлдэх процедурыг сайжруулах чиглэлээр шаардлагатай гэж үнэлэж дэмжлэг үзүүлэх
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7.1 ТТМ үр дүнгийн шатнуур үзүүлэлт, үйл ажиллагааны агуулгыг өөрчлөх санал (7)

ТТМ Агуулгын 1.2 ТТМ-д оруулах өөрчлөлтний санал

Үйл ажиллагаа 6.5 ЖАЙКА мөргөжлөлтөн нь АБЭС-ийн талын бодолыг бууруулах арга хэмжээний төсвийн бөртөт бичиг бүрэлдэх процедурыг сайжруулах чиглэлээр шаардлагатай гэж үнэлэж дэмжлэг үзүүлэх	Үйл ажиллагаа 6.5 ЖАЙКА мөргөжлөлтөн нь агаарын бохирдлыг бууруулах арга хэмжээний чиглэлээр хүмүүжилтэй хариуцах талар хүмүүжилтэй хариуцах талар хүмүүжилтэй хариуцах талар хүмүүжилтэй хариуцах талар хүмүүжилтэй хариуцах талар
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7.3 ТТМ-д шинээр оруулах үйл ажиллагаа (1)

Төслийн 2-р үе шатанд ЦУОНИГ-т нийтүүлсэн АСХУХ-ийн хариуцсан мөргөжлөлтөн байхгүйн улмаас ашиглахгүй байсан тул 2019 онд ЗТХЯ-наас салбарын хэмжээнд байгууллагад АСХУХ-ийг ашиглах хэрэгт гаргасны дагуу АТҮТ-д хүргэж өгнө.

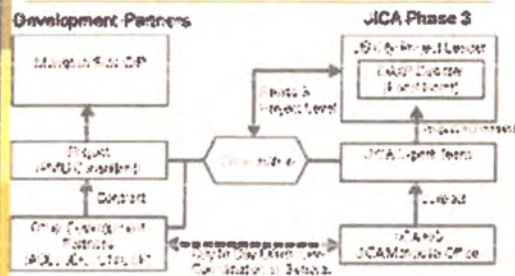
Тус төхөөрөмжийг үр дүнтэй ашиглах, загвар төслийн хэмжээнд хийхэд АТҮТ-ийн боловсон хүчнийг сурих шаардлагатай байна.

7.3 ТТМ-д шинээр оруулах үйл: ажиллагаа (2)

ТТМ Хувилбар 1.2	ТТМ д оруулах өөрчлөлтөөн саяах
Үйл ажиллагаа 1-3-3 Байгуулалт	Үйл ажиллагаа 1-3-3 ЖАНКА мөнгөтэйгээр нь НАБТ- онон АТУТ-а АСХУХ ажиллагаа завчгаж, үүсгэнэ, хэмжээний эргэлтээс хэж, НАБТ, АТУТ нь хөгжлийн хэмжээтэй хийх.

ЖАНКА байгууллага нь НАБТ-ны хөгжлийн хэмжээтэй хийх, үүсгэнэ, хэмжээний эргэлтээс хэж, НАБТ, АТУТ нь хөгжлийн хэмжээтэй хийх.

9 Хандлагач байгууллагатай хамтран уялдаатай ажиллах (2)



8. Төслийн дарга, төслийн менежерийг томилох тухай санал

НАБТ-ын дарга шинээр төсөлчлөхөд улаагүй байгаа учраас төслийн даргаар НАБТ-ын БТХ-ийн дарга, дэд дарга Цовинс, төслийн менежерээр АЧХ-ын хэлтсийн даргаг тус бүр томилох тухай санал болгосон байна.

Алжаарал тааьсанг баярлалаг

9 Хандлагач байгууллагатай хамтран уялдаатай ажиллах (1)

ХЭХ-ны асудгаар хуралдааны үеэр харицдан тохиролцсоны дагуу тус төсөл нь ДБ-ны "Цөөр агаар төсөл", бусад хандлагач байгууллагын хамтбодох төсөлтэй хамтарч уялдаатай ажиллахад НАБТ-ын дарга томиж үүрэгтэй гүйцэтгэх ажиллах.

Project Design Matrix (PDM)

Ver.1.3

Dated: January 28, 2021

Project Title: Capacity Development Project for Air Pollution Control in Ulaanbaatar City Phase 3
Implementing Agency: Air Pollution Reduction Department (DAAP) of Ulaanbaatar (UB) City, Ministry of Environment and Tourism (MET) and Counterpart Working Group (C/P-WG)
Target Group: DAAP, MET, C/P-WG and Relevant Agencies
Duration of the Project: November 2018 – July 2024 (5 years and 9 months)
Project Site: UB City

Narrative Summary		Objectively Verifiable Indicators	Means of Verification	Important Assumptions
Overall Goal Emission reduction at major emission sources is enhanced towards air quality improvement in Ulaanbaatar City	1. XX% of emissions from major pollution sources is reduced compared with the BAU baseline.	1. XX% of pilot projects are adopted as full scale implementation by relevant authorities. 2. XX cases of lessons learned from the pilot projects are utilized by the decision makers. 3. Relevant laws, regulations and standards on air pollution control measures are implemented in UB City. (such as XX of newly established MNS standards, XX% of achievements of existing MNS emission standards)	1. Comparison between BAU and updated inventory for target year (3 to 5 years after completion of the Project)	
Project Purpose Capacity for air pollution control in Ulaanbaatar City is strengthened, paying special attentions to implementation of effective pollution control measures and to the necessary coordinating mechanism of DAAP and the relevant agencies.	1. XX of pilot projects are adopted as full scale implementation by relevant authorities. 2. XX cases of lessons learned from the pilot projects are utilized by the decision makers. 3. Relevant laws, regulations and standards on air pollution control measures are implemented in UB City. (such as XX of newly established MNS standards, XX% of achievements of existing MNS emission standards)	1. XX of pilot projects are adopted as full scale implementation by relevant authorities. 2. XX cases of lessons learned from the pilot projects are utilized by the decision makers. 3. Relevant laws, regulations and standards on air pollution control measures are implemented in UB City. (such as XX of newly established MNS standards, XX% of achievements of existing MNS emission standards)	1. The Project reports 2. Interview survey to the relevant agencies 3. Laws, regulations, MNS standards, and ordinances of UB City	
Outputs				
Output 1: Capabilities of emission monitoring for the major pollution sources and of air quality monitoring are strengthened.	1-1. During the Project duration, at least 50 % of inspections for boiler registration based on emission measurements (including standard and simplified methodologies) are implemented by DAAP and IACC. 1-2. The emission measurement reports are submitted to the Deputy Governor of UB City at least 3 times during the Project duration. 1-3. Emission monitoring for the major pollution sources and air quality monitoring information are shared regularly among the relevant agencies through coordination between DAAP and NAMEM. 1-4. The CEMS measurement is compared with the standard measurement once in a year. 1-5. Distribution of emission measurements from vehicles in UB City is prepared based on the study with RSD at least once a year.	1. During the Project duration, at least 50 % of inspections for boiler registration based on emission measurements (including standard and simplified methodologies) are implemented by DAAP and IACC. 2. The emission measurement reports are submitted to the Deputy Governor of UB City at least 3 times during the Project duration. 3. Emission monitoring for the major pollution sources and air quality monitoring information are shared regularly among the relevant agencies through coordination between DAAP and NAMEM. 4. The CEMS measurement is compared with the standard measurement once in a year. 5. Distribution of emission measurements from vehicles in UB City is prepared based on the study with RSD at least once a year.	1. Emission measurement reports by DAAP / IACC 2. The Project reports 3. Boiler registration database 4. Air quality monitoring monthly reports and annual reports 5. CEMS data	1. Legal and political framework for air quality management is maintained, which defines decision making mechanism such as NCEPR and professional agencies like DAAP and NAMEM. 2. The COVID-19 pandemic situation will be improved and JICA will be able to send JICA Experts to Mongolia toward April 2021 until the end of the Project
Output 2: Capabilities to analyze and evaluate pollution structure of PM, SO ₂ and NO _x throughout the year are strengthened.	2-1. The results of PM apportionment study are reported at least three times during the Project. 2-2. Pollution structures are assessed at least 3 times during the Project duration including emission inventory, simulation model, PM specification, receptor model, air quality monitoring and population exposure throughout the year.	2-1. The results of PM apportionment study are reported at least three times during the Project. 2-2. Pollution structures are assessed at least 3 times during the Project duration including emission inventory, simulation model, PM specification, receptor model, air quality monitoring and population exposure throughout the year.	1. The Project reports	
Output 3: Capabilities of technical evaluation and preparation of air pollution control measures for implementation are strengthened.	3-1. Drafts of emission measurement methods and quality standards of improved fuel for households in Ger area are submitted to MASAM. 3-2. At least three of implementation plans of the pilot projects are prepared.	3-1. Drafts of emission measurement methods and quality standards of improved fuel for households in Ger area are submitted to MASAM. 3-2. At least three of implementation plans of the pilot projects are prepared.	1. The Project reports	
Output 4: Decision making process for air pollution control is improved by utilizing the Professional agencies including DAAP, NAMEM and the relevant agencies.	4-1. Analysis of air pollution status, short-, medium- and long- term air pollution control strategies (including BAU analysis) and evaluation of air pollution control measures (including implemented and planned) are presented to decision makers at least 2 times. 4-2. Results of pilot project implementation and other Project results are utilized for the revision of NCEPR and for decision making on implementation/non-implementation of pollution control measures at least once.	4-1. Analysis of air pollution status, short-, medium- and long- term air pollution control strategies (including BAU analysis) and evaluation of air pollution control measures (including implemented and planned) are presented to decision makers at least 2 times. 4-2. Results of pilot project implementation and other Project results are utilized for the revision of NCEPR and for decision making on implementation/non-implementation of pollution control measures at least once.	1. The Project reports 2. Reports on NPREP	

Output 5: Air pollution control measures are enhanced for PM, SO ₂ and NO _x emission reduction at major sources.	5-1. At least three pilot projects selected by C/P-WG are implemented 5-2. The results of each pilot project (emission reduction, improvement of ambient air quality and population exposure for PM, SO ₂ and NO _x) are presented to the relevant agencies.	1. The Project reports	
Output 6: Legal framework, resource allocation and coordinating mechanism as a Platform for the Air Quality Management Cycle are strengthened for the Outputs 1 to 5.	6-1. At least three of drafts on laws and regulations, such as fuel regulations, MNS emission standards and ordinances of UB City, are submitted. 6-2. More than 3 air pollution control measures and technologies are funded by the sections of the relevant agencies in charge of allocating funds for air pollution control by utilizing technical appraisal guideline provided by the Project. 6-3. At least three agreements are made on demarcation of roles of the relevant agencies for air pollution control measures in the Project. 6-4. The operational guideline is distributed to relevant agencies.	1. Laws and regulations, fuel regulations, MNS emission standards and ordinances of UB City 2. Minutes of Meeting of NCEPR 3. Official documents including UB city Governor's orders 4. Operational guideline	
Activities			
1-1 DAAP and IACC reinforce HOB inspections based on on-site stack gas measurements. 1-1-1 DAAP and JICA Experts assess the technical transfer on-site stack gas measurement. 1-1-2 DAAP with JICA Experts re-constructs 2 teams of stack gas measurement. 1-1-3 IACC and the relevant agencies with JICA Experts implement HOB inspection based on on-site stack gas measurement. 1-1-4 IACC with JICA Experts introduces simplified measurement method by using IACC's portable gas measurement equipment including parallel measurement with JIS method, elaboration of manuals and manufacturer's calibration. 1-1-5 DAAP and IACC with JICA Experts elaborate emission measurement reports. 1-2 TPP3 and TPP4 with JICA Experts enhance emission gas control by utilizing CEMS. 1-2-1 TPP3 and TPP4 with JICA Experts elaborate and implement CEMS operation and maintenance plan. 1-2-2 TPP3 and TPP4 with JICA Experts perform quality control of emission gas data of CEMS. 1-2-3 TPP3 with MET and the relevant agencies elaborate online emission data reporting system for the CEMS. 1-2-4 NAMEM and the relevant agencies share and evaluate CEMS emission data. 1-2-5 NAMEM compiles monitoring data of emissions from TPP2, TPP3, TPP4 and new large heat supply facilities and share them with relevant agencies. 1-3 MRTD and PTSD introduce relevant regulations of vehicles based on emission measurement 1-3-1 MRTD and PTSD with JICA Experts implement vehicle emission measurements by RSD, assess distribution of vehicles emission intensity and define target vehicles to be regulated. 1-3-2 MRPA and IACC with JICA Experts implement automobile fuel surveys. 1-3-3 JICA Experts conduct training to NRTC, in addition to DAAP, on vehicle emission measurement using on-board emission measurement system, and DAAP and NRTC implement vehicle emission measurement using on-board emission measurement system. 1-4 DAAP and NAMEM with JICA Experts strengthen AQMS utilization. 1-4-1 CLEM and JICA Experts assess the current status of equipment in reference laboratory of CLEM and identify necessary actions if necessary. 1-4-2 DAAP reinforces AQMS operation and maintenance based on the plan by Phase 2. 1-4-3 DAAP with JICA Experts starts air quality monitoring at pilot project area for improved household fuels by utilizing mobile AQMS. 1-4-4 DAAP with JICA Experts reinforces the AQMS at Bayankhoshuu station. 1-4-5 DAAP and NAMEM with JICA Experts implement parallel measurement by FRM sampler for PM concentration, and implement quality control of PM measurements of AQMS. 1-4-6 DAAP and NAMEM with JICA Experts maintain the online information system of AQMS. 1-4-7 DAAP and NAMEM share real-time monitoring data with the relevant agencies through the online information system. 1-4-8 DAAP and CLEM with JICA Experts analyze air quality monitoring data and elaborate air quality monitoring reports. 1-4-9 The relevant agencies utilize air quality monitoring data.		Inputs Japanese side 1. JICA experts (necessary fields) (1) Chief Advisor (2) Air Pollution Control Planning and Policy (3) Emission Measurement for Stationary Sources (4) Ambient Air Quality Monitoring (5) Ambient Air Quality Analysis (6) PM10 and PM2.5 Sampling (7) PM10 and PM2.5 Apportionment Study (8) Emission Inventory (Stationary, Mobile and Others) (9) Air Quality Simulation Modeling / Air Pollution Control Measures Evaluation (10) Auto-mobile Emission Control 1 (Traffic Signal Control) (11) Auto-mobile Emission Control 2 (RSD and others) / Emission Measurement 2 (12) Clean Coal Technology for Air Pollution Control Measures (13) CEMS Data Analysis (14) Stationary Source Emission Control Measures (15) Air Quality Administration Mongolian side 1. C/P and C/P-WG (1) JCC Chairperson (2) JCC Vice-Chairperson (3) Project Director (4) Project Manager (5) Necessary C/P and C/P-WG staff according to the fields of JICA Experts 2. Facility (1) Provision of necessary office space in DAAP and MET (including internet access) (2) CLEM Laboratory (3) Storage Space for Equipment 3. Local cost (1) Counterpart expenses such as salary, allowance, travel cost and accommodation (2) Project administrative expenses	
		1. There are no frequent leaves, transfers or resignations of C/P and C/P-WG members. 2. Necessary coordination among UB city, districts, khoroos and communities in Ger area is secured by Mongolian side for implementation of pilot projects.	

2-1 NAMEM and JICA Experts conduct PM apportionment study based on PM speciation throughout the year. 2-1-1 CLEM and JICA Experts elaborate PM sampling plan throughout the year, and implement PM samplings. 2-1-2 JICA Experts perform PM speciation analysis in Japan. 2-1-3 NAMEM and CLEM with JICA Experts learn PM speciation technologies (ion analysis, element analysis and carbon analysis). 2-1-4 NAMEM and CLEM with JICA Experts formulate equipment and laboratory plan for PM speciation. 2-1-5 DAAP and NAMEM with JICA Experts perform PM apportionment study based on receptor modeling. 2-2 DAAP and NAMEM with JICA Experts evaluate air pollution structure and health impact based on air quality simulation model and receptor model. 2-2-1 DAAP and NAMEM elaborate plans for updating emission inventory. 2-2-2 DAAP, TCC and PTSD implement studies for mobile sources including update of emission inventory, examination of traffic signal control, traffic volume and vehicle traveling speed. 2-2-3 DAAP and JICA Experts select the pilot areas and assess Ger stoves usage pattern (type and model of stoves, seasonal pattern of usage, insulation of Ger housing and coal consumption). 2-2-4 DAAP and NAMEM with JICA Experts implement studies for other emission sources as necessary. 2-2-5 DAAP and NAMEM with JICA Experts elaborate BAU (Business as usual) scenario for the future year based on TPPs future development plans, projection of number of vehicle, population, economic growth, emission regulation, fuel quality regulation and so on. 2-2-6 DAAP and NAMEM update emission inventory for the present year and the future year for the BAU scenario. 2-2-7 DAAP and NAMEM update the air quality simulation model for PM10, SO₂ and NO_x. 2-2-8 DAAP and NAMEM evaluate the air pollution structure of UB city. 2-2-9 DAAP and NAMEM evaluate indicative population exposure of PM10 based on population weighted concentration and so on. 3-1 DAAP and the relevant agencies elaborate a draft MNS on an emission measurement method of improved fuel and fuel quality, and propose it to MASM. 3-2 ME with JICA Experts elaborates safety standards on the household gas distribution. 3-3 DAAP and the relevant agencies elaborate implementation plans and terms of reference for pilot projects such as improved fuel, HOB, traffic signal control, eco-driving, RSD, smoke belching program based on portable emission device, DPF, low sulfur fuel and low emission vehicles. 4-1 DAAP and NAMEM submit to the decision makers the analysis of air pollution status, short-, medium- and long-term air pollution control strategies (including BAU analysis) and evaluation of air pollution control measures (including implemented and planned). 4-2 Relevant agencies with pilot projects elaborate technical guidelines and utilizes them. 4-3 The relevant agencies discuss and endorse the selection of pilot projects. 4-4 NCEPR and the relevant agencies approve large scale investments based on pilot projects implementation and assessment. 4-5 NCEPR, or the sections of the relevant agencies in charge of allocating funds for air pollution control in the Mongolian government such as the Environment and Climate Fund utilizes the Outputs of the Projects and pilot projects implementation and assessment. 5-1 DAAP with Health Department of Capital City and the relevant agencies implements public awareness and advisory activities for citizens including school students and parents. 5-2 MET and DAAP publish progress of the Project by newsletter, newspaper articles, web-site and other medias. 5-3 DAAP and JICA Experts provide technical guidance to manufacturers for improved fuel production. 5-4 The relevant agencies with JICA Experts implement pilot projects according to the implementation plan by Activity 3-3. 5-5 The relevant agencies with JICA Experts evaluate pilot projects results in terms of emission reduction, air quality improvement and exposure to citizens, and extract lessons learned. 5-6 The relevant agencies with JICA Experts report the pilot projects results to NCEPR. 5-7 TPP3 and TPP4 analyze CEMS data, and examine viable air pollution control measures. 5-8 TPP3 and TPP4 with JICA Experts elaborate emission reduction plans.	(16) Public Awareness and Public Relations 2. Training (1) Local seminars and workshops (2) Training course in Japan 3. Provision of necessary equipment 4. Local cost Necessary expenses for activity of JICA Experts	Pre-conditions 1. Appropriate number of qualified staff of C/P and C/P-WG is assigned. 2. Adequate amount of budget related with the Project
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6-1 The relevant agencies discuss and elaborate written agreements on demarcation of roles in air quality management related with each Output and Activity of the Project.	
6-2 DAAP with JICA Experts submits technical documents to NCEPR for improved fuel standard, emission standard on stationary sources, mobile sources and other emission sources, and revision of ordinance.	
6-3 NCEPR and the relevant agencies elaborate fuel standard and emission standard, and submit them to MASM.	
6-4 Relevant ministries / relevant agencies of UB city elaborate laws, regulations and ordinances on air pollution control measures, and submit them to national parliament / city council.	
6-5 JICA Experts provide training on air pollution control measures and technical appraisal guidelines for staff of the sections of the relevant agencies in charge of allocating funds for air pollution control.	
6-6 Staff of the sections of the relevant agencies in charge of allocating funds for air pollution control with JICA Experts improve relevant operations with allocating funds for air pollution control measures, if necessary.	
6-7 Mongolian side enhances donor coordination in air pollution control.	
6-8 Relevant agencies of pilot projects with JICA Experts develop an operational guideline for elaboration, implementation and evaluation of air pollution control measures based on pilot projects implementation.	implementation is secured. 3. Necessary human resources mobilization related with pilot projects is secured by Mongolian side.

AQMS: Air Quality Monitoring Station
 BAU: Business as Usual
 CEMS: Continuous Emission Monitoring System
 CFWH: Coal Fired Water Heater
 C/P: Counterpart
 C/P-WG: Counterpart Working Group
 DAAP: Department of Against Air Pollution of Capital City
 DPF: Diesel Particulate Filter
 FRM: Federal Reference Method
 HOB: Heat Only Boiler
 IACC: Inspection Agency of the Capital City
 MASM: Mongolian Agency for Standardization and Metrology
 MET: Ministry of Environment and Tourism
 MMHI: Ministry of Mining and Heavy Industry
 MNS: Mongolian National Standard
 MRPA: Mineral Resources and Petroleum Authority
 MRTD: Ministry of Road and Transport Development
 NAMEM: National Agency for Meteorology and Environment Monitoring
 NCEPR: National Committee for Environment Pollution Reduction
 NPREP: National Program on Reducing Environment Pollution
 NRTC: National Road Transport Center
 PTSD: Public Transportation Service Department of the Capital City
 PM: Particulate Matter
 RSD: Remote Sensing Device
 TCC: Traffic Control Center of the Capital City
 TPP: Thermal Power Plant



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(DRAFT)

MINUTES OF MEETINGS

BETWEEN

JAPAN INTERNATIONAL COOPERATION AGENCY,

DEPARTMENT OF AGAINST AIR POLLUTION OF CAPITAL CITY OF
MONGOLIA

AND

MINISTRY OF ENVIRONMENT AND TOURISM OF MONGOLIA

ON

CAPACITY DEVELOPMENT PROJECT FOR AIR POLLUTION CONTROL IN
ULAANBAATAR CITY PHASE 3 in MONGOLIA

Department of Against Air Pollution (hereinafter referred to as "DAAP") of the Capital City of Mongolia, Ministry of Environment and Tourism (hereinafter referred to as "MET") of Mongolia (hereinafter referred to as "the Counterparts") and the Japan International Cooperation Agency (hereinafter referred to as "JICA") hereby agree that the Record of Discussions on the Capacity Development Project for Air Pollution Control in Ulaanbaatar City Phase 3 in Mongolia (hereinafter referred to as "the Project") signed on ●●, will be amended as follows. It is noted that the Overall Goal and the Project Purpose shall not be amended.

1. Project Design Matrix (hereinafter referred to as "PDM")

Before (1.2)	Amended Version (1.3)
(1) Project Duration	
November 2018 to April 2023 (4 and half years)	November 2018 to July 2024 (5 years and 9 months)
(2) Output Indicator for Output 6-2	

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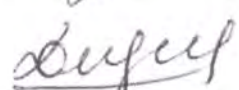


6-2. More than 3 pollution control measures and technologies are funded by <u>Air Pollution Against Fund</u> by utilizing technical appraisal guideline provided by the Project.	6-2. More than 3 <u>air</u> pollution control measures and technologies are funded by <u>the sections of the relevant agencies in charge of allocating funds for air pollution control</u> by utilizing technical appraisal guideline provided by the Project.
(3) Means of Verification of Output 6-2	
<u>Air Pollution Against Fund Operation reports</u>	<u>Minutes of Meeting of National Committee for Environmental Pollution Reduction (hereinafter referred to as "NCEPR")</u>
(4) Important Assumptions	
1. Legal and political framework for air quality management is maintained, which defines decision making mechanism such as NCEPR and professional agencies like DAAP and National Agency for Meteorology and Environment Monitoring (hereinafter referred to as "NAMEM").	1. Legal and political framework for air quality management is maintained, which defines decision making mechanism such as NCEPR and professional agencies like DAAP and National Agency for Meteorology and Environment Monitoring (hereinafter referred to as "NAMEM").
(newly added)	2. The COVID-19 pandemic situation will be improved and JICA will be able to send JICA Experts to Mongolia toward April 2021 until the end of the Project.
(5) Activities	
(newly added)	1-3-3 JICA Experts conduct training to National Road Transport Center (hereinafter referred to as "NRTC"), in addition to DAAP, on vehicle emission measurement using on-board emission measurement system, and DAAP and

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	NRTC implement vehicle emission measurement using on-board emission measurement system.
4-5 NCEPR utilizes the Outputs of the Projects and pilot projects implementation and assessment <u>for operation of Anti-air Pollution Fund.</u>	4-5 NCEPR, <u>or the sections of the relevant agencies in charge of allocating funds for air pollution control in the Mongolian government such as the Environment and Climate Fund utilizes the Outputs of the Projects and pilot projects implementation and assessment.</u>
6-5 JICA Experts provide training on air pollution control measures for <u>Anti-air Pollution Fund staff.</u>	6-5 JICA Experts provide training on air pollution control measures <u>and technical appraisal guidelines for staff of the sections of the relevant agencies in charge of allocating funds for air pollution control.</u>
6-6 <u>Fund staff</u> with JICA Experts improve relevant operations with <u>funding</u> for air pollution control measures, if necessary.	6-6 <u>Staff of the sections of the relevant agencies in charge of allocating funds for air pollution control</u> with JICA Experts improve relevant operations with <u>allocating funds</u> for air pollution control measures, if necessary.
Reason: Amendment and update on the stated items of the current version of PDM was necessary for the following reasons; (1) Since the restriction on travel to Mongolia due to COVID-19 caused the significant delay of implementation of the project activities from its original plan. (2) The Air Pollution Against Fund has been abolished and revenue from the air pollution charge has been decided to be consolidated into the Environment and Climate Fund according to the amended law and the revision of the Air Law, but it is not yet functioning. The budget is spent by the related ministries to implement environmental pollution control measures, according to the implementation plan (action plan) which was approved by the board members of NCEPR, including Vice Ministers of the related ministries, the mayor of Ulaanbaatar City, and the project leader. (3) The on-board vehicle emission measurement system provided to NAMEM in the Project phase 2 is no longer in use due to the absence of the person in charge. In 2019, the Ministry of Road and Transport Development (hereinafter referred to as	

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“MRTD”) requested NAMEM to transfer the system to the National Road Transport Center (hereinafter referred to as “NRTC”), which is an agency affiliated with MRTD, and the system was transferred to NRTC. In order to utilize the provided system and to conduct measurement for the pilot project, it became necessary to train NRTC staff.

This amendment will become effective from the date of both signing.

, XX XX, 2021

For
JAPAN INTERNATIONAL
COOPERATION AGENCY

Ms. TAMURA Eriko
Chief Representative
JICA Mongolia Office
Japan International Cooperation Agency

For
ULAANBAATAR CITY

Mr. Tumurtumuu ZUNDUI
Project Leader of Capital City in
Charge of Air and Environmental Pollution

For
GOVERNMENT OF MONGOLIA

Mr. Batmunkh DASHDEMBEREL
Director General
Environment and Natural Resources
Management Department,
Ministry of Environment and Tourism,
Mongolia

For
GOVERNMENT OF MONGOLIA

Mr. Batkhuu IDESH
Director General
Development Financing Department
Ministry of Finance, Mongolia

Annex V Coordination Rule between the Project and the relevant projects supported by other development partners such as ADB, UNICEF and SDC.

Focal point at DAAP for coordination

Project Director is the focal point at DAAP for coordination between the JICA Phase 3 Project and relevant projects supported by other development partners such as ADB, UNICEF and SDC. The DAAP focal point will be involved in the following possible coordination activities between the JICA Phase 3 Project and the other development partners' projects.

(1) Communication between JICA project experts and other development partners projects.

JICA project experts and other development partners' projects would communicate freely each other. Should any problem arise, they would report to and consult with JICA and the relevant development partners respectively for proper actions. The DAAP focal point shall be updated periodically on the communication status by the JET.

(2) Information exchange rule

For effective implementation of the both of JICA Phase 3 and other development partners' projects, smooth reciprocal information exchange including technical data is encouraged between them. The JICA Project Experts would provide such information upon request by projects of other development partners, JICA Project Experts may consult with the DAAP focal point and JICA, if needed to provide such information. The use of technical data obtained from JICA Phase 3 must be limited within the other development partners' project activities. In utilizing such data, the both sides will indicate the source of information.

(3) Exchange of observers between JICA Phase 3 JCC, C/P-WG meeting and relevant meetings in other development partners' project.

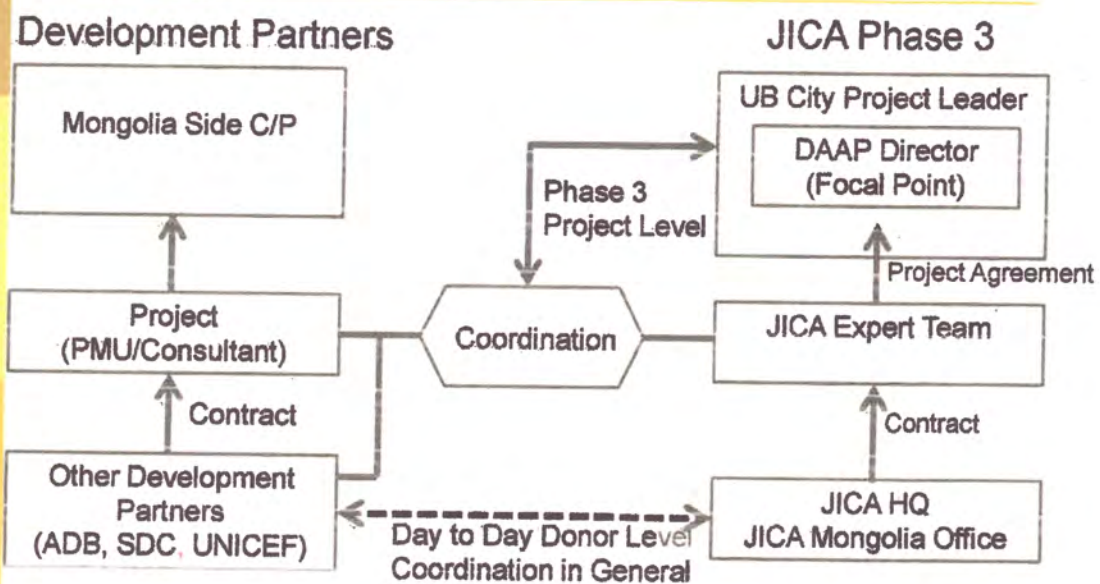
The JICA Phase 3 JCC and C/P-WG meetings would invite observers from the other development partners and their projects to facilitate better coordination with no objection by the DAAP focal point. Likewise, the other development partners are expected to invite observers from JICA or JICA-designated JICA Project Experts. The DAAP focal point shall be updated periodically on such exchange of observers by JET.

(4) Possible coordinating project activities

Specific areas for coordination will be examined in the course of implementation of the Project.



Donor Coordination Mechanism for Other Development Partners(ADB, SDC, UNICEF)



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MINUTES OF MEETING OF
THE FIFTH JOINT COORDINATING COMMITTEE MEETING
ON JAPANESE TECHNICAL COOPERATION FOR
CAPACITY DEVELOPMENT PROJECT FOR AIR POLLUTION CONTROL IN
ULAAANBAATAR CITY PHASE 3 in MONGOLIA

The Japan International Cooperation Agency (hereinafter referred to as "JICA") Supervisory Team for "Capacity Development Project for Air Pollution Control in Ulaanbaatar City Phase 3 in Mongolia (hereinafter referred to as "the Project")", JICA Mongolia Office, and JICA Expert Team (hereinafter referred to as "JET") had a series of online video meetings with Department of Against Air Pollution of Capital City (hereinafter referred to as "DAAP") and Joint Coordinating Committee (hereinafter referred to as "JCC") members from 11th June to 24th June 2021 to discuss the Monitoring Sheet No.5, and held the forth Counterpart Working Group (hereinafter referred to as "C/P-WG") meeting on 17th June and the fifth JCC meeting of the Project chaired by Ms. Purevsuren BOLOOJ, JCC Acting Chair Person on 24th June 2021. Participants list of the fifth JCC meeting is shown in Annex I.

Japanese side and the Mongolian authorities had a series of discussions. As a result of discussions, both sides agreed on matters referred to the document attached hereto.

The parties acknowledge and agree that this Minutes of Meetings may be executed by electronic signature, which is considered as an original signature for all purposes and has the same force and effect as an original signature. "Electronic signature" includes faxed versions of an original signature or electronically scanned and transmitted versions (e.g., via pdf) of an original signature.

Tokyo and Ulaanbaatar, 08 July 2021

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Mr. Eriko TAMURA
Leader, JICA Supervisory Team,
Chief Representative
JICA Mongolia Office
Japan International Cooperation Agency,
Japan,



Mr. Tumurtumuu ZUNDUI
Project Leader of Capital City in
Charge of Air and Environmental
Pollution, Mongolia

田畑 亨

Mr. Toru TABATA
Leader, JICA Expert Team, Japan



Mr. Batkhuy IDESH
Director General
Development Financing
Department
Ministry of Finance, Mongolia

ATTACHED DOCUMENT

I. The Monitoring Sheet No.5

JET presented the progress of the Project, future activity plan, and issues that the Project is facing since its beginning. After active discussions, the JCC approved the Monitoring Sheet No. 5.

Revision of the Project Design Matrix (II to III)

II. Revision of the Project Design Matrix (Objectively Verifiable Indicators)

The Japanese side proposed the revision of the Project Design Matrix (hereinafter referred to as PDM), and both sides agreed on the revision of the PDM. Annex II shows the changes to PDM.

1. Objectively Verifiable Indicators 1-2

"The emission measurement reports are submitted to the Deputy Governor of Ulaanbaatar (hereinafter referred to as "UB") City at least 3 times during the Project period."

will be replaced by;

"The emission measurement reports are submitted to the Project Leader of UB City in Charge of Air and Environmental Pollution at least 3 times during the Project period."

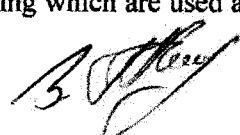
III. Additional activity of PDM

At the 4th JCC, the DAAP requested the Japanese side to support the transfer of the monitoring data of Dambadarjaa station to the air quality monitoring network. The Japanese side agreed to support the examination of the data transfer method to the network, and the establishment of the data transfer system after studying the current status. The Japanese side proposed the following additional activities, and the Mongolian side agreed to add the Activity 1-4-10.

"Activity 1-4-10 DAAP with JICA Experts establishes the data transfer system of air quality monitoring data of Dambadarjaa station to the online information system of Air Quality Monitoring Station (hereinafter referred to as "AQMS")."

IV. Request from the Japanese side on the issues on the future project activities

The Japanese side and the Mongolian side agreed that Tavan Tolgoi Tulsh LLC (hereinafter referred to as "TTT") would produce the sample of the improved fuel in the 3rd JCC in 2019. In order to produce the improved fuel, the crusher that was provided by the Project to the Ministry of Energy (hereinafter referred to as "ME"), and installed in TTT shall be utilized. The Japanese side will train the production method of the improved fuel for the pilot project, and provide biomass and desulfurization agents if necessary. The Mongolian side was requested to provide UHG middling which are used as material by



TTT, and for producing improved fuel (7.5 tons for each type), including the sample of the fuel for the pilot project. In order to compare with the improved fuel of TTT, the Japanese side requested the Mongolian side to provide 7.2 tons of improved fuel of TTT. DAAP responded that DAAP has sent an official letter requesting 7.2 tons of improved fuel of TTT for the pilot project, and producing 7.5 tons of the improved fuel of the pilot project by TTT. DAAP responded that DAAP had not received any answer from TTT, and DAAP would ask TTT for an official reply. The Japanese side mentioned that it is necessary to respond to the current issues as soon as possible, in order to achieve concrete results quickly, as the Project Leader pointed out. The Japanese side asked for the cooperation, especially in the pilot project of improved fuels, including the provision of improved fuels by TTT.

V. Request based on the 4th JCC

1. Establishment of working group of improved fuel

The Mongolian side and Japanese side agreed to establish the working group by April 2021, which has not yet been realized. The Japanese side requested that ME should establish the working group of improved fuel by August 2021, in order to report the result of combustion test of improved fuel made in the first pilot project at the lab, and to discuss the result and cost effectiveness of emission reduction.

2. Introduction of Remote Sensing Device (hereinafter referred to as "RSD") and elaboration of the legal system about RSD

At the 4th JCC held in January 2021, the Japanese side requested to introduce the RSD and elaborate the legal system by April 2021. As a current situation, cost for purchase of the RSD is included in the budget for construction of new road between Ulaanbaatar city and Darkhan city. However, the Mongolian side is now looking for funding for the construction. Also, the legal system to implement emission control using the RSD is planned to be established after acquiring the RSD. It is important to develop the pilot project into full-scale project by the Mongolian side. Therefore, JET requested that the Ministry of Road and Transport Development (hereinafter referred to as "MRTD") and the Public Transportation Service Department of the Capital City (hereinafter referred to as "PTSDC") make decision on the introduction of the RSD by April 2023, and that the legal system to implement emission control using the RSD be in place by July 2024. JET will continue to monitor the progress of this request with MRTD and PTSDC.

3. Planning of the budget for traffic signal control operation

At the 4th JCC held in January 2021, the Japanese side requested the Traffic Control Center (hereinafter referred to as "TCC") to secure the budget for the traffic condition survey and so on, for the operation of the traffic signal control and to establish the operation system. The JET requested TCC to prepare the budget for traffic condition



surveys by April 2024, as it is important to improve the operation of traffic signal control for whole UB city, not just for the pilot project. JET will confirm TCC's intention on this issue.

4. Capacity development of RSD and on-board emission measurement system

At the 4th JCC held in January 2021, the Secretary General of the National Committee for Environment Pollution Reduction (hereinafter referred to as "NCEPR") requested that the Inspection Agency of Capital City (hereinafter referred to as "IACC") and the Ecology Police Department (hereinafter referred to as "EPD") should participate in the capacity development of RSD and on-board emission measurement system. The Japanese side requested the Mongolian side (DAAP) to confirm their intention to join the relevant project activities. Also, JET replied that it would be possible to have IACC and EPD participate in the activities of the technology transfer of RSD and on-board emission measurement system.

VI. Requests regarding the issues and the obstacles for the pilot projects to expand to full-scale implementation by the Mongolian side

1. Sales of auto-vehicle low-sulfur fuel

The Ministry of Mineral and Heavy Industries (hereinafter referred to as "MMHI") is submitting a bill to the Diet to revise the Air Law in order to stipulate the sales of EURO5 fuel in the Air Quality Improvement Areas. In addition, MMHI has submitted a bill to the Ministry of Finance to eliminate the price gap between existing fuels and EURO5 fuel by taxation in order to promote the sale of low-sulfur fuels. The efforts by the Mongolian side and progress toward a full-scale project by the Mongolian side were confirmed.

2. Installation of PM reduction equipment (DPF) and introduction of low emission vehicles

MRTD has introduced a transportation fund and established a working group to study the production of DPF in Mongolia and the purchase of cheaper products from abroad. It is also planned that 780 buses without PM emission reduction devices that have been in use for the 12 years or more will be scrapped. Electric bus, Compressed Natural Gas (hereinafter referred to as "CNG") bus, and EURO5 bus (with DPF) are the possible alternative measures. The progress toward a full-scale project by the Mongolian side was confirmed. JET has submitted to MRTD and the NCEPR a cost comparison chart (which can be used to compare the total cost including initial and running costs) that can be used when purchasing the buses. When purchasing buses, it is necessary to compare and examine the total cost of procurement including the vehicle price and fuel costs, after carefully examining the costs considering actual situation in Mongolia.

3. Introduction of the equipment for driving management for promotion of eco-driving

 1.B 

and development of legal system

MRTD has an activity to improve the road safety, but there is no plan to install driving management devices, or to develop the legal system to obligate to install them. The pilot project and the preparation for the full-scale project by the Mongolian side is not proceeding well.

VII. Other Issues

1. Secretary General of NCEPR requested the following to the Japanese side;
 - (1) The Secretary General of NCEPR fully agreed with the project's air pollution control activities. Also, he agreed with the team's proposal to solve the problem in the presentation on the pilot projects to be implemented. As for diesel vehicles, an additive to the fuel to improve the quality of the fuel will be tested on its effects on emission reduction. Surveys and measurements of the actual emission from vehicles will serve as basic data for the establishment of a legal system for regulating vehicle emissions. In regulating vehicle emissions, the Secretary General stated that the NCEPR, Ministry of Environment and Tourism, and UB City need to cooperate to create a system for issuing fines and improvement orders. The Secretary General requested the Project to support such surveys based on on-board vehicle emission measurements along with the Project implementation.
 - (2) The Secretary General mentioned that the Air Quality Improvement Areas consisted of central 6 districts of UB city last year, and Nalaikh district has added this year. The Secretary General would like to use the results of the survey on the actual vehicle emissions by RSD and so on as a basis for the legal development of the introduction of EURO5 fuel. Therefore, the Secretary General requested the Japanese side to start vehicle emission gas measurement such as RSD as soon as possible.
 - (3) Heat Only Boiler (hereinafter referred to as "HOB") still exists and raw coal is used in the Ger area. In the future, it will be important to install monitoring sensors and control systems to monitor the status of exhaust gas from stationary sources including Coal Fired Water Heater (hereinafter referred to as "CFWH"). The Secretary General is also considering charging fees on high-emitting polluters including vehicles, in addition to the CFWH and HOB. The Secretary General requested the Japanese side to provide technical support including the supply of monitoring sensors of exhaust gas condition.
 - (4) Currently, there are 12 air quality monitoring stations in UB City, and the Secretary General would like to increase the number of air quality measurement stations to 30 to cover the entire UB City. The Secretary General requested the Japanese side to provide additional air quality monitoring stations.



1.B ~

Ms. Purevsuren of DAAP mentioned that the opinion from the Secretary General will be recorded as there will be a Minutes of Meeting consultation after the JCC meeting.

The Japanese side replied that the Japanese side could respond to various requests only within the scope of the implementation of the pilot projects and activities which were already agreed upon for this project, so it would be difficult to accommodate the requests requiring significant increase of additional personnel, budget, or equipment.

2. Mr. Batbayar of National Agency for Meteorology and Environment Monitoring (hereinafter referred to as "NAMEM") requested the support from the Japanese side for preparation of emission factors, as the emission factor is becoming important more and more with the introduction of improved fuels. JET responded that it was possible to prepare emission factors when a lot of measurement data was collected, since DAAP is conducting emission gas measurement of improved fuel made by TTT. JET also mentioned that DAAP should obtain permission from TTT to use the combustion test data, since the combustion test was conducted based on contract between DAAP and TTT.
3. Mr. Nyamdorj of PTSDC said that DPFs have been installed in 24 large buses as part of JICA cooperation "Verification Survey with the Private Sector for Disseminating Japanese Technologies for Emission Reduction of Particulate Matter (PM) from Diesel Buses by DPF Suitable for Ulaanbaatar Condition". The DPF equipment has been handed over to the relevant city agencies. As those 24 Buses will retire in December 2021, the city is planning to transfer the DPFs to other buses. The Mongolian side requested the Japanese side to provide technical support for the reloading of the DPFs. The Japanese side responded that Japanese side would welcome the use of DPFs and that JET would consider what kind of technical support JET could offer.
4. Mr. Khishigjargal of United Nations International Children's Emergency Fund (hereinafter referred to as "UNICEF") mentioned that reducing air pollution is important, and as promised in the Paris Agreement of the United Nations Climate Change Convention, Mongolia is required to understand the actual Greenhouse Gas (hereinafter referred to as "GHG") emissions and GHG reduction in terms of co-benefit with air pollution. UNICEF requested the Japanese side to cooperate in the calculation of GHG emissions. The Japanese side responded that it is not supposed to estimate GHG emission in this Project, but another JICA project, "Project for capacity development to establish a national GHG inventory cycle of continuous improvement" is underway, so UNICEF should consult with that project if necessary. In addition, since the framework of cooperation and coordination with donors has



agreed in this Project, UNICEF could request the DAAP Director to provide any relevant information for GHG estimation, if necessary.

5. Mr. Barkhasragchaa of Central Laboratory of Environment and Metrology (hereinafter referred to as "CLEM") repeated the request made in the 4th JCC again, to support for repair and maintenance of the equipment provided in Phases 1 and 2 of the project when equipment are malfunctioning. The Japanese side responded that the Japanese side needed to know the status of the equipment, so JET would investigate the equipment and make a decision when the trip to Mongolia becomes possible. Although CLEM is basically responsible for the maintenance of the equipment after the projects handed over them to CLEM, it is possible for JET to cooperate in terms of the support for communication with manufacturers and so on.

VIII. Other Comments from the Mongolian side

1. Mr. Batbayar of NAMEM commented that the lack of field interaction in Mongolia due to COVID-19 might have affected to the lack of full implementation of the project. It is appreciated to see that connection of the Dambadarjaa AQMS to the integrated monitoring network was accepted. In the future, when JET provides recommendations and advice on air pollution control measures through the pilot projects, it is important to make the decision-makers and related organizations (ministries and agencies) understand the importance of not only short-term feasible measures but also the consideration of the introduction of Clean Technology (zero emissions) as a long-term measure.

IX. Remarks by Mr. Tumurtumuu ZUNDUI, Project Leader of Capital City in Charge of Air and Environmental Pollution

It is desirable that this meeting will be a good opportunity to clarify concrete solutions and lead to future activities. Under the influence of COVID-19, UB city is continuing the project with Ulaanbaatar Clean Air Project (hereinafter referred to as "UBCAP") and donors such as the Asian Development Bank (hereinafter referred to as "ADB") achieving good results. It is necessary and expected that this project will quickly achieve visible results, and that both the Mongolian and Japanese sides will actively promote the implementation of activities as soon as possible.

X. Remarks by Ms. Eriko TAMURA, Leader of JICA Supervisory Team

In the project activities, it is expected that the stakeholders related with the Project will work together to measure and verify the effectiveness of the air pollution control measures. It is important to determine strategy and policy for improving the air pollution control measures based on the results of verification. Although the progress of the pilot projects on improved fuels and vehicles have been delayed due to the impact of COVID-19, it is



1. B

requested that the evaluation and analysis of lessons derived from the results of the pilot project will lead to a realization of full-scale project in Mongolia. As a result of replacement of raw coal with improved fuel, PM10 and PM2.5 are decreasing, but SO₂ is increasing, reaching high concentration in last May. The early establishment of a working group on the pilot project for improved fuels is expected.

As the budget compilation is ongoing now, it is expected that the items which were agreed upon at last JCC but not fully budgeted for, and the items which are agreed upon at this JCC will be reflected in the budget.

XI. Conclusions by Mr. Taizo YAMADA, JICA Supervisory Team

I appreciate the active discussion by the JCC members from the Mongolian side. JICA has been supporting the Mongolian side to build their capacity for air pollution control through Phase 1, Phase 2 and this Project phase 3 for more than 10 years. In the opening presentation, Ms. Purevsuren indicated that the Mongolian people have made significant air quality improvements of PM10 and PM2.5 in the winter by their own efforts. Also, I was very impressed that the Mongolians side evaluates that scientifically and objectively by themselves. This is a remarkable progress compared to the situation 10 years ago. In order to further reduction of emission and improvement of the air quality, this Project phase 3 aims to implement pilot projects for air pollution control, which will be developed into full-scale projects by the Mongolian side during the remaining period of the Project phase 3. Through these activities in addition to the technical capacity building, Japanese side would like to support the Mongolian side in developing capacities for allocating resources, and for establishing coordination, necessary laws and regulations for air quality improvement. I hope that the Mongolian side will make use of the pilot projects for their own such a capacity building.

XII. Conclusions by Ms. Purevsuren BOLOOJ, JCC Acting Chair Person

Under JICA's 10-year support for capacity building in air pollution control, the Mongolian side has seen remarkable progress in air pollution control and improved air quality. In the last three years, the Mongolian side has been able to reduce air pollution by 50% as a result of the efficient and effective measures implemented. I believe that this is due to the effective decisions, policies, strategies and measures taken by the Mongolian government, including donor agencies. In order to achieve the expected results from the Project, it is important to clarify the roles between the Japanese and Mongolian sides and to fulfill those responsibilities. Requests to the Mongolian side for project activities will be discussed and addressed. It was reaffirmed that it is important to actively participate in the pilot project so that concrete results can be achieved. I hope that the Japanese side will actively consider accelerating the implementation of the activities and achieving the expected results. Today's meeting clarified what both the Japanese and Mongolian sides need to do in order to achieve the project goals.

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END

ANNEX I Participants of Fifth Joint Coordination Committee

ANNEX II Presentation of Monitoring Sheet No.5, Revised Activity Plan and
Important Issue

ANNEX III PDM (ver. 1.4)



B. M. Heng

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ANNEX I Participants of Fifth Joint Coordination Committee

	Name	Organization	Position
1	Tumurtumu ZUNDUI	Ulaanbaatar City	Project Leader of Capital City
2	Altanzul	Secretariat of the National Committee for Air Pollution Reduction	Secretary General
3	Ch. Chuluunbat	Ministry of Mining and Heavy Industry, Fuel Policy Department	Director General
4	D. Davaabayar	Ministry of Mining and Heavy Industry, Fuel Policy Department	Officer
5	Baysgalan	Ministry of Road and Transport Development, Policy and Planning Department Air Pollution Reducing and Green Development	Officer
6	D.Bolormaa	Ministry of Construction and Urban Development, division of Policy and Planning	Officer
7	J. Batbayar	National Agency for Meteorology and Environment Monitoring Environment Monitoring Division	Head of Division
8	Enkhmaa	National Agency for Meteorology and Environment Monitoring Network Division	Officer
9	B. Barkhasragchaa	Central Laboratory of Environment and Metrology	Senior Officer
10	Munkhbold	Mayor's office Development Policy Planning Department	Head of Division
11	Nyamdorj	Public Transport Service Department	Officer
12	Narangerel	Inspection Agency of the Capital City Division of Air Quality Control	Head of Division
13	S.Enkhtur	Traffic Planning, Coordination and Engineering Department of Capital City	Head of Division
14	N.Bilegsaikhan	Urban Regulation, Environmental Safety Control Coordination Department Environmental Safety Control Division	Head of Division
15	D.Nomin	Urban Regulation, Environmental Safety Control Coordination Department Environmental Safety Control Division	Officer
16	Purevsuren BOLOOJ	Department of Against Air Pollution of the Capital City	Acting Head of DAAP
17	T. Tsolmon	Department of Against Air Pollution of the Capital City	Acting Deputy Head of DAAP
18	Urantseyseg	Department of Against Air Pollution of the Capital City, Department of Air Quality Management	Officer
19	G. Amartuvshin	Thermal Power Plan-3, Technical policy Division	Head of Division
20	Taizo YAMADA	JICA Headquarter JICA Supervisory Team	Senior Technical Advisor (Environment)
21	Hideaki MATSUOKA	JICA Global Environment Department Environmental Management Group Environmental Management Team 1 JICA Supervisory Team	Director
22	Itaru CHIBA	JICA Global Environment Department Environmental Management Group Environmental Management Team 1 JICA Supervisory Team	Deputy Director
23	Eriko TAMURA	JICA Mongolia Office	Chief Representative

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24	Atsuki TAKEDA	JICA Mongolia Office	Project Formulation Advisor
25	Ch. MUNKHMANLAI	JICA Mongolia Office	National Staff
26	Toru TABATA	JICA Expert Team	Chief Advisor
27	Natsuji SAWAKI	JICA Expert Team	Sub Leader
28	Ei EDO	JICA Expert Team	Chief Sub Group Leader
29	Hajime ENDO	JICA Expert Team	Clean Coal Technology / Pilot Project for Improved Fuel 1
30	Jun OKABE	JICA Expert Team	Auto-mobile Emission Control 2/ Emission Measurement for Mobile Sources
31	Shinya NAKATA	JICA Expert Team	Air Quality Simulation Model / Air Pollution Control Measures Evaluation / Emission Inventory
32	P. Ongonsar	ADB	Consultant
33	Khishigjargal Batjantsan	UNICEF	Officer
34	Sunder Erdenekhuyag	UNICEF	Officer
35	A.Nomunzul	UNICEF	Officer



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ANNEX II Presentation of Monitoring Sheet No.5, Revised Activity Plan and Important Issue

Монгол улс Улаанбаатар хотын Агаарын
бохирдлын хяналтын чадавхыг бэхжүүлэх төсөл
(3 дугаар үе шат)
ХЗХ-ны 5 дугаар хуралдаан

2021 оны 6 сар
ЖАЙКА төслийн баг

1. Гүйцэтгэлийн тайлан дугаар 5-ын ерөнхий агуулга

■ 2018 оны 11 сараас 2024 оны 7 сар хүртэл 5.9 жилийн хугацаатай
"Монгол улс Улаанбаатар хотын агаарын бохирдлын хяналтын
чадавхыг бэхжүүлэх төслийн 3 дугаар үе шат" хэрэгжиж байна.
Тус гүйцэтгэлийн тайлан-5-д 2020 оны 11 сараас 2021 оны 4 сар
хүртэл хугацаанд хэрэгжүүлсэн үйл ажиллагааг тусгасан болно.

ХЗХ-ны 5-р хурлын зорилго

1. Гүйцэтгэлийн тайлан /Дугаар 5/-г батлах (У/а хамруулсан хугацаа:
2020/11-2021/04)
2. Цаашдын үйл ажиллагааны төлөвлөгөөг батлах (Гүйцэтгэлийн
тайлан-5-д тусгах)
3. Өнөөгийн тулгамдсан асуудал, ХЗХ-ны 5-р хурлаар хэлэлцэх зүйлс
 - 3.1 Хэрэгжилтэй холбоотой хүсэлт
 - 3.2 ХЗХ-ны 4-р хурлаар хэлэлцсэн асуудлыг нягтлах
4. Япон талын саналыг Монгол талас зөвшөөрөх асуудал
 - 4.1 ТТМ-ын үр дүнгийн шалгуур үзүүлэлтийн өөрчлөлт
 - 4.2 ТТМ-д нэмэлтээр оруулах үйл ажиллагааны санал

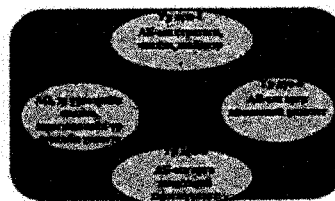
1.1 Эрхэм зорилго, төслийн зорилго

Үр дүн	
1	Батлах 2020/11-2021/04
2	Цаашдын үйл ажиллагааны төлөвлөгөөг батлах (Гүйцэтгэлийн тайлан-5-д тусгах)
3	Өнөөгийн тулгамдсан асуудал, ХЗХ-ны 5-р хурлаар хэлэлцэх зүйлс
4	Япон талын саналыг Монгол талас зөвшөөрөх асуудал

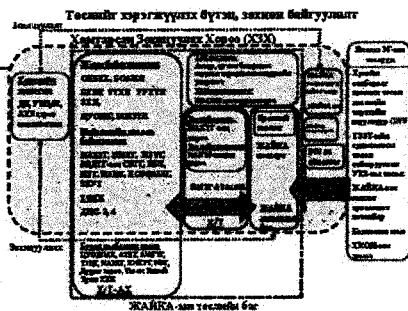
ХЗХ-ны 5-р хурлын зорилго

1. Гүйцэтгэлийн тайлан /Дугаар 5/-г батлах (У/а хамруулсан хугацаа:
2020/11-2021/04)
2. Цаашдын үйл ажиллагааны төлөвлөгөөг батлах (Гүйцэтгэлийн
тайлан-5-д тусгах)
3. Өнөөгийн тулгамдсан асуудал, ХЗХ-ны 5-р хурлаар хэлэлцэх зүйлс
 - 3.1 Хэрэгжилтэй холбоотой хүсэлт
 - 3.2 ХЗХ-ны 4-р хурлаар хэлэлцсэн асуудлыг нягтлах
4. Япон талын саналыг Монгол талас зөвшөөрөх асуудал
 - 4.1 ТТМ-ын үр дүнгийн шалгуур үзүүлэлтийн өөрчлөлт
 - 4.2 ТТМ-д нэмэлтээр оруулах үйл ажиллагааны санал

Төслийн үр дүнд бай болгох агаар орчны хяналтын үзүүл



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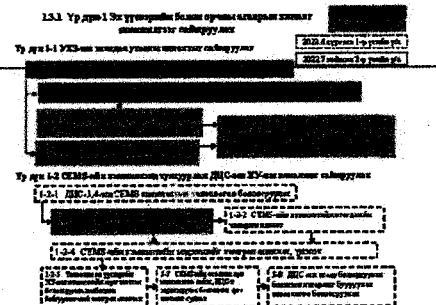


1.3. Үр дүнгийн хэрэгжилтийн явц

- КОВИД-19 дэр тахлын нөлөөгөөр 2020 оны 3 сарвас хойш Япон мэргэжлтийн Япон дуудлаг дээр ажлаах боломжгүй болж, 2020 оны 2 сарын дундас эхлэх ихэнх үй-ийн хэрэгжлэлт зогссон.
- Япон мэргэжлтийн Япон улсвас Монгол танд онлайвлар зийнаас хэрэгжүүлэх боломжтой үй-ийг судалж, 2020 оны 7 сарвас хойш цахим хэлбэрөөр үй-2-2, үй-5-3-ийг ХТ-тай хамтран хэрэгжүүлж байна.

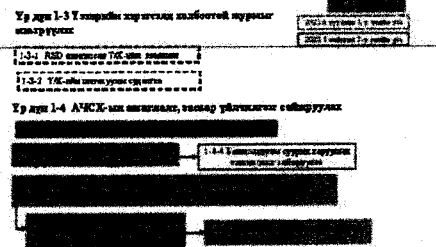
**1.2. Хамтарсан Зохицуулах Хорооны хурал (ХЗХ),
нээлтийн семинар**

- 2021 оны 1 сарын 21-д ХТ-АХ-ийн 3-р хурал, 2021 оны 1 сарын 27-д ХХЗ-ийн 4-р хуралдааныг тус бүр зохион бийлүүлсэн.
- ХХЗ-ын 4-р хурлаар төсвийн хувиар 2018 оны 11 сарын 2023 оны 4 сар хүртэл 4.5 жил байсныг 2018 оны 11 сарын 2024 оны 7 сар хүртэл 5.9 жил болгон Ялон, Монгол талын зохиондөлж сунгасан.
- ХХЗ-ын 4-р хурлаар үр дүнтэй гишүүдэд багатагжуулж, Төсөл Төмөрлөгийн Матриц (ТГМ)-ын хувиар 1.3 болгож өөрчилсөн.
- ХХЗ-ын 4-р хурлаар Монгол талын ХТ-АХ-д Таван Тонгой Тууш ХХК-г гишүүнээр нэмж баталсан.
- ХХЗ-ын хурлаар Монгол талын ЗХУТ-ийн ХХЗ-ын гишүүнээр нэмж баталсан.



**1.2. Хамтарсан Зохицуулах Хорооны хурал (ХЗХ),
нээлтийн семинар**

- ХЗХ-ны 4-р хурлаар НАБТТ-ын БХХ-ийн дарга, газрын хэд дарга Цонхлогт төслийн захирааар, АЧХХ-ийн даргын төслийн менежерээр томилогдох асуудлыг лийдвэрлэсэн.



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Үр дүн-1 Эх үүсвэрийн болон орчны агаарын хяналт шинжилгээг сайжруулах
Хэрэгжилтийн байдал (2020/11-2021/04)

Голлох үйл ажиллагаа:

- ХЗХ-ны 4-р хурал үед АСХУХ-ыг шинэжж хүср багатай шатаах хэрэгсэл тохиолдолд агаар бохирдуулж бодисын буурцгыг багалгажуулах хэмжээг хийхыг УУХУХ-ас Япон мөргөжилтэнд хүсэлт тавьсан. АСХУХ-ийг шинэжж хүср багатай хийн буурцгыг тодорхойлох боломжгүй хэрин хүср багатай хийн SO₂ ялгарлын хэмжээг шатаахуу дахь хүср багатай агууламгийн хэмжээгээр тооцоолох боломжтой.
- ХЗХ-ны 4-р хурал үед НАБТГ-ын зүгээс Дамбадаржагийн АЧСХ-ын хэмжээний өгснийг агаар орчны мониторингийн сүлжээнд холбоход дэмжлэг үзүүлэхийг хүссэн бөгөөд Япон мөргөжилтэнд агаар орчны мониторингийн сүлжээнд хэмжээний өгснийг дахуулах талаар судалж үзсэн.
- НАБТГ-ын АЧСХ-ыг харуусан мөргөжилтэнд хэмжээний тоног төхөөрөмжийн ажиллагааг дотголдртой холбоотой Япон мөргөжилтэнд зөвлөгөө авч авчлалсан.

1.3.2 Үр дүн-2 Бүтэн жилийн агаарын бохирдлын бүтцийн шинжилгээ, үнэлгээний чадавхыг сайжруулах

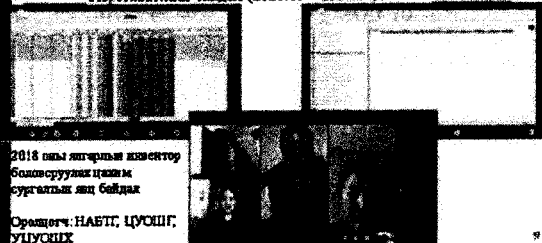
Хэрэгжилтийн байдал (2020.11 – 2021.04)

Голлох үйл ажиллагаа:

- РМ-ын сорь авах ажлын төлөвлөгөө боловсруулсан.
- Эх үүсвэрийн инвентор шинэчлэх төлөвлөгөө боловсруулсан.
- 2017 оны алгарлын инвенторын тайланг боловсруулсан.
- Япон мөргөжилтэнд НАБТГ, ЦУОШП, УЦУОШП-д хандах 2018 оны алгарлын тооцоолол, өгсдөл боловсруулах талаар цехим сургалт зохион байгуулж байна.

1.3.2 Үр дүн-2 Бүтэн жилийн агаарын бохирдлын бүтцийн шинжилгээ, үнэлгээний чадавхыг сайжруулах

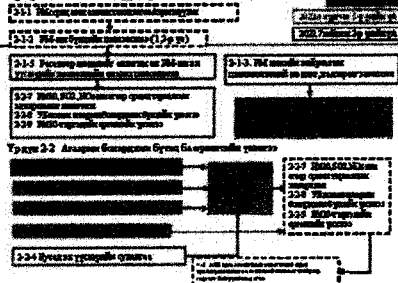
1.3.2 Үр дүн-2 Бүтэн жилийн агаарын бохирдлын бүтцийн шинжилгээ, үнэлгээний чадавхыг сайжруулах
Хэрэгжилтийн байдал (2020.11 – 2021.04)



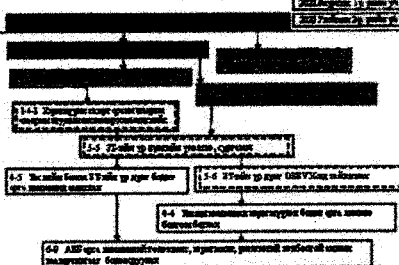
2018 оны алгарлын инвентор боловсруулах цехим сургалтын явц байдаг

Оролцогч: НАБТГ, ЦУОШП, УЦУОШП

Үр дүн-1 РМ-ын мөргөжилтэнд хяналтын дүн шинжилгээ



1.3.3 Энхэр төсвийн ажлыг Үр дүн 3, 4, 5, 6



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Голдох үйл явдлыг анх:

- УБ хот орчимын хэд хэдэн амралтын газруудаас ахуйн хэрэглээний сайжруулсан шавьсал түлшнийг загвар төслийн хэрэгжүүлэх газрыг судалсан.

Анхаарал хандуулсанд баярлална

2. Гүйцэтгэлийн тайлан

[illegible]

2. Гүйцэтгэлийн тайлан

[illegible]

**Монгол улс Улаанбаатар хотын Агаарын
бохирдлын хяналтын чадавхыг бэхжүүлэх төсөл
(3 дугаар үе шат)
ХЗХ-ны 5 дугаар хуралдаан**

2021 оны 6 дугаар сар
ЖАЙКА төслийн баг

2.1 Үйл ажиллагааны төлөвлөгөө (2)

- Цахим хэлбэрээр зайнаас хэрэгжүүлэх боломжтой "ДЦС-3, ДЦС-4 нь СЕМС-ийн өгөгдөлд тулгуурласан чанарын хяналтыг бэхжүүлэх (У/а 1-2)", "У/а 1-4 Дамбалдаржаа АЧСХ-ын хэмжилтийн өгөгдлийг агаарын чанарын нэгдсэн мэдээллийн системд холбоход ЖАЙКА мөргөжилтийн дэмжлэг авах", "У/а 2-2 Агаар орчны тархалтын загварчлал, рецептор модель ашигласан агаарын бохирдлын бүтэц, ертөнцийн үнэлгээ", "У/а 5-3 Сайжруулсан шахмал түлшний үйлдвэрлэлийн технологи сайжруулахад зөвлөх", "У/а 5-4 Загвар төслийн бэлтгэл хангах ажил" эдгээр үйл ажиллагааг хил хорио цуцлах хүртэл хэрэгжүүлж, бусад үйл ажиллагааг хил хорио цуцлагдсанаас хойш хэрэгжүүлэхээр болсон.

ХЗХ-ны 5-р хурлын зорилго

1. Гүйцэтгэлийн тайлан (Дугаар 5-г батлах (У/а хяруулсны хуралдаан: 2021/11-02/134)
2. Цаашдын үйл ажиллагааны төлөвлөгөөг батлах (Гүйцэтгэлийн тайлан-5-д тусгах)
3. Энэсний тулгуурлан асуудал, ХЗХ-ны 5-р хурлаар хэлэлцэх асуудал
 - 3.1 Хэрэгжилтийн нөхцөл байдлыг хувиул
 - 3.2 ХЗХ-ны 4-р хурлаар хэлэлцсэн асуудлыг нягтлах
4. Япон талын санхүүг Монгол талд зөвшөөрөх асуудлыг
 - 4.1 ТТМ-ын үр дүнтэй шалгуур үзүүлэлтийн өөрчлөлт
 - 4.2 ТТМ-ийн мөнгөөр оруулж үйл ажиллагааны санхүү

2.2 Үйл ажиллагаа 1-2 СЕМС-ийг ашигласан хаягдал утааны хяналтыг бэхжүүлэх

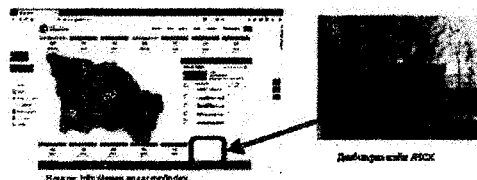
- ДЦС-3, 4-ийн засвар үйлчилгээний төлөвлөгөө болон гар хэмжилтийн нөхцөл байдлыг нягтлах
- Нэгдсэн системд холбоход шаардлагатай програм хангамжийн талаар суужаа тодорхойлох
- БОАЖЯ, ЦУОПГ-аас хэрэгжүүлж СЕМС болон хаягдал утааны хэмжилтийн тайлан мэдээ хүлээлцж байгаа нөхцөл байдлыг нягтлах
- Дэрх нөхцөл байдлыг нягталж байхад илрсэн асуудалд зөвлөгөө өгч ажиллана.

2.1 Үйл ажиллагааны төлөвлөгөө (1)

- КОВИД-19 цар тахлын нөлөөгөөр хэрэгжилт ихэвчэн хоцрогдсон тул 2021 оны 8 сар хүртэл жилийн хориг цуцлагдана гэсэн төсөөлгөөр үйл ажиллагааны төлөвлөгөөнд өөрчлөлт оруулсан.

2.3 У/а 1-4 Дамбалдаржаа АЧСХ-ын хэмжилтийн өгөгдлийг агаарын чанарын нэгдсэн мэдээллийн системд холбоход ЖАЙКА мөргөжилтийн дэмжлэг (1)

- ХЗХ-ны 4-р хурал дээр НАБП-аас ЖАЙКА-д төмөр хүсэлтийн дагуу ЖАЙКА-ын мөргөжилт Дамбалдаржаа АЧСХ-ын хэмжилтийн өгөгдлийг агаарын чанарын нэгдсэн мэдээллийн системд холбоход дэмжлэг үзүүлнэ.



1.В

☐ Бэлтгэлтний АЧСХ-ын хэмжээний өгөгдлийг дамжуулах аргачлалыг санал болгоно.

- 2.5 Үйл ажиллагаа 2-2 Тархалтын загварчлал, реселтор модаль
яшигласан загварын бодирдлын бүтэл, ертөнцийн үнэлгээ (2)

2018 ОЖЫ ИНИСИТОР ПИИРЧЕЛЕ ИЖЫМ ТАСОДЛОГ-

[illegible]

● 2017年 第1期
● 2016年 第2期
● 2015年 第3期
● 2014年 第4期
● 2013年 第5期
● 2012年 第6期
● 2011年 第7期
● 2010年 第8期

1.1 РМ эх үүсвэрийн нээгдлийн дүн шинжилгээний зөрлөг

- [illegible]

УБ хотын агаарын бохирдол өвлийн улиралд хүхэрлэг хийний SO₂ агууламж ихссэж байгаа шалтгааны тухай.

- Сайжруулсан хайхлыг түгшлэгийг нэвтрүүлсэн 2020 оны эх үүсвэрийн инвентарыг 2022 оны 1 сар хүртэл худалдааныг боловсруулна.
- ТТГ компанийн сайжруулсан шалгах түгшлэгийг хэрэглэнэ эх үүсвэрийн явгчдын факторг технологийн үнэлгээ хийж, тооцоололд нэмэгдэл явгчдын факторыг сонгох
- 2020 оны эх үүсвэрийн инвентарыг ашигласныг тархалтын загварчилгааг 2022 оны 5 сард биттэлж боловсруулна.
- Боловсруулсан тархалтын загварчилгааг УБ хотын хүмүүрэг хийг SO2-ийг биттлэн 2022 оны 8 сард биттэлж тодорхой болгох.

Цэцэг хүрхүүс программийг ажиллан хэд хэдэн удаагийн сургалтын зохион байгуулалд байгаа бөгөөд НАБТ, ЦУОШГ, УЦУОСМХ-ийн хариуцаан мөргөлдөөнтэд илвэнторын шинэчлэл, дигарын тооцооноо, жилийн төлөвлөг, агаарын орчны төрхийн загварчлал боловсруулх арга-хэрхүүс тавьж сургалт зохион байгуулна.

2.6 Ахуйн хэрэглээний салбаруудын шахмал түлшний зарвар төсөл

2.6.1 Зөвхөн төслийн сайжруулсан шахина түвшиний алгарын бууралтын үр дүнт баталгаажуулах ажил (1)

- 3 Зерныго
 Внутрь сайн: чатырныс тууш үйдэ-эрхэс сайн гархыс бэ одоотайн сайнуурлуусан шалхын
 түгшнэй нүүр чатырнэй сайнуурлуусан шалхын түгшнэй харуулгын.
 Сайнуурлуусан тууш: Одоо ашиглагдаж буй сайнуурлуусан шалхын тууш
 Сайн болгох тууш: Нэгээсээс хамтагтай медийнгийн брикет, хөгсөс кохсын хамтагтай
 медийнгийн
 1 Газар
 Затар тасгийн УБ хотод ойрын аймгийн газарт хэрэглүүн. Газрын сонгох ажил
 хийгдэж байлаа.
 3 Аргачлал
 Сонгоогч байрлалын FM10, FM2.5, SO₂ хэмжээнийг 3 дооноо хонго хийнэ. Судалгын
 өмнөх бэ дарах 1 сэрэг хуучиндаа одоо ашиглагдаж буй түгшнэй хэмжээнийг мөн 3
 дооноо хонго хийнэ.



B. Henry

9. B

2.6.1 Загвар төслийн сайжруулсан шалмал түлшний ашгарлын бууралтын үр дүнг баталгаажуулах ажил (2)

Ори найрдага

(1) $H_{\text{max}} = TT$

- [illegible]

① Гэрлэн дохионы зохицуулалт

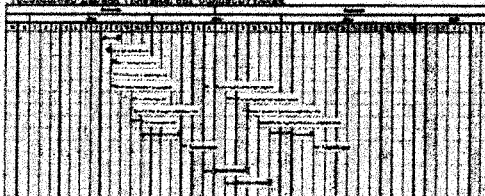


- **ХАЙКА төлөөс хэрэгжүүлэх зүйлс**
- (УБ хотын төвийн 17 улаарын гурван дэслэлтэй зохицуулалтын тохиргоо)
- Ялагд суурт—Гурван дэслэлтэй тохицуулалтын амжилтаагай х оёболот тэхнологийн зохиол
- Гурван дэслэлтэй зохицуулалтынг өөрчлөх төлөвлөгөө болоо суурал—Хотын төвийн 13 улаарын зохицуулалтын (ХХУТ-ийн мөргөлдөөнт)
- Ялаг төлөөс Мөнгөнд төлөө зүгэл
- Зоглох төлөө дууссаны дараа УБ хотын киби нутаг дэслэлт гурван дэслэлт зохицуулалтынг өөрчлүүлэн агай нэвчлэгдэн агай зоглох хэрэгжүүлэх эрхийн суудалтай гурван дэслэлтэй нэвчлэгдэн агай, мөнгө хэрэгжүүлэх бүтэц бүрдүүлэх шаардлагыг
- Мөнгө төлөө хэрэгжүүлэх байдал
- Гурван дэслэлтэй зохицуулалтын киби, сууртэй төлөөс байдалт, гурван дэслэлтэй зохицуулалтын хэрэгжүүлэх бүтэцтэй дүмд байгууллагын дотор кибиэр гурван дэслэлтэй зохицуулалтын төлөөрөөс киби мөнгө хэрэгжүүлэх болоо.

2.6.2 Загвар төслийн сайжруулсан шахмат түлшний ялгарлын бууралтын үр дүнг баталгаажуулах ажил

Отедзлэгэа

2021 оны 8 сард ЖАЙКА төслийн бөг Монголд ирж боломжтой болно гэсэн
түгээлднээс дараах талыг хэвлэв. Зориулалтаа:



- [illegible]

X3M059

STAY ON TOP

[illegible][illegible]

- [illegible]

- 19

27.

- 20

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21

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Анхаарал хандуулсанд баярлалаа


1.Б

**Монгол улс Улаанбаатар хотын Агаарын
бохирдлын хяналтын чадавхыг бэхжүүлэх төсөл
(3 дугаар үе шат)
ХЗХ-ны 5 дугаар хурал**

2021 оны 6 дугаар сар
ЖАЙКА төслийн баг

**3.Өнөөгийн тулгамдсан асуудал, ХЗХ-ны 5-р хурлаар хэлэлцэх зүйлс
3.1 ХЗХ-ны 4-р хурлаар хэлэлцсэн асуудлыг багатах (2)**

ХЗХ-ны 4-р хурлаар RSD-ийг хянуулах болон түүнтэй холбоотой хууль эрхзүйн орчинг бүрдүүлэх талаар хүсэлт тавьсан. RSD-ийг хянуулах талаар Үндэсний хөтөлбөрт тусгагдсан бөгөөд боломж хууль эрхзүйн байдал тодорхойгүй. Иймд 2023 оны 5 сард RSD-ийг судалгаа туршигт хэрэгжүүлсэн ч Монгол тал болон арга хэмжээтэй холбоогддоггүй.	RSD-ийг загвар төслийг хэрэгжүүлсэн ч Монгол талын болон арга хэмжээтэй холбоогддоггүй учраас ЖАЙКА-ийн мөргөмжллийн баг, ЭТХХ, НТҮТ нь 2023 оны 4 сард багтаан RSD-ийг хянуулах төлөвлөгөөг, 2024 оны 7 сард багтаан RSD-ийг хууль эрхзүйн орчинг бүрдүүлэхийг хүсэлт тавьсан.
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ХЗХ-ны 5-р хурлын зорилго

- Гүйцэтгэлийн хийлэн (Дугаар 5-г батлах (У/а хамруулсан хугацаа: 2020-11-2021.04)
- Цааширч үст ажиглагчаа нь татоглогчог багтах (Гүйцэтгэлийн хийлэн-5-д тусгасан)
- Өнөөгийн тулгамдсан асуудал, ХЗХ-ны 5-р хурлаар хэлэлцэх зүйлс
 - ХЗХ-ны 4-р хурлаар хэлэлцсэн асуудлыг нягтлах
 - Хэрэгжилтгүй холбоотой хүсэлт
- Япон талын санхүүг Монгол талаас зөвшөөрөх асуудал
 - ТТМ-ийн үр дүнтэй шалгуур үзүүлэлтийн өөрчлөлт
 - ТТМ-д нэмэлтээр оруулах үйл ажиллагааны санал

**3.Өнөөгийн тулгамдсан асуудал, ХЗХ-ны 5-р хурлаар хэлэлцэх зүйлс
3.1 ХЗХ-ны 4-р хурлаар хэлэлцсэн асуудлыг багатах (3)**

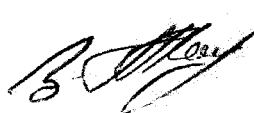
ХЗХ-ны 4-р хурлаар ЭТХХ-ийг хэрэгжүүлсний дараа УБ хотын нийт гэрэл дэлгэц хянуулахыг сайжруулах зорилго хөдөлгөөнийг төсвийн байрны орлогын талын болон буцаах бүрдүүлэх асуудал тодорхой бүс байна. Иймд 2023 оны 7 сард сарын дотоод хянуулах хийсэн ч болон арга хэмжээтэй холбоогддоггүй.	Гэрэл дэлгэц хянуулахыг хэрэгжүүлэх зорилго хөдөлгөөнийг төсвийн байрны орлогын талын болон буцаах бүрдүүлэх асуудал тодорхой бүс байна. Иймд 2023 оны 7 сард сарын дотоод хянуулах хийсэн ч болон арга хэмжээтэй холбоогддоггүй.
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**3.Өнөөгийн тулгамдсан асуудал, ХЗХ-ны 5-р хурлаар хэлэлцэх зүйлс
3.1 ХЗХ-ны 4-р хурлаар хэлэлцсэн асуудлыг багатах (1)**

2021 оны 1 сарын ХЗХ-ны 4-р хурлаар Монгол, Япон талууд Сайжруулсан нийгэм түрүүлэх ажлын хэсгийг 2021 оны 4 дүгээр сард багтаан байгуулахыг тодорхой болон ажлын хэсэг байгуулагдахгүй байна.	2021 оны 1 сард тодорхойлогч дагуу ажлын үйлдлийн загвар төсвийн ажлын хэсгийг тодорхой болон ажлын хэсгийг 2021 оны 8 сард багтаан ЭХХ-аас байгуулахыг Япон тал Монгол талаас хүсэлт тавьсан.
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3.1 ХЗХ-ны 4-р хурлаар хэлэлцсэн асуудлыг нягтлах (4)

2021 оны 1 сарын ХЗХ-ны хурлаар АББҮХ-ны ажлын хэсгийг дараах зүгээс RSD болон АСКХХ-ийн хянуулах технологийг өсгүүлэх сурталчилуу, Экологийн нэгдлийн хяна, НМХГ-ийг хянуулах хүсэлтийг Япон талд тавьсан.	НМХГ, Экологийн нэгдлийн хянах хянахыг уг сурталчилуу хянахыг хянуулах асуудал Монгол тал ажлын байгуулалтын зүгээс Япон мөргөмжллийг зүгээс RSD болон АСКХХ-ийн хянуулах технологийг сурталчилуу хянахыг дээрх байгууллагуудад оролцуулах бүрэн боломжтой байна.
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 1.3

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YAN CUNYUN 1-4-10
Baku

Ушх. 1-4-10
НАБТН. ЖАНКА-НН
МОРЭЛЭНТЭЙ ДЭМЭЛЭНТЭЙ МЭХ
ДЭМЭЛЭНТЭЙ АНХ-НН
ХЭМЭЛЭНТЭЙ СЭЛЭЛЭНТЭЙ МЭХ
МЭХЭЛЭНТЭЙ МЭХЭЛЭНТЭЙ
СЭЛЭЛЭНТЭЙ ДЭМЭЛЭНТЭЙ
СЭЛЭЛЭНТЭЙ

Үр дүгийн шингүүр 1-2
НАЕГГ бием жибсдих
бейгуулнага на халган у
тайланг 3-мэс досингүй у
бэлгэн НЭД-мэс ороогч
өгнө

Үр дүнгийн пиажүүр 1-2
НАВИТ бонор хамбогдох
бэлтүүлэг нь хамгийн утгаан
тайлан 3-ас доошгүй удаа
бэлтгэн Агаарын бохирдлын
асуудлыг хариулсан төслүүдийн
удирдлыг хамгаалах өгнө

Анхаарал тавьсанд баярлалаа

ХЗХ-ын 4-р хурлын үед НАБТГ-ын зүгээс ЖАЙКА-д хандж Дамбыдэвжлэгийн АЧЗХ-ын хэмжээний өгөгдлийг ягаар орны мониторингийнг сүлжээнд холбоход дэмжжээ үзүүлэнгүй хүссэн. Тухайн нөлцөн байдалтай танинхж, ягаар орны мониторингийнг сүлжээнд хэмжээний өгөгдлийг дэмжүүлж талгаар дамжж үзжэ швардлагатай байлга учраас ойлголцаар холбоодод зохилцуулж лэйнэ.

B. B.
I.B.



ANNEX III PDM (ver. 1.4)

Project Design Matrix (PDM)

Ver.1.4

Dated: June 24, 2021

Project Title: Capacity Development Project for Air Pollution Control in Ulaanbaatar City Phase 3

Implementing Agency: Air Pollution Reduction Department (DAAP) of Ulaanbaatar (UB) City, Ministry of Environment and Tourism (MET) and Counterpart Working Group (C/P-WG)

Target Group: DAAP, MET, C/P-WG and Relevant Agencies

Duration of the Project: November 2018 – July 2024 (5 years and 9 months)

Project Site: UB City

Overall Goal			
Emission reduction at major emission sources is enhanced towards air quality improvement in Ulaanbaatar City.	1. XX% of emissions from major pollution sources is reduced compared with the BAU baseline.	1. Comparison between BAU and updated inventory for target year (3 to 5 years after completion of the Project)	
Project Purpose Capacity for air pollution control in Ulaanbaatar City is strengthened, paying special attentions to implementation of effective pollution control measures and to the necessary coordinating mechanism of DAAP and the relevant agencies.	1. XX of pilot projects are adopted as full scale implementation by relevant authorities. 2. XX cases of lessons learned from the pilot projects are utilized by the decision makers. 3. Relevant laws, regulations and standards on air pollution control measures are implemented in UB City, (such as XX of newly established MNS standards, XX% of achievements of existing MNS emission standards)	1. The Project reports 2. Interview survey to the relevant agencies 3. Laws, regulations, MNS standards, and ordinances of UB City	
Outputs			
Output 1: Capabilities of emission monitoring for the major pollution sources and of air quality monitoring are strengthened.	1-1. During the Project duration, at least 50 % of inspections for boiler registration based on emission measurements (including standard and simplified methodologies) are implemented by DAAP and IACC. 1-2. The emission measurement reports are submitted to the Project Leader of UB City in Charge of Air and Environmental Pollution at least 3 times during the Project duration. 1-3. Emission monitoring for the major pollution sources and air quality monitoring information are shared regularly among the relevant agencies through coordination between DAAP and NAMEM. 1-4. The CEMS measurement is compared with the standard measurement once in a year. 1-5. Distribution of emission measurements from vehicles in UB City is prepared based on the study with RSD at least once a year. 2-1. The results of PM apportionment study are reported at least three times during the Project. 2-2. Pollution structures are assessed at least 3 times during the Project duration including emission inventory, simulation model, PM specification, receptor model, air quality monitoring and population exposure throughout the year. 3-1. Drafts of emission measurement methods and quality standards of improved fuel for households in Ger area are submitted to MASM. 3-2. At least three of implementation plans of the pilot projects are prepared.	1. Emission measurement reports by DAAP / IACC 2. The Project reports 3. Boiler registration database 4. Air quality monitoring monthly reports and annual reports 5. CEMS data	1. Legal and political framework for air quality management is maintained, which defines decision making mechanism such as NCEPR and professional agencies like DAAP and NAMEM. 2. The COVID-19 pandemic situation will be improved and JICA will be able to send JICA Experts to Mongolia toward April 2021 until the end of the Project.
Output 2: Capabilities to analyze and evaluate pollution structure of PM, SO ₂ , and NO _x throughout the year are strengthened.		1. The Project reports	
Output 3: Capabilities of technical evaluation and preparation of air pollution control measures for implementation are strengthened.		1. The Project reports	
Output 4: Decision making process for air pollution control is improved by utilizing the Professional agencies including DAAP, NAMEM and the relevant agencies.	4-1. Analysis of air pollution status, short-, medium- and long-term air pollution control strategies (including BAU analysis) and evaluation of air pollution control measures (including implemented and planned) are presented to decision makers at least 2 times. 4-2. Results of pilot project implementation and other Project results are utilized for the revision of NCEPR and for decision making on implementation/non-implementation of pollution control measures at least once.	1. The Project reports 2. Reports on NPREP	

Output 5: Air pollution control measures are enhanced for PM, SO ₂ and NO _x emission reduction at major sources.	5-1. At least three pilot projects selected by C/P-WG are implemented 5-2. The results of each pilot project (emission reduction, improvement of ambient air quality and population exposure for PM, SO ₂ and NO _x) are presented to the relevant agencies.	1. The Project reports	
Output 6: Legal framework, resource allocation and coordinating mechanism as a Platform for the Air Quality Management Cycle are strengthened for the Outputs 1 to 5.	6-1. At least three of drafts on laws and regulations, such as fuel regulations, MNS emission standards and ordinances of UB City, are submitted. 6-2. More than 3 air pollution control measures and technologies are funded by the sections of the relevant agencies in charge of allocating funds for air pollution control by utilizing technical appraisal guideline provided by the Project. 6-3. At least three agreements are made on demarcation of roles of the relevant agencies for air pollution control measures in the Project. 6-4. The operational guideline is distributed to relevant agencies.	1. Laws and regulations, fuel regulations, MNS emission standards and ordinances of UB City 2. Minutes of Meeting of NCEPR 3. Official documents including UB city Governor's orders 4. Operational guideline	
1-1 DAAP and IACC reinforce HOB inspections based on on-site stack gas measurements. 1-1-1 DAAP and JICA Experts assess the technical transfer on-site stack gas measurement. 1-1-2 DAAP with JICA Experts re-constructs 2 teams of stack gas measurement. 1-1-3 IACC and the relevant agencies with JICA Experts implement HOB inspection based on on-site stack gas measurement. 1-1-4 IACC with JICA Experts introduces simplified measurement method by using IACC's portable gas measurement equipment including parallel measurement with JIS method, elaboration of manuals and manufacturer's calibration. 1-1-5 DAAP and IACC with JICA Experts elaborate emission measurement reports. 1-2 TPP3 and TPP4 with JICA Experts enhance emission gas control by utilizing CEMS. 1-2-1 TPP3 and TPP4 with JICA Experts elaborate and implement CEMS operation and maintenance plan. 1-2-2 TPP3 and TPP4 with JICA Experts perform quality control of emission gas data of CEMS. 1-2-3 TPP3 with MET and the relevant agencies elaborate online emission data reporting system for the CEMS. 1-2-4 NAMEM and the relevant agencies share and evaluate CEMS emission data. 1-2-5 NAMEM compiles monitoring data of emissions from TPP2, TPP3, TPP4 and new large heat supply facilities and share them with relevant agencies. 1-3 MRTD and PTSD introduce relevant regulations of vehicles based on emission measurement. 1-3-1 MRTD and PTSD with JICA Experts implement vehicle emission measurements by RSD, assess distribution of vehicles emission intensity and define target vehicles to be regulated. 1-3-2 MRPA and IACC with JICA Experts implement automobile fuel surveys. 1-3-3 JICA Experts conduct training to NRTC, in addition to DAAP, on vehicle emission measurement using on-board emission measurement system, and DAAP and NRTC implement vehicle emission measurement using on-board emission measurement system. 1-4 DAAP and NAMEM with JICA Experts strengthen AQMS utilization. 1-4-1 CLEM and JICA Experts assess the current status of equipment in reference laboratory of CLEM and identify necessary actions if necessary. 1-4-2 DAAP reinforces AQMS operation and maintenance based on the plan by Phase 2. 1-4-3 DAAP with JICA Experts starts air quality monitoring at pilot project area for improved household fuels by utilizing mobile AQMS. 1-4-4 DAAP with JICA Experts reinforces the AQMS at Bayankhoshuu station. 1-4-5 DAAP and NAMEM with JICA Experts implement parallel measurement by EPA sampler for PM concentration, and implement quality control of PM measurements of AQMS. 1-4-6 DAAP and NAMEM with JICA Experts maintain the online information system of AQMS. 1-4-7 DAAP and NAMEM share real-time monitoring data with the relevant agencies through the online information system. 1-4-8 DAAP and CLEM with JICA Experts analyze air quality monitoring data and elaborate air quality monitoring reports. 1-4-9 The relevant agencies utilize air quality monitoring data. 1-4-10 DAAP with JICA Experts establishes the data transfer system of air quality monitoring data of Dambadarjaa station to the online information system of AQMS.	Japanese side 1. JICA experts (necessary fields) (1) Chief Advisor (2) Air Pollution Control Planning and Policy (3) Emission Measurement for Stationary Sources (4) Ambient Air Quality Monitoring (5) Ambient Air Quality Analysis (6) PM10 and PM2.5 (7) Sampling (8) Apportionment Study (9) Emission Inventory (Stationary, Mobile and Others) (10) Air Quality Simulation Modeling / Air Pollution Control Measures Evaluation (11) Auto-mobile Emission Control (12) Clean Coal Technology for Air Pollution Control Measures (13) CEMS Data Analysis (14) Stationary Source Emission Control (15) Air Quality Administration (16) Public Awareness and Public Relations Mongolian side 1. C/P and C/P-WG (1) JCC Chairperson (2) JCC Vice-Chairperson (3) Project Director (4) Project Manager (5) Necessary C/P and C/P-WG staff according to the fields of JICA Experts 2. Facility (1) Provision of necessary office space in DAAP and MET (including internet access) (2) CLEM Laboratory (3) Storage Space for Equipment 3. Local cost (1) Counterpart expenses such as salary, allowance, travel cost and accommodation (2) Project administrative expenses	1. There are no frequent leaves, transfers or resignations of C/P and C/P-WG members. 2. Necessary coordination among UB city, districts, khoroos and communities in Ger area is secured by Mongolian side for implementation of pilot projects.	

2-1 NAMEM and JICA Experts conduct PM apportionment study based on PM speciation throughout the year. 2-1-1 CLEM and JICA Experts elaborate PM sampling plan throughout the year, and implement PM samplings. 2-1-2 JICA Experts perform PM speciation analysis in Japan. 2-1-3 NAMEM and CLEM with JICA Experts learn PM speciation technologies (ion analysis, element analysis and carbon analysis). 2-1-4 NAMEM and CLEM with JICA Experts formulate equipment and laboratory plan for PM speciation. 2-1-5 DAAP and NAMEM with JICA Experts perform PM apportionment study based on receptor modeling. 2-2 DAAP and NAMEM with JICA Experts evaluate air pollution structure and health impact based on air quality simulation model and receptor model. 2-2-1 DAAP and NAMEM elaborate plans for updating emission inventory. 2-2-2 DAAP, TCC and PTSD implement studies for mobile sources including update of emission inventory, examination of traffic signal control, traffic volume and vehicle traveling speed. 2-2-3 DAAP and JICA Experts select the pilot areas and assess Ger stoves usage pattern (type and model of stoves, seasonal pattern of usage, insulation of Ger housing and coal consumption). 2-2-4 DAAP and NAMEM with JICA Experts implement studies for other emission sources as necessary. 2-2-5 DAAP and NAMEM with JICA Experts elaborate BAU (Business as usual) scenario for the future year based on TPPs future development plans, projection of number of vehicle, population, economic growth, emission regulation, fuel quality regulation and so on. 2-2-6 DAAP and NAMEM update emission inventory for the present year and the future year for the BAU scenario. 2-2-7 DAAP and NAMEM update the air quality simulation model for PM10, SO₂ and NO_x. 2-2-8 DAAP and NAMEM evaluate the air pollution structure of UB city. 2-2-9 DAAP and NAMEM evaluate indicative population exposure of PM10 based on population weighted concentration and so on. 3-1 DAAP and the relevant agencies elaborate a draft MNS on an emission measurement method of improved fuel and fuel quality, and propose it to MASM. 3-2 ME with JICA Experts elaborates safety standards on the household gas distribution. 3-3 DAAP and the relevant agencies elaborate implementation plans and terms of reference for pilot projects such as improved fuel, HOB, traffic signal control, eco-driving, RSD, smoke belching program based on portable emission device, DPF, low sulfur fuel and low emission vehicles. 4-1 DAAP and NAMEM submit to the decision makers the analysis of air pollution status, short-, medium- and long-term air pollution control strategies (including BAU analysis) and evaluation of air pollution control measures (including implemented and planned). 4-2 Relevant agencies with pilot projects elaborate technical guidelines and utilizes them. 4-3 The relevant agencies discuss and endorse the selection of pilot projects. 4-4 NCEPR and the relevant agencies approve large scale investments based on pilot projects implementation and assessment. 4-5 NCEPR, or the sections of the relevant agencies in charge of allocating funds for air pollution control in the Mongolian government such as the Environment and Climate Fund utilizes the Outputs of the Projects and pilot projects implementation and assessment. 5-1 DAAP with Health Department of Capital City and the relevant agencies implements public awareness and advisory activities for citizens including school students and parents. 5-2 MET and DAAP publish progress of the Project by newsletter, newspaper articles, web-site and other medias. 5-3 DAAP and JICA Experts provide technical guidance to manufacturers for improved fuel production. 5-4 The relevant agencies with JICA Experts implement pilot projects according to the implementation plan by Activity 3-3. 5-5 The relevant agencies with JICA Experts evaluate pilot projects results in terms of emission reduction, air quality improvement and exposure to citizens, and extract lessons learned. 5-6 The relevant agencies with JICA Experts report the pilot projects results to NCEPR. 5-7 TPP3 and TPP4 analyze CEMS data, and examine viable air pollution control measures. 5-8 TPP3 and TPP4 with JICA Experts elaborate emission reduction plans.	2. Training seminars and workshops (1) Local workshops (2) Training course in Japan 3. Provision of necessary equipment 4. Local cost Necessary expenses for activity of JICA Experts	Pre-conditions 1. Appropriate number of qualified staff of C/P and C/P-WG is assigned. 2. Adequate amount of budget related with the Project
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6-1 The relevant agencies discuss and elaborate written agreements on demarcation of roles in air quality management related with each Output and Activity of the Project. 6-2 DAAP with JICA Experts submits technical documents to NCEPR for improved fuel standard, emission standard on stationary sources, mobile sources and other emission sources, and revision of ordinance. 6-3 NCEPR and the relevant agencies elaborate fuel standard and emission standard, and submit them to MASM. 6-4 Relevant ministries / relevant agencies of UB city elaborate laws, regulations and ordinances on air pollution control measures, and submit them to national parliament / city council. 6-5 JICA Experts provide training on air pollution control measures and technical appraisal guidelines for staff of the sections of the relevant agencies in charge of allocating funds for air pollution control. 6-6 Staff of the sections of the relevant agencies in charge of allocating funds for air pollution control with JICA Experts improve relevant operations with allocating funds for air pollution control measures, if necessary. 6-7 Mongolian side enhances donor coordination in air pollution control. 6-8 Relevant agencies of pilot projects with JICA Experts develop an operational guideline for elaboration, implementation and evaluation of air pollution control measures based on pilot projects implementation.	Implementation is secured. 3. Necessary human resources mobilization related with pilot projects is secured by Mongolian side.
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AQMS: Air Quality Monitoring Station
BAU: Business as Usual
CEMS: Continuous Emission Monitoring System
CFWH: Coal Fired Water Heater
C/P: Counterpart
C/P-WG: Counterpart Working Group
DAAP: Department of Against Air Pollution of Capital City
DPF: Diesel Particulate Filter
FRM: Federal Reference Method
HOB: Heat Only Boiler
IACC: Inspection Agency of the Capital City
MASM: Mongolian Agency for Standardization and Metrology
MET: Ministry of Environment and Tourism
MMHI: Ministry of Mining and Heavy Industry
MNS: Mongolian National Standard
MRPA: Mineral Resources and Petroleum Authority
MRTD: Ministry of Road and Transport Development
NAMEM: National Agency for Meteorology and Environment Monitoring
NCEPR: National Committee for Environment Pollution Reduction
NPREP: National Program on Reducing Environment Pollution
NRTC: National Road Transport Center
PTSD: Public Transportation Service Department of the Capital City
PM: Particulate Matter
RSD: Remote Sensing Device
TCC: Traffic Control Center of the Capital City
TPP: Thermal Power Plant

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MINUTES OF MEETING OF
THE SIXTH JOINT COORDINATING COMMITTEE MEETING
ON JAPANESE TECHNICAL COOPERATION FOR
CAPACITY DEVELOPMENT PROJECT FOR AIR POLLUTION CONTROL IN
ULAANBAATAR CITY PHASE 3 in MONGOLIA

The Japan International Cooperation Agency (hereinafter referred to as "JICA") Supervisory Team for "Capacity Development Project for Air Pollution Control in Ulaanbaatar City Phase 3 in Mongolia (hereinafter referred to as "the Project"), JICA Mongolia Office, and JICA Expert Team (hereinafter referred to as "JET") had a series of meetings with Department of Against Air Pollution of Capital City (hereinafter referred to as "DAAP"), Ministry of Environment and Tourism (hereinafter referred to as "MET") and Joint Coordinating Committee (hereinafter referred to as "JCC") members from 4th November to 9th December 2021 to discuss the Progress Report 3, Monitoring Sheet No.6, and held the fifth Counterpart Working Group (hereinafter referred to as "C/P-WG") meeting in online video format on 6th December and the sixth JCC meeting of the Project chaired by Mr. Ikhubayar Dashnyam, Project Leader of Capital City in charge of air and environmental pollution in hybrid format on 9th December 2021. Participants list of the sixth JCC meeting is shown in Annex I.

Japanese side and the Mongolian authorities had a series of discussions. As a result of discussions, both sides agreed on matters referred to the document attached hereto.

The parties acknowledge and agree that this Minutes of Meetings may be executed by electronic signature, which is considered as an original signature for all purposes and has the same force and effect as an original signature. "Electronic signature" includes faxed versions of an original signature or electronically scanned and transmitted versions (e.g., via pdf) of an original signature.

Tokyo and Ulaanbaatar, 27th December 2021

田村 恵子

Ms. Eriko TAMURA
Leader, JICA Supervisory Team,
Chief Representative
JICA Mongolia Office
Japan International Cooperation Agency,
Japan

Mr. Ikhubayar DASHNYAM
Project Leader of Capital City in
Charge of Air and Environmental
Pollution, Mongolia

田畑 亨

Mr. Toru TABATA
Leader, JICA Expert Team, Japan

Mr. Enkhmunkh GANBOLD
Director General
Environment and Natural Resources
Management Department, Ministry of
Environment and Tourism, Mongolia

Mr. Batkhuu IDESH
Director General
Development Financing
Department
Ministry of Finance, Mongolia

ATTACHED DOCUMENT

I. Progress Report 3 and the Project Monitoring Sheet 6

JET explained the progress of the Project, future activity plan, and issues that the Project is facing since its beginning. After active discussions, the JCC approved the Progress Report 3 and the Project Monitoring Sheet 6.

Revision of the Project Design Matrix (II to III)

II. Revision of the Project Design Matrix (Objectively Verifiable Indicators)

The Japanese side proposed the revision of the Project Design Matrix (hereinafter referred to as PDM), which was approved by the Mongolian side. The revised contents in the PDM are indicated in Annex II.

1. Objectively Verifiable Indicators 1

"1. XX of pilot projects are adopted as full scale implementation by relevant authorities." will be replaced by;

"1. One of pilot projects is adopted as full scale implementation by relevant authorities."

2. Objectively Verifiable Indicators 2

"2. XX cases of lessons learned from the pilot projects are utilized by the decision makers." will be replaced by;

"2. At least one case of lessons learned from the pilot projects are utilized by the decision makers."

3. Objectively Verifiable Indicators 3

"3. Relevant laws, regulations and standards on air pollution control measures are implemented in UB City. (Such as XX of newly established Mongolian National Standard (hereinafter referred to as "MNS") standards. XX% of achievements of existing MNS emission standards)"

will be replaced by;

"3. Relevant laws, regulations and standards on air pollution control measures are implemented in UB City (At least establishment of one MNS, and/or 70% of compliance in the dust emission standards of existing MNS; MNS5043:2016 (General technical requirement of heat water boiler under 4.2MW) and MNS5919:2008 (Emission limit value and measurement method of power plant, steam boiler).)"

III. Additional Activity of PDM

Diesel Particulate Filters (hereinafter referred to as "DPFs") have been installed in 24 large buses under the project "Verification Survey with the Private Sector for Disseminating Japanese Technologies for Emission Reduction of Particulate Matter



(hereinafter referred to as "PM") from Diesel Buses by DPF". The DPF equipment has been handed over to the relevant organizations of the UB city. The buses with DPFs will retire in December 2022 as they are more than 12 years old. At the 5th JCC, the Mongolian side requested the Japanese side to provide "technical support regarding the relocation of DPF" in the project. After confirming the current situation, the Japanese side decided to support the activities to transfer DPFs installed in 24 large buses to other buses. The Japanese side proposed to add the following activity 1-3-4, and the Mongolian side agreed.

"1-3-4 Public Transportation Service Department of the Capital City (hereinafter referred to as "PTSD") with JICA Expert transfer the DPFs which were installed on 24 large buses by the project "Verification Survey with the Private Sector for Disseminating Japanese Technologies for Emission Reduction of PM from Diesel Buses by DPF" to other buses.

IV. Request from the Japanese side of the issues on the future project activities

1. Agreement on the role sharing in developing emission inventories, implementing simulation models, and assessing air pollution control measures

The roles of DAAP, National Agency for Meteorology and Environment Monitoring (hereinafter referred to as "NAMEM"), and Information and Research Institute of Meteorology, Hydrology and Environment (hereinafter referred to as "IRIMHE") have not been defined in developing emission inventories, implementing simulation models, and assessing air pollution control measures. It is important that these organizations will continue the tasks in their official business. Therefore, the Japanese side requested to issue the agreement on the role sharing in developing emission inventories, implementing simulation models, and assessing air pollution control measures.

Mr. Batbayar JADAMBA of NAMEM agreed this request, stating that they will issue the joint agreement to clarify their roles and to promote the activities on simulation modeling and evaluation of the measures. Ms. Tsolmon TSOGBADRAKH of DAAP also agreed that.

2. Installation of the crusher

The crusher, which was provided by the Project to Ministry of Energy (hereinafter referred to as "ME"), then leased by Tavan Tolgoi Tulsh LLC (hereinafter referred to as "TTT") has not been installed. The Japanese side requested that TTT should install the crusher by April 2022. JET, DAAP, and TTT discussed the matter, and then TTT has completed the installation of the crusher in December 2021 according to the Japanese request.

V. Request based on the 4th and 5th JCC

1. Establishment of working group of improved fuel

The Mongolian side and the Japanese side agreed in the 4th JCC in January 2020 to



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establish the working group by April 2021, which has not yet been realized. Director of Fuel Policy Implementation and Coordination Department of ME will confirm the requests in the official letter, and will consider to establish the working group. JET requested to establish the working group by May 2022, in which the proposal of technically improved fuel, report of the pilot project, cost-effectiveness of improved fuel will be discussed.

Ms. Tsolmon TSOGBADRAKH and Ms. Purevsuren BOLOOJ of DAAP mentioned that DAAP had sent several letters and communications from DAAP to the ME requesting the establishment of a working group based on the request from the Japanese side at the 4th JCC. DAAP requested ME and Ministry of Environment and Tourism (hereinafter referred to as "MET") to accelerate the establishment of the working group, as it was requested again at this JCC.

Ms. Davaasuren DAMDIN, attended on behalf of the director of ME responded that the establishment of the working group was delayed due to the timing of the organizational change of the ME, and that it would be discussed within the ME. In addition, she stated that it is necessary for the Japanese and Mongolian sides to decide the level at which the working group will be established, whether it will be at the level where the central government will be involved and manage the project, or at the level where the results of the pilot project will be verified. She also stated that ME and TTT would like to discuss the roles of ministries and the private sector, and then consider what kind of policy to pursue in the future.

Mr. Munkhbat TSENDEEKHUU of MET mentioned that the working group would be an opportunity for the relevant organizations to discuss the progress, results, and effects of the pilot project, and that MET could accept the establishment of the working group.

2. Pilot project for improved fuel

JET proposed to the Mongolian side that:

- 1) Assuming that the JICA experts in charge will resume their travel to Mongolia in April 2022, TTT, JET and DAAP will discuss and prepare for the pilot project as follows;
 - A) TTT will make arrangements for JET to purchase 7.2 tons of existing TTT's improved fuel.
 - B) JET will prepare mixtures of biomass, semi-coke, etc., desulfurizers and binders, and TTT will prepare 8 tons of UHG middling.
 - C) JET will support TTT to produce 100 kg of sample fuels and 7.2 tons of improved fuels for the pilot project.

JET, TTT, and DAAP have discussed and TTT agreed to support providing UHG middling and producing fuel for the pilot project. The three parties will continue to discuss the details of the cooperation.



3. Installation of Remote Sensing Device (hereinafter referred to as "RSD") and preparation of the legal framework for RSD utilization

The cost for installation of RSD is included in the budget for construction of a new road between UB city and Darkhan city. However, the Mongolian side is now looking for funding for the construction. In addition, the Ministry of Road and Transport Development (hereinafter referred to as "MRTD") has submitted to the Parliament the revised version of the Road Transport Act including usage of the latest technology to improve the vehicle control system. The revised act contains the specification of the system and the necessary legal arrangement will be initiated in the future. The Japanese side proposed to the Mongolian side that specific regulations, penalties, and maintenance orders should be considered for the implementation of the regulations, and that the legal system including ordinances should be developed by May 2024, in order for the RSD pilot project to be developed as a full-scale project.

No objection was raised by the Mongolian side on this point. The Japanese side will continue to make this request and promote the Mongolian side's actions.

VI. Progress of the request regarding issues and obstacles for scaling up the pilot projects to the full-scale projects

1. Sales of low-sulfur fuel

The Ministry of Mineral and Heavy Industries (hereinafter referred to as "MMHI") is submitting a bill to the MET to revise the Air Law in order to stipulate the sales of EURO 5 fuel in the Air Quality Improvement Area. In addition, MMHI has submitted a bill to the Ministry of Finance to eliminate the price difference between existing fuels and EURO5 fuel by taxation in order to promote the sale of low-sulfur fuels. The efforts by the Mongolian side and progress toward a full-scale project were confirmed.

2. Installation of PM reduction equipment (DPF) and low emission vehicles

The PTSD requested the technical support from the Project to transfer DPFs of 24 buses that had been installed by another JICA project regarding DPF Verification Survey, since those buses would retire.

There is a target of using Compressed Natural Gas (hereinafter referred to as "CNG") and electric vehicles for public buses. The target is replacement of 590 buses to CNG or electric buses, and 35 buses out of planned 100 buses were purchased. It was confirmed that the full-scale project regarding low emission vehicles had proceeded. Although there is no plan to install additional PM reduction equipment, Ms. Tsolmon of DAAP has welcomed that the newly-added activity on transfer of DPF on 24 public buses, stating that they would like to expedite the activity cooperating with the PTSD, since the PM emission reduction by DPF is estimated as 70 to 80 %.

3. Introduction of the equipment for operational management for promotion of eco-



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driving and development of legal arrangement

MRTD has an activity to improve the road safety, but there is no plan to install operation management devices, or to develop a law to obligate to install them. On the other hand, funding for the operation management devices is secured in the budget of the governor of the capital city in the framework for mitigation of traffic congestion. It was confirmed that the preparation for the pilot project and full-scale project by the Mongolian side was progressing.

VII. Other Issue

Ms. Davaasuren DAMDIN of ME mentioned that the simulation model for year 2020 is planned to be developed by next June, but she asked for the work to be carried out ahead of the schedule in order to clarify the effect of emissions reduction as soon as possible.

Ms. Purevsuren BOLOOJ of DAAP responded that it is taking much time due to changes in organizational structure and personnel, and a lack of support from relevant ministries and agencies on the Mongolian side. It is important to understand the emissions in 2020, and the activity plan is prioritized for 2020 over 2019. However, she mentioned it would take the time to arrange the data because it also needs to be carefully examined, after which diffusion simulation modeling will be carried out.

Mr. Munkhbat TSENDEEKHUU of MET mentioned that the registration information for emission sources using raw coal has been provided, and simulation calculations are able to be proceed as planned, but he requested the Project to provide the emission inventory on 2020 until January 2022 even as a draft basis.

JET responded that the preparation of the emission inventory on 2020 should be led by the Mongolian side, but issuance of the inventory report is scheduled by the end of January 2022.

VIII. Opening remarks by Mr. Ikhbayar Dashnyam Project Leader of Capital City in Charge of Air and Environmental Pollution

It has been two weeks since I was appointed as the Project Leader. I am currently in the midst of a very busy period of budget discussions in UB City. As a former deputy mayor of UB City in charge of innovation and technology, I have been involved in various activities related to air pollution and environmental issues, so I am somewhat familiar with this field. The Mongolian side appreciates JICA's cooperation with the Mongolian government to implement various projects in various fields. By implementing the Project in cooperation with JICA, the Mongolian side has been able to manage air quality in the air quality improvement areas of UB. It has enabled us to plan where Mongolia is now and where Mongolia want to go in the future. I would also like to thank JICA for their cooperation in transferring technology to the UB city officers and setting up the laboratory. The Mongolian and the Japanese side have gathered here today to discuss the future action plan and the progress report so

far, and to discuss what both side should do in the future to reduce air pollution by 70, 80 to 90%.

IX. Opening remarks by Ms. Eriko TAMURA, Chief Representative of JICA Mongolia Office

Since the project has started in December 2018, it has been already three years. Despite various limitations due to the pandemic, JICA appreciates the efforts of various stakeholders in all activities to work together to properly verify the effectiveness of air pollution control implementation. Due to the impact of the COVID-19, the JICA expert team was unable to travel for a longer period than expected, which affected the implementation of the Project activities. The short-term experts resumed their travel this November and the Japanese side are now ensuring the progress of the results. Today's 6th JCC aims to clarify the achievements and challenges of the past activities, and to review future activity plans and other issues that both the Mongolian and Japanese sides need to address in order to achieve the Project goals. In particular, Project Leader has been changed so briefings from Project team about the project will be helpful for both sides to have same understanding. The implementation of the various pilot projects has been delayed therefore related evaluation and analysis have not been carried out yet. The Project activities have been postponed overall. At today's meeting, I would like to ask JCC members to discuss a more specific plan so that each pilot project will be connected as a full-scale project on the Mongolian side. Through the pilot project, I hope that both sides will be able to discuss how to tackle specific regulations, such as the sale of low-sulfur fuel, vehicle emissions, and mandatory installation of DPFs. It is suggestable for JCC members to discuss about smoother implementation of project considering the possibility that JET next travel might be restricted due to pandemic impact.

X. Conclusions by Mr. Taizo YAMADA, JICA Supervisory Team

I have been participating in this project since the Phase 1 preliminary study in 2008. In the Project Phase 1 and 2, JICA provided supports to the CP and CP-WG organizations in the technical transfer, human resource development, and strengthening of inter-organizational collaboration necessary to deal with air pollution in UB. The Project Phase 3 is aimed at strengthening the capacity to implement air pollution control measures. It is important for higher level decision-makers to be able to make technically rational decisions through the technical contributions of the professional agencies. JICA is very pleased to see that various efforts of the Mongolian side, such as the improved household fuel distribution project in the Ger area and the low-sulfur fuel pricing policy, are being implemented self-reliantly. In order for the further reduction of emission and the improvement of air quality, this Project phase 3 aims to implement pilot projects for



air pollution control, which will be developed into full-scale projects by the Mongolian side during the remaining period of the Project phase 3. The Japanese side has made various proposals to promote cooperation among the organizations for that purpose. I would like to express my gratitude to the Mongolian government for the joint agreement on the implementation of the simulation model, and for their positive consideration of the establishment of a working group on the pilot project for improved fuels for Ger area. Although the Project Phase 3 is trying to provide supports for advanced level, the Japanese side would like to ask the Mongolian side to take measures to ensure the availability of personnel and to take over the work for vehicle emission measurement, etc., at the field level. I am concerned that the technical transfers conducted in the past may not be utilized due to the shortage of personnel and succession problems. I hope that small problems at the field level should not become a major obstacle for the entire project. Although there are still various major obstacles to the implementation of the project due to COVID-19, I understand that the Project is making a progress steadily. The capacity of the Mongolian people has been advanced, and I am looking forward to seeing their future activities. I hope that the Mongolian and Japanese sides will work together in order to bring back the blue sky to UB City.

XI. Conclusions by Mr. Ikhbayar Dashnyam Project Leader of Capital City in Charge of Air and Environmental Pollution

Starting next year, UB City wants to implement not only improved fuel but also other measures at the policy level. 3,500 households, for example, will be re-located to apartments and 3,500 chimneys will be eliminated. 600 new public transportation buses will be purchased. Of these, 540 will be electric buses and 60 will be EURO5 buses.

In accordance with Decision No. 123 dated October 8, 2020 of the Deputy Prime Minister of Mongolia (Transfer of hot water and steam boilers to advanced technology), a total of 150 HOBs (80 HOBs using middling and 70 HOBs using raw coal) will be eliminated by 15th May, 2022. The Mongolian side is planning to implement a campaign to eliminate chimneys from the city in cooperation with each khoroo. In addition to improved fuel, the Mongolian side will try to discuss and implement other efficient measures. To drive car in UB, it is required to pay an air pollution fee every year, but the tax amount is very low compared to other countries, so it is necessary to consider increasing the tax at the central government level in the future. Another factor delaying the achievement of the goal is the increase in the emission sources of air pollution due to the urbanization. Migration from rural areas to UB City has led to an increase of 20,000 households per year in the Ger area. In addition, the number of vehicles is increasing by 50,000 per year. Expansion of the Air Quality Improvement Area is under consideration. It is planned to expand the air quality improvement area to include the surrounding areas of UB City and Nalaikh District from next year. It will take some time before significant results can be obtained at further level, but it is important that the ministry and UB city



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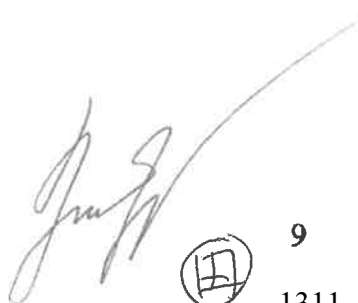
agencies work together to step up and achieve the results.

END

ANNEX I Participants of Sixth Joint Coordination Committee

ANNEX II Presentation of Progress Report 3 and Monitoring Sheet No.6, Revised
Activity Plan and Important Issue

ANNEX III PDM (ver. 1.5)



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ANNEX I Participants of Sixth Joint Coordination Committee

	Name	Organization	Position
1	Ikhbayar Dashnyam	Ulaanbaatar City	Project Leader of Capital City
2	D. Davaabayar	Ministry of Mining and Heavy Industry, Fuel Policy Department	Officer
3	Tulga	Ministry of Road and Transport Development, Information Technology Standards Department Information Technology Standard Division	Head of Division
4	Baysgalan	Ministry of Road and Transport Development, Policy and Planning Department Air Pollution Reducing and Green Development Division	Officer
5	D. Davaadsuren	Ministry of Energy Fuel Policy Implementation and Coordination Department	Surrogate
6	D.Bolormaa	Ministry of Construction and Urban Development, division of Policy and Planning	Officer
7	Ts.Munkhbat	Ministry of Environment and Tourism, Mongolia	Officer
8	Gerelmaa	Ministry of Finance Development Financing Department	Officer
9	A.Achibold	Ministry of Finance Development Financing Department	Officer
10	J. Batbayar	National Agency for Meteorology and Environment Monitoring Environment Monitoring Division	Head of Division
11	Munkhbold	Mayor's office Development Policy Planning Department	Head of Division
12	Nyamdorj	Public Transport Service Department	Officer
13	Battsooj	Public Transport Service Department	Officer
14	Enkhtur	Traffic Planning, Coordination and Engineering Department of Capital City	Head of Department
15	Unurjargal	Traffic Planning, Coordination and Engineering Department of Capital City	Officer
16	N.Bilegsaikhan	Urban Regulation, Environmental Safety Control Coordination Department Environmental Safety Control Division	Head of Division
17	D.Nomin	Urban Regulation, Environmental Safety Control Coordination Department Environmental Safety Control Division	Officer
18	D. Prevsuren	Department of Against Air Pollution of the Capital City	Acting Head of DAAP
19	T. Tsolmon	Department of Against Air Pollution of the Capital City	Acting Deputy Head of DAAP
20	Davaajargal	Department of Against Air Pollution of the Capital City, Division of Air Quality Management	Head of Division
21	G. Amartuvshin	Thermal Power Plan-3, Technical policy Division	Head of division
22	Taizo YAMADA	JICA Headquarter JICA Supervisory Team	Senior Technical Advisor (Environment)

23	Itaru CHIBA	JICA Global Environment Department Environmental Management Group Environmental Management Team 1 JICA Supervisory Team	Deputy Director
24	Eriko Tamura	JICA Mongolia Office	Chief Representative
25	Atsuki TAKEDA	JICA Mongolia Office	Project Formulation Advisor
26	Ch. MUNKHMANLAI	JICA Mongolia Office	National Staff
27	Toru TABATA	JICA Expert Team	Chief Advisor
28	Natsuji SAWAKI	JICA Expert Team	Sub Leader
29	Ei Edo	JICA Expert Team	Chief Sub Group Leader
30	Hajime Endo	JICA Expert Team	Clean Coal Technology / Pilot Project for Improved Fuel 1
31	Jun OKABE	JICA Expert Team	Auto-mobile Emission Control 2/ Emission Measurement for Mobile Sources
32	Shinya NAKATA	JICA Expert Team	Air Quality Simulation Model / Air Pollution Control Measures Evaluation / Emission Inventory
33	Satoshi MATOBA	Embassy of Japan in Mongolia	Secretary
34	M. BOLDBAYAR	Tavan Tolgoi Tulsh LLC	Director of Factory Department
35	Kh. Galiimbek	Tavan Tolgoi Tulsh LLC	Expert



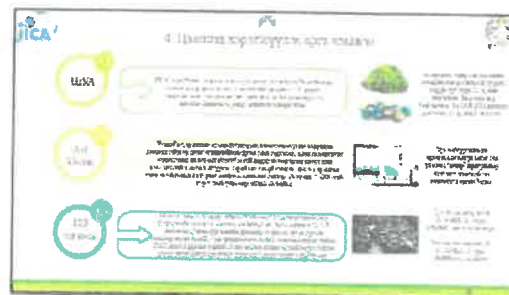
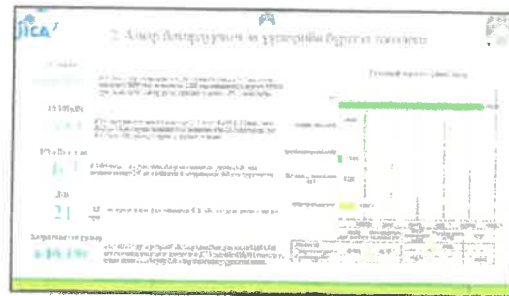
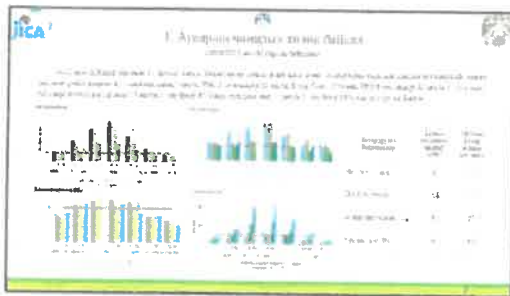
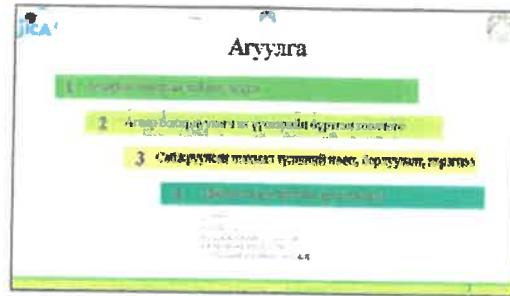
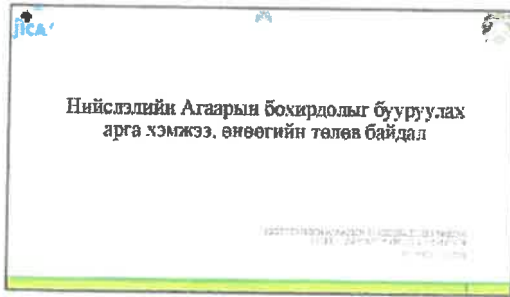

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Handwritten signature and the number 18.

Монгол улс Улаанбаатар хотын Агаарын
бохирдлын хяналтын чадавхыг бэхжүүлэх
төсөл (3 дугаар үе шат)
ХЗХ-ны 6 дугаар хуралдаан

Явцын танилцуулга

2021 оны 12 сар
ЖАЙКА төслийн бич

Хурлын зорилго

1. Явцын тайлан /Дугаар 3/-г батлах (2020/12~2021/11)
2. Гүйцэтгэлийн тайлан /Дугаар 6/-г батлах (2020/05~2021/10)
3. Цаашдын төлөвлөгөөг батлах (явцын тайлан-3-т тусгах)
4. Тулгамдсан асуудал, хэлэлцэх зүйлс
 - 4.1 ХЗХ-ны 4, 5-р хурлаар хэлэлцсэн асуудлыг тодруулах
 - 4.2 Цаашид тулгамдаж буй асуудалтай холбоотой хүсэлт
5. Япон талын саналыг Монгол талтай хэлэлцэж, эцэслэн батлах
 - 5.1 ТГМ-ын үр дүнтэйг шалгуур үзүүлэлтийг өөрчлөх санал
 - 5.2 ТГМ-д нэмэлтээр оруулах үйл ажиллагааны санал

Хурлын зорилго

1. Явцын тайлан /Дугаар 3/-г батлах (2020/12~2021/11)
2. Гүйцэтгэлийн тайлан /Дугаар 6/-г батлах (2020/05~2021/10)

1. Явцын тайлан /дугаар 3/-ын
ерөнхий танилцуулга

1.1 Эрхэм зорилго, төслийн зорилго

Төслийн зорилго

Монгол улс Улаанбаатар хотын Агаарын бохирдлын хяналтын чадавхыг бэхжүүлэх төсөл (3 дугаар үе шат) ХЗХ-ны 6 дугаар хуралдаан

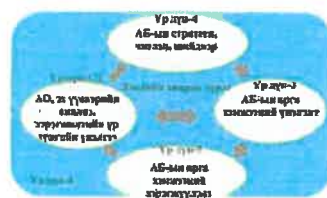
Эрхэм зорилго

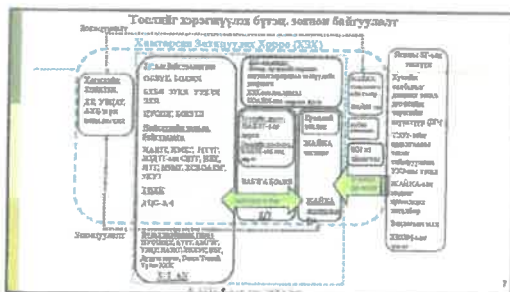
Агаарын бохирдлын бууруулж, эрүүл ахуйн орчинг хамгаалах, ХААТГ-ийн бусад төлөвлөгөөг хэрэгжүүлж, Агаарын бохирдлын хяналтын чадавхыг бэхжүүлэх зорилго

Үр дүн

1. Агаарын бохирдлын бууруулж, эрүүл ахуйн орчинг хамгаалах, ХААТГ-ийн бусад төлөвлөгөөг хэрэгжүүлж, Агаарын бохирдлын хяналтын чадавхыг бэхжүүлэх зорилго
2. Агаарын бохирдлын бууруулж, эрүүл ахуйн орчинг хамгаалах, ХААТГ-ийн бусад төлөвлөгөөг хэрэгжүүлж, Агаарын бохирдлын хяналтын чадавхыг бэхжүүлэх зорилго
3. Агаарын бохирдлын бууруулж, эрүүл ахуйн орчинг хамгаалах, ХААТГ-ийн бусад төлөвлөгөөг хэрэгжүүлж, Агаарын бохирдлын хяналтын чадавхыг бэхжүүлэх зорилго
4. Агаарын бохирдлын бууруулж, эрүүл ахуйн орчинг хамгаалах, ХААТГ-ийн бусад төлөвлөгөөг хэрэгжүүлж, Агаарын бохирдлын хяналтын чадавхыг бэхжүүлэх зорилго
5. Агаарын бохирдлын бууруулж, эрүүл ахуйн орчинг хамгаалах, ХААТГ-ийн бусад төлөвлөгөөг хэрэгжүүлж, Агаарын бохирдлын хяналтын чадавхыг бэхжүүлэх зорилго

Төслийн үр дүнд бий болгох агаар орчны
хяналтын үндэс





1.2. ХЗХ-ны хуралдаан, нээлтийн семинар зохион байгуулалт

- Х/Т-АХ-ийн 3-р хурал (2021.01.21), ХЗХ-ны 4-р хуралдаан (2021.01.28)
- Хэлэлцэж баталсан асуудал:
 - КОВИД-19 улмвас төслийн хугацааг анх 2018.11 ~ 2023.04 сар хүртэл /4.5 жил/ байсныг 2018.11 ~ 2024.07 сар хүртэл /5.9 жил/ сулгах
 - Үр дүнгийн шалгуурыг баталгаажуулж, төсөл төлөвлөлтийн матриц (ТТМ)-ыг шинэчилж /хувиар 1.3/
 - ЗХУТ-ийг ХЗХ-ны гишүүнээр, Х/Т-АХ-д "Таван Толгой Түлш" ХХК-ийг гишүүнээр тус тус нэмэх
 - НАБТТ-ын БХХ-ийн дарга, НАБТТ-ын дэд даргын үүрэг гүйцэтгэгч Полмонт төслийн даргаар, АЧХХ-ийн даргыг төслийн менежерээр түр томьёон ажиллуулах

1.2. ХЗХ-ны хуралдаан, нээлтийн семинар зохион байгуулалт

- Х/Т-АХ-ийн 4-р хурал (2021.06.21), ХЗХ-ны 5-р хуралдаан (2021.06.24)
- Хэлэлцэж баталсан асуудал:
 - ТТМ-ын үр дүнгийн шалгуурыг өөрчлөх, үйл ажиллагааг нэмэх /шинэчилсэн найруулга, хувиар 1.4/
 - ТТТ компанийн дагуу төсөлд өгөгдөх өөрчлөлтөд үйлдвэрлэх, сайжруулсан шалгалт түлшний явцын хэсэг байгуулах хүсэлтийг дэхин гэрлэсэн ч монгол талвас тодорхой хариу өгөөгүй.
 - Монгол талвас DFF-ийг шинэчлэн суурьцуулахад дэмжлэг үзүүлэх хүсэлт гаргаж, ийн тал төслийн хүрээнд дэмжлэг үзүүлэх боломжийг судлах.

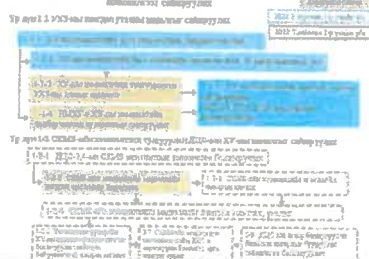
1.3. Үр дүнгийн хэрэгжилтийн явц

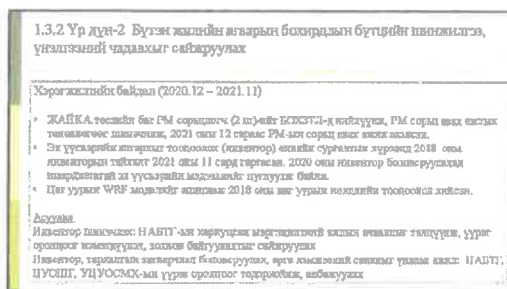
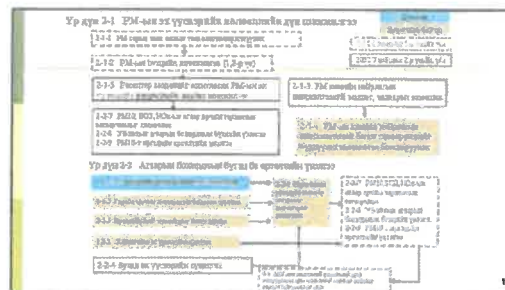
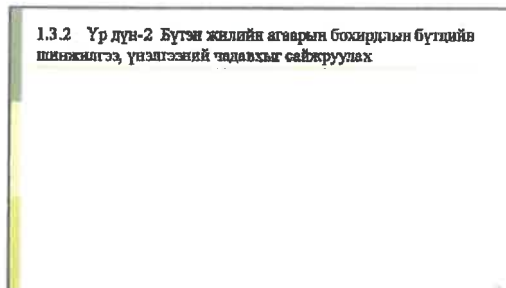
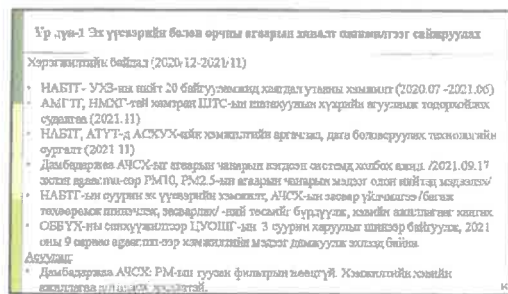
- КОВИД-19 нөлөөгөөр 2020 оны 3 сарвас хойш япон мэргэжилтэн Монголд ажиллах боломжгүй болж, 2020 оны 2 сарвас хойш юснх у/а зогссон.
- Займвас цэцмээр харилцах боломжтой у/а-г хэрэгжүүлж, онлайн хурал, хэлэлцүүлэл, сургалтын хүрээнд техникийн зааварчилгааг өгч ажилласан.
- 2020 оны 7 сарвас НАБТТ-ын Дамбадаржаа АЧХХ-н хэмжээний дүнг агааг ил-д дэмжүүлж, мэдрэллэх системийг бүрдүүлэх ажил
- УБ хотын агаар бохирдуулагч эх үүсвэрүүдийн алгарлыг тооцоолох (инвентар шинэчлэх) талаар онлайн суртал

1.3. Үр дүнгийн хэрэгжилтийн явц

- КОВИД-19 нөлөөгөөр тохиолдсон өндөр байна. /65-аас дээшх өндөр настан, суурь өвчтэй хүмүүс эрсдэл өндөртэй, тусгай үүргийн хяналт шалгалт/
- 2021 оны 11 сарвас мэргэжилтний томилогог эхэлж /тоог хягаарлах, эрүүл мэндийн асуудалгүй/, дараах ажлааг хэрэгжүүлсэн
- НАБТТ, АТУТ-ийн мэргэжилтнүүд АСХУХ-ээр хаягдал утвасын хэрэгжилтийн дагуу сургалт.
- ЖАЙКА төслөөс нийлүүлсэн зөөврийн хүргийн аналзетор багажийг ашиглан УУХУЯ, АМТТ, ИМХТ-тай хамтран ИТС-ын шатхууд хэмжээг судалгаа хийсэн.

1.3.1. Үр дүнгийн хэрэгжилтийн явц





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Үнэ 2-3 РМ-ийн хэмийн найрмалын дотоодын худалдааны тулгуурлан эх үүсвэрийн боловч бусад дүн өнцөгтэйгээ

РМ-ийн үүсвэрийн боловч бусад дүн өнцөгтэйгээ

1. Дотоодын худалдааны эх үүсвэр бусад худалдааны эх үүсвэрийн найрмалын дотоодын худалдааны эх үүсвэрийн боловч бусад дүн өнцөгтэйгээ
2. Дотоодын худалдааны эх үүсвэр бусад худалдааны эх үүсвэрийн найрмалын дотоодын худалдааны эх үүсвэрийн боловч бусад дүн өнцөгтэйгээ

Хэрэгжүүлэх хуудас

Тогатал 2-р үеийнх 1, 3-р үеийнх 2-н РМ-ийн сонгогчын төлөөлөгчийн хуралын 2-н сонгогчид 2021 оны 12 сарын РМ-ийн сонгогчын хурал, 2022 оны 21 сард болууд. 7х үүсвэрийн боловч бусад дүн өнцөгтэйгээ сонгогчийн чадвартайлдуу өнцөгтэйгээ 2022 оны суудалд ажлаас эхэлнэ.

РМ-ийн үүсвэрийн боловч бусад дүн өнцөгтэйгээ

Үлгү 2-2 Тархалтын заңаарчысы, ресейлор модель анигылакан алгаарын бохирамдын бутул, ертолопийн уналтуу (1)

Эк үчөөрлийн инноватор шымыкка дуураа оныган турган ээлион бойгурулам
эк 2018 оны инноваторын таймш. турган. Девелоп 2020 оны эк үчөөрлийн ээлионд
чулурузы, агарызы тоомоолук ташыз ауртатурсун.



Y/a 2-2 Тархалтын загварчлал, россиятор модель айгмалсан агаарин бохирдлын бүтэц, ертөнцийн үтэлэгч (2)

2020 год декларация о доходах, полученных в 2020 году

Ү/ө 2-2. Тарихтын загварчал, россетор модель ашпалысаңа ашын бохарынан бүтү, өр төлүлүн үнэлгэ (3)

1) УИУОСМХ-тэй хамтаран WRF модельгө ашпалысаңа 2018 оны шат уурын төмөңиңг төсөөсөөң. Дрошкя тарыхыа загварчалыңг болжоруужа, ашпалы бохарынан бүтү, тийең бийлэс түдүрүлгө.

2) 2020 оны шат үүсүрүлгө интентарың дүрү түдүрүлгө тарыхың интентарыңг болжоруужа, 2020 оны СО2-ын түдүрүлгө ошор бийлэ ашпалысаңа түдүрүлгө.

Ү/а 2-2 Цаашдын ажлын төлөвлөгөө

2018 оны 10 үүсгэлийн зохиоглолын тухайн бичлэгүүд

2018 оны нэрлэлтийн тухайн бичлэгүүд

2018 оны нэрлэлтийн бичлэгүүд бүтээх үүсгэл

2020 оны 7 (ар тун) 26-8 оны (802) зургадугаар сарын 1-н өдөр зохиоглогчид хамтаар төгсөх ажил

2020 оны нэрлэлтийн бичлэгүүд бүтээх үүсгэл

2020 оны 7 (ар тун) 26-8 оны (802) зургадугаар сарын 1-н өдөр зохиоглогчид хамтаар төгсөх ажил

Эгивэр тооол	Арга хэмжээний үндэсгэл
~2023.04	2023.06-2023.12
~2023.04	2022.08-2022.11
~2023.04	2022.11-2023.08
~2024.05	2022.01-2024.01 (нэгэрхүүтэй)
~2024.05	2022.08-2023.12
2022.04-2023.03	2022.02-2023.06
2023.4-2024.3	2024.02-2024.05

20

1322

12

Сайжруулсан шахмал түлшний загвар төслийн үр дүнг баталгаажуулах туршилтын ажал (1)

ажайга төслийг баг

- Одоогийн сайжруулсан түлшний агаарыг бохирдлыг бууруулах үр дүнг, холбогдох өсүүдийн талаар мэдэгдсэн хэлбэртэй байгууллагуудтай хамтран ажлаж
- Илүү сайн чанартай сайжруулсан шахмал түлшний үйлдвэрлэлт, утасны хэргийг шалгахын хэмжээт болон үр дүнг баталгаажуулах туршилтыг
- Хүснэгт буй үр дүнг
- Агаарын бохирдлыг бууруулах илүү үр дүнгтэй сайжруулсан шахмал түлш гаргах
- Монгол төд гаргах хүснэгт
- Бэлтгэсэн хэмжээ болон холбох зардал, үр ашгийн тооцоогийг гаргах, холбогдох өсүүдийг шийдвэрлэх сайжруулсан шахмал түлшний ажлын хэргийг байгуулах
- Монгол тал
- Одоогийн сайжруулсан түлшний хяналт утасны хэмжээт хийж, сайжруулсан шахмал түлшний загвар төслийг хэрэгжүүлэхэд хамрагдах үүрэг

Сайжруулсан шахмал түлшний загвар төслийн үр дүнг баталгаажуулах туршилтын ажал (2)

Зорилго

Илүү сайн чанартай түлш үйлдвэрлэх өмнөх төрөлх /одоогийн сайжруулсан шахмал түлшний илүү чанартай сайжруулсан шахмал түлштэй харьцуулах

Одоогийн сайжруулсан түлш: ТТТ компанийн "сайн түлш"

Савал болгох түлш: Биеэсөөсөн холмтой модныг бржет, халас хожомын холмтой модныг

Загвар төслийг хэрэгжүүлэх газар

УБ хотод ойроон амралтын газар.

Аргаачил

Сонгоосон байгалийн өсүүдийн стандарт РМ10, РМ2.5, SO₂ хэмжээнийг 3 долоо ховот хийж. Судалгааны өмнөх ба дараах 1 сарын хугацаанд одоо ашиглагдаж буй түлшний хэмжээнийг мөн 3 долоо ховот хийж.

Сайжруулсан шахмал түлшний загвар төслийн үр дүнг баталгаажуулах туршилтын ажал (3)

Сайжруулсан шахмал түлш

Ори нийрлэл

- Нүүрс: ТТТ компанийн сайжруулсан шахмал түлшний ашиглах байгаа нүүрс (ТТТ компанийн нийлүүлэлт)
- Биеэсөө: Модны үргэл, бохирдлын дэг, модны аргал бууц зэргийг 10%-иар халгах
- Хүснэгт буй бие: SO₂(H₂) болон ТТТ компанийн сууриж байгаа бусад бие
- Биеэсөө: ТТТ компанийн сууриж байгаа биеэсөө сууриж байгаа бие

Ж.Биеэсөө, хүснэгт буй бие биеэсөө сууриж байгаа бие

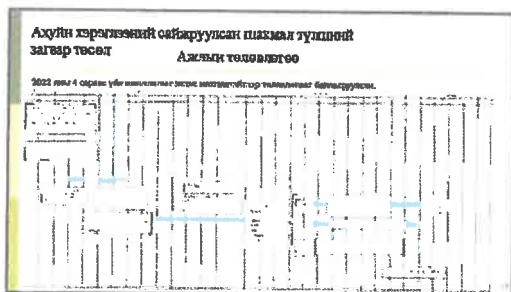
Хэрэгжүүлэх аргаачил

- Ж.Биеэсөө төслийн багас төсвийнхний урьдчилж гаргах
- Үйлдвэрлэх процессийг ТТТ компанийн хяналтад
- Төсвийн ашиглах түлшний хэд хэмжээг хувиартай үйлдвэрлэх, шалгахын туршилтад үр дүнг сулуурын байгана

Ахуйн хэрэгжүүлэх сайжруулсан шахмал түлшний загвар төсөл

Хэрэгжүүлэх хугацааны өөрчлөлт

- КОВИД-19 улсдаас 2021 оны 12 сарас 2022 оны 1 сарын хооронд хэрэгжүүлэх хугацааг хойшшуулах, 2022 оны өвлийн улиралд хэрэгжүүлэх.
- Загвар төслийн үр дүнг баталгаажуулах, үнэмжний дараа бодит арга хэмжээ болгох чиглэлээр ОББҮХ, бусад байгууллагуудтай зөвлөлдөж.
- ХЗХ-ны 4 дүгээр хуралдааны сайжруулсан шахмал түлшний ажлын хэргийг байгуулах өмнөх загвар төслийн туршилтын ажлыг, лабораторын шинжилгээний дүнг гарсаны дараа дахин хэлэлцэх.



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ТХ-ийн загвар төсөл

1. Гэрлэн дохионы зохицуулалт

- 1.1. Гэрлэн дохионы зохицуулалт
- 1.2. Гэрлэн дохионы зохицуулалт
- 1.3. Гэрлэн дохионы зохицуулалт
- 1.4. Гэрлэн дохионы зохицуулалт
- 1.5. Гэрлэн дохионы зохицуулалт
- 1.6. Гэрлэн дохионы зохицуулалт
- 1.7. Гэрлэн дохионы зохицуулалт
- 1.8. Гэрлэн дохионы зохицуулалт
- 1.9. Гэрлэн дохионы зохицуулалт
- 1.10. Гэрлэн дохионы зохицуулалт
- 1.11. Гэрлэн дохионы зохицуулалт
- 1.12. Гэрлэн дохионы зохицуулалт
- 1.13. Гэрлэн дохионы зохицуулалт
- 1.14. Гэрлэн дохионы зохицуулалт
- 1.15. Гэрлэн дохионы зохицуулалт
- 1.16. Гэрлэн дохионы зохицуулалт
- 1.17. Гэрлэн дохионы зохицуулалт
- 1.18. Гэрлэн дохионы зохицуулалт
- 1.19. Гэрлэн дохионы зохицуулалт
- 1.20. Гэрлэн дохионы зохицуулалт

ТХ-ийн загвар төсөл

1. Гэрлэн дохионы зохицуулалт

Эх үүсвэр: "Хүний амьжиргаа, нийгмийн дахилсан хөгжлийн үндэсний бичлэг" 2014 оны 1 дүгээр сарын 1-ний өдөр

ТХ-ийн загвар төсөл

1. Гэрлэн дохионы зохицуулалт

Төрөл	Хугацаа	Тайлбар	Тайлбар
1	0.10	0.10	0.10
2	0.10	0.10	0.10
3	0.10	0.10	0.10
4	0.10	0.10	0.10
5	0.10	0.10	0.10
6	0.10	0.10	0.10
7	0.10	0.10	0.10
8	0.10	0.10	0.10
9	0.10	0.10	0.10
10	0.10	0.10	0.10
11	0.10	0.10	0.10
12	0.10	0.10	0.10
13	0.10	0.10	0.10
14	0.10	0.10	0.10
15	0.10	0.10	0.10
16	0.10	0.10	0.10
17	0.10	0.10	0.10
18	0.10	0.10	0.10
19	0.10	0.10	0.10
20	0.10	0.10	0.10

ТХ-ийн загвар төсөл

1. Гэрлэн дохионы зохицуулалт

Төрөл	Хугацаа	Тайлбар	Тайлбар
1	0.10	0.10	0.10
2	0.10	0.10	0.10
3	0.10	0.10	0.10
4	0.10	0.10	0.10
5	0.10	0.10	0.10
6	0.10	0.10	0.10
7	0.10	0.10	0.10
8	0.10	0.10	0.10
9	0.10	0.10	0.10
10	0.10	0.10	0.10
11	0.10	0.10	0.10
12	0.10	0.10	0.10
13	0.10	0.10	0.10
14	0.10	0.10	0.10
15	0.10	0.10	0.10
16	0.10	0.10	0.10
17	0.10	0.10	0.10
18	0.10	0.10	0.10
19	0.10	0.10	0.10
20	0.10	0.10	0.10

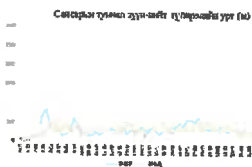
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ТХ-ийн загвар төсөл
1. Гэрлэлт дохионы зохицуулалт

Сонсрын тухайн зүйл-ийг гэрлэлтийн урт (м)

а) Тухайнхны зүүн уужаар -
Гэрлэлт дохионы системийн
тохиргоог өөрчилсөн үр дүн
• Эхлээдхэй түгээрэлтийн сүрэл
үеийн урттай багасгавин.
• Уужаарын нийт түгээрэлтийн урт
(үнийнх "ТТ-ийн урт") -г 1-т 5%-
наар багасгавин.
• Зорчих чиглэлээр шил үзэлэл урт
туталт ГТ-ийн урт 125 метр
байснэ нх хоёр дахин багаснэ 60
метр болсон.



- (3) Тугалтийн зуун уулавтар - Гүржийн довтолгооны системийн тохиргоог өөрчилсөн үр дүн
- *Эвлэвчдийг тугатарийн сүргийг үеийн уртгай бичгээс авсан.
- *Уулзаарын ивдэг тугатарийн урт (нарийн "ТТ-ийн урт") -ийг 5%-аар бичгээс авсан.
- *Зорчих чөлөөтөр шиг үзэвэл урт талын 137-ийн урт 125 метр байсан нь хоёр дахин бичгээс 60 метр буюу.

25

ТХ-ийн загвар төсөвд
I. Гэрлэн дохионы зохицуулалт

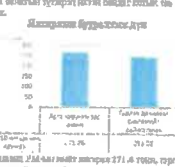
Зарим үзүүлэлтүүдийг дүгнэлт 30 мянган гэрлэн бүрэлдэх ажлынхныг дүн шинжилгээний дүнгээр судалж үзвэл, үзүүлэлтүүдийн хэмжээг үнэмлэхүй гүйцэтгэж чадсан нь бусад үзүүлэлтүүдэд хамтаар гэрлэн ажлынхныг хэсгийг хамарчээ.

Ажлынхны бүрэлдэх дүн

Үзүүлэлт	Хэмжээ
Ажлынхны бүрэлдэх дүн	75.0%
Гэрлэн дохионы зохицуулалт	71.5%

Урьд хугацааг хамтаар үзвэл ажлынхны бүрэлдэх дүн 77.4% болж, гэрлэн дохионы зохицуулалт сайн үр дүнд хүргэж, ажлынхны бүрэлдэх дүн 70.7% болж, ажлынхны бүрэлдэх дүн дүн 3 сая 554 мянган гэрлэн (1 сая 080 мянган гэрлэн)

Эх үүсвэр: Ажлынхны бүрэлдэх дүн, ажлынхны бүрэлдэх дүн, ажлынхны бүрэлдэх дүн



Уш катда бүгүн жиналыш болду. Жалпы жыйын кирешеси 271,6 тонна, тартып алынган сырьёлордун калыбынсыздары 20,76 тонна болуу, 6316 туурауулар болгондугу белгилүү болду. Жалпы жыйын кирешеси 271,6 тонна, тартып алынган сырьёлордун калыбынсыздары 20,76 тонна болуу, 6316 туурауулар болгондугу белгилүү болду.

Этот раздел посвящен анализу влияния различных факторов на результаты исследования. В частности, рассматриваются вопросы, связанные с методологией исследования, а также с интерпретацией полученных данных.

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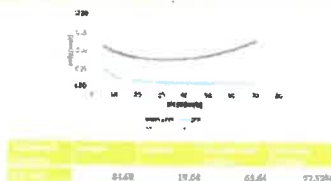
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Нийтийн тээврийн бүх автобусанд DPF-ыг суурилуулсан тохиолдолд

Автобусны загвар	PM10 (mg/km) (DPF-ийг суурилуулсны өмнө)	PM10 (mg/km) (DPF-ийг суурилуулсны дараа)
1	1.40	0.80
2	1.30	0.70
3	1.20	0.60
4	1.10	0.50
5	1.00	0.40
6	0.90	0.30

81.68 19.68 63.64 77.52%



Source: www.kominfo.go.kr. URL accessed: 2008-06-10.

③ РМ-ЫГ БУУРУУЛАХ ТӨХӨВРОМЖ (DPF)

Ил сарын 1929 тугаардугаар DPF буюу хамгаал тугаар төгрөг шүүсч факторыг суурилуулавч РМ-ын алтарч болохыг бууруу.

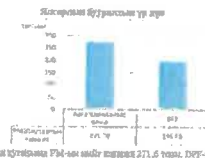
Хяналтын бууруулалтын үр дүн

Хяналтын бууруулалтын үр дүн	Тоннатуу хангал
DPF	1400
DPF	1000

Уг алтарч бууруу хяналтын бууруулалтын РМ-ын алтарч төгрөг шүүсч факторыг суурилуулавч 75.50 тонн бууруу 27.50 тонн бууруу болохыг.

Хяналтын бууруулалтын бууруулалтын үр дүн: 2000 тонн бууруу (18 тонн бууруу хангал, 1000 тонн бууруу)

Ил сүрэм 1729 айбогусад ДТФ буюу хэвхэл утсмын торлог шүүгч факторын суурингуусхайнх РН-ын ашиглан 608-аас өсчээ.



Уд. калор. бүтэц: нэгдсэн хурдтай 271.6 тонн, ДНХ-ын суурьлагдсан 75.50-тонн бүтэц

Зачислені харчові бууратын үр дүс 393 сая 600 млн 700' төгр (18 сая 900 млн. 700' төгр)

2a. response: After an 800,000-unit increase in sales, the firm's operating income increased by only 200,000 units.

23

1325

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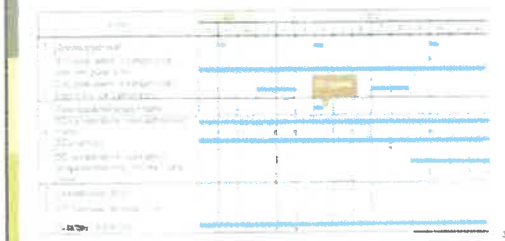
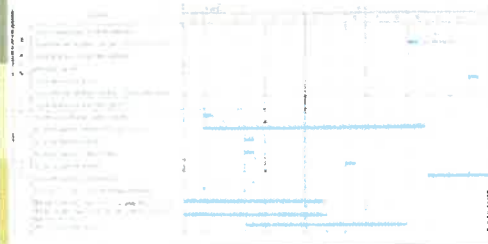
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- **Хүнийлэг үнэтгэл**
 - Хүнийлэгийн бодолгооноос үүдэн үнэ мэдээлэл, ойлголтуудыг үнэлдэг үнэтгэл өгдөг.
 - Хүнийлэгийн үнэтгэлийг өмнөхөөсөө болон үнэ мэдээллийн байгууллагын ТЗ-аг үзсэн үүднээс (үзэгч эс үгүйсхэхгүй тэдгөөрөөс үнэ мэдээлэл)
 - 2013 оны 1 сарын өмнөх, үнэтгэлтэй бодолгоотой сурталчилгааг харуулсан, АЗГУУ-аас үнэ мэдээллийн үнэтгэл өгдөг.
- ТЗ-ийн үнэ мэдээллийн байгууллагад үнэ мэдээллийн үнэтгэлийг өгдөг, өмнөх үнэтгэлийн үнэтгэл өгдөг.
- **Хүнийлэгийн үнэ мэдээлэл**
 - Өмнөх үнэтгэлийн үнэ мэдээллийн байгууллагад үнэ мэдээллийн үнэтгэл өгдөг, өмнөх үнэтгэлийн үнэтгэл өгдөг.
 - Үнэтгэлтэй бодолгоотой байгууллагад үнэ мэдээллийн үнэтгэл өгдөг, өмнөх үнэтгэлийн үнэтгэл өгдөг.
- **Мөнх үнэтгэл өгдөг**
 - Өмнөх үнэтгэлийн үнэтгэлийн үнэ мэдээллийн байгууллагад үнэ мэдээллийн үнэтгэл өгдөг, өмнөх үнэтгэлийн үнэтгэл өгдөг.
 - Өмнөх үнэтгэлийн үнэтгэлийн үнэ мэдээллийн байгууллагад үнэ мэдээллийн үнэтгэл өгдөг, өмнөх үнэтгэлийн үнэтгэл өгдөг.
- **Мөнх үнэ**
 - Өмнөх үнэтгэлийн үнэтгэлийн үнэ мэдээллийн байгууллагад үнэ мэдээллийн үнэтгэл өгдөг, өмнөх үнэтгэлийн үнэтгэл өгдөг.

2014 12 15 14:00
2014 12 15 14:00

Дар инҷамодотиҳо ҳаҷми дарундишҳои таъини гунаҳои ҳаҷмиаш, 50% аз ҳаҷми 14-мар.
ҷамъи ҳаҷмигирӣ таъини гунаҳои ҳаҷмиаш, 50% аз ҳаҷми 21% NO₂ 35% PM 10% таъини
таъини гунаҳои ҳаҷмиаш

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- «Хөтөлбөрийн суртал»
Хүндийн... 2022 оны 11 сар»
Сүхрү, Гүрдэнэ, дундаж ахлах сургууль, нэгдүгээний сэдэв
Орлогын: Нийслэлийн Замын хэрэгсний удирдлын төв 8 мэрээсний
4-2 дүгээр суртал
Хүндийн... 2022 оны 5 сар
Сүхрү, Гүрдэнэ, дундаж ахлах сургууль, нэгдүгээний сэдэв
Орлогын: ЦУОМ, БОХЭТД-ын 8 мэрээсний (орлогын)
10. БОХЭТД-19-ийн өмнөтэй байдалд бусад суртал хэрэгсний өмнөтэй хэрэгсний 2022
ны 11 сард хэрэгсний хэрэгсний хэрэгсний

24

1326

18

2021 оны 12 сар
ЖАЙКА төслийн баг

4. Тулгамдас асуулда, хэлэлцрэх зүйлс
- 4.1 ХХХ-ийг 4, 5-р хурлаар хэлэлцсэн асуудлыг магадлах
- 4.2 Үйл ажиллагааны цаашдын хэрэгжлтийг холбоотой хүсэлт
5. Лигон, монгол тал харилсан тохиролцоо зүйлс
- 5.1 ТТМ-ийг үр дүнгүйг шалтуур үзүүлэлтийг тодорхойлох сэнэл
- 5.2 ТТМ-д нэмэлтээр оруулах үйл ажиллагааны санал

[illegible][illegible]

Օգտագործող	Կեսակ
ՀՀ-ում առաջին 2019, 2021 թվթ-ը տնտեսական օրենքի ՄԱՍԻՆԻՍՏԻՆԻ Մասնավոր ՍՊԸ Հիմնական ֆունկցիոնալ խմբի խմբի Հիմնական ֆունկցիոնալ խմբի խմբի Հիմնական ֆունկցիոնալ խմբի խմբի Հիմնական ֆունկցիոնալ խմբի խմբի	ՄԱՍԻՆԻՍՏԻՆԻ Մասնավոր ՍՊԸ Հիմնական ֆունկցիոնալ խմբի խմբի Հիմնական ֆունկցիոնալ խմբի խմբի Հիմնական ֆունկցիոնալ խմբի խմբի Հիմնական ֆունկցիոնալ խմբի խմբի
ՄԱՍԻՆԻՍՏԻՆԻ Մասնավոր ՍՊԸ Հիմնական ֆունկցիոնալ խմբի խմբի Հիմնական ֆունկցիոնալ խմբի խմբի Հիմնական ֆունկցիոնալ խմբի խմբի Հիմնական ֆունկցիոնալ խմբի խմբի	ՄԱՍԻՆԻՍՏԻՆԻ Մասնավոր ՍՊԸ Հիմնական ֆունկցիոնալ խմբի խմբի Հիմնական ֆունկցիոնալ խմբի խմբի Հիմնական ֆունկցիոնալ խմբի խմբի Հիմնական ֆունկցիոնալ խմբի խմբի

Агуурал	Хүснэ
Вулуур ыг байршил бэлтгэл ажлыг (бетон суурь) хялтайдаагүй.	Вулуур суурьлуулах талаар кэлэлзлэг, 2022 оны 4 сард бичгээр гүр суурьлуулах байршил ыг нийлжлүүлж.

ANNEX III PDM (ver. 1.5)

Project Design Matrix (PDM)

Ver.1.5
Dated: December 9, 2021

Project Title: Capacity Development Project for Air Pollution Control in Ulaanbaatar City Phase 3
Implementing Agency: Air Pollution Reduction Department (DAAP) of Ulaanbaatar (UB) City, Ministry of Environment and Tourism (MET) and Counterpart Working Group (C/P-WG)
Target Group: DAAP, MET, C/P-WG and Relevant Agencies
Duration of the Project: November 2018 – July 2024 (5 years and 9 months)
Project Site : UB City

Narrative Summary		Objectively Verifiable Indicators		Means of Verification	Important Assumptions
Overall Goal Emission reduction at major emission sources is enhanced towards air quality improvement in Ulaanbaatar City.	1. XX% of emissions from major pollution sources is reduced compared with the BAU baseline.	1. One of pilot projects are adopted as full scale implementation by relevant authorities. 2. At least one case of lessons learned from the pilot projects are utilized by the decision makers. 3. Relevant laws, regulations and standards on air pollution control measures are implemented in UB City (At least establishment of one MNS, and/or 70% of compliance in the dust emission standards of existing MNS; MNS5043:2016 (General technical requirement of heat water boiler under 4.2MW) and MNS5919:2008 (Emission limit value and measurement method of power plant, steam boiler)).	1. Comparison between BAU and updated inventory for target year (3 to 5 years after completion of the Project)		
Project Purpose Capacity for air pollution control in Ulaanbaatar City is strengthened, paying special attentions to implementation of effective pollution control measures and to the necessary coordinating mechanism of DAAP and the relevant agencies.	1. One of pilot projects are adopted as full scale implementation by relevant authorities. 2. At least one case of lessons learned from the pilot projects are utilized by the decision makers. 3. Relevant laws, regulations and standards on air pollution control measures are implemented in UB City (At least establishment of one MNS, and/or 70% of compliance in the dust emission standards of existing MNS; MNS5043:2016 (General technical requirement of heat water boiler under 4.2MW) and MNS5919:2008 (Emission limit value and measurement method of power plant, steam boiler)).	1. One of pilot projects are adopted as full scale implementation by relevant authorities. 2. At least one case of lessons learned from the pilot projects are utilized by the decision makers. 3. Relevant laws, regulations and standards on air pollution control measures are implemented in UB City (At least establishment of one MNS, and/or 70% of compliance in the dust emission standards of existing MNS; MNS5043:2016 (General technical requirement of heat water boiler under 4.2MW) and MNS5919:2008 (Emission limit value and measurement method of power plant, steam boiler)).	1. The Project reports 2. Interview survey to the relevant agencies 3. Laws, regulations, MNS standards, and ordinances of UB City		
Outputs Output 1: Capabilities of emission monitoring for the major pollution sources and of air quality monitoring are strengthened.	1-1. During the Project duration, at least 50 % of inspections for boiler registration based on emission measurements (including standard and simplified methodologies) are implemented by DAAP and IACC. 1-2. The emission measurement reports are submitted to Project Leader of UB city in charge of air and environmental pollution at least 3 times during the Project duration. 1-3. Emission monitoring for the major pollution sources and air quality monitoring information are shared regularly among the relevant agencies through coordination between DAAP and NAMEM. 1-4. The CEMS measurement is compared with the standard measurement once in a year. 1-5. Distribution of emission measurements from vehicles in UB City is prepared based on the study with RSD at least once a year. 2-1. The results of PM apportionment study are reported at least three times during the Project. 2-2. Pollution structures are assessed at least 3 times during the Project duration including emission inventory, simulation model, PM specification, receptor model, air quality monitoring and population exposure throughout the year. 3-1. Drafts of emission measurement methods and quality standards of improved fuel for households in Ger area are submitted to MASM. 3-2. At least three of implementation plans of the pilot projects are prepared.	1-1. During the Project duration, at least 50 % of inspections for boiler registration based on emission measurements (including standard and simplified methodologies) are implemented by DAAP and IACC. 1-2. The emission measurement reports are submitted to Project Leader of UB city in charge of air and environmental pollution at least 3 times during the Project duration. 1-3. Emission monitoring for the major pollution sources and air quality monitoring information are shared regularly among the relevant agencies through coordination between DAAP and NAMEM. 1-4. The CEMS measurement is compared with the standard measurement once in a year. 1-5. Distribution of emission measurements from vehicles in UB City is prepared based on the study with RSD at least once a year. 2-1. The results of PM apportionment study are reported at least three times during the Project. 2-2. Pollution structures are assessed at least 3 times during the Project duration including emission inventory, simulation model, PM specification, receptor model, air quality monitoring and population exposure throughout the year. 3-1. Drafts of emission measurement methods and quality standards of improved fuel for households in Ger area are submitted to MASM. 3-2. At least three of implementation plans of the pilot projects are prepared.	1. Emission measurement reports by DAAP / IACC 2. The Project reports 3. Boiler registration database 4. Air quality monitoring monthly reports and annual reports 5. CEMS data	1. Legal and political framework for air quality management is maintained, which defines decision making mechanism such as NCEPR and professional agencies like DAAP and NAMEM. 2. The COVID-19 pandemic situation will be improved and JICA will be able to send JICA Experts to Mongolia toward April 2021 until the end of the Project.	
Output 2: Capabilities to analyze and evaluate pollution structure of PM, SO ₂ , and NO _x throughout the year are strengthened.			1. The Project reports		
Output 3: Capabilities of technical evaluation and preparation of air pollution control measures for implementation are strengthened.			1. The Project reports		

Output 4: Decision making process for air pollution control is improved by utilizing the Professional agencies including DAAP, NAMEM and the relevant agencies.	4-1. Analysis of air pollution status, short-, medium- and long-term air pollution control strategies (including BAU analysis) and evaluation of air pollution control measures (including implemented and planned) are presented to decision makers at least 2 times. 4-2. Results of pilot project implementation and other Project results are utilized for the revision of NCEPR and for decision making on implementation/non-implementation of pollution control measures at least once.	1. The Project reports 2. Reports on NPREP
Output 5: Air pollution control measures are enhanced for PM, SO ₂ and NO _x emission reduction at major sources.	5-1. At least three pilot projects selected by C/P-WG are implemented 5-2. The results of each pilot project (emission reduction, improvement of ambient air quality and population exposure for PM, SO ₂ and NO _x) are presented to the relevant agencies.	1. The Project reports
Output 6: Legal framework, resource allocation and coordinating mechanism as a Platform for the Air Quality Management Cycle are strengthened for the Outputs 1 to 5.	6-1. At least three of drafts on laws and regulations, such as fuel regulations, MNS emission standards and ordinances of UB City, are submitted. 6-2. More than 3 air pollution control measures and technologies are funded by the sections of the relevant agencies in charge of allocating funds for air pollution control by utilizing technical appraisal guideline provided by the Project. 6-3. At least three agreements are made on demarcation of roles of the relevant agencies for air pollution control measures in the Project. 6-4. The operational guideline is distributed to relevant agencies.	1. Laws and regulations, fuel regulations, MNS emission standards and ordinances of UB City 2. Minutes of Meeting of NCEPR 3. Official documents including UB city Governor's orders 4. Operational guideline

Activities		Inputs
1-1 1-1 DAAP and IACC reinforce HOB inspections based on on-site stack gas measurements. 1-1-1 DAAP and JICA Experts assess the technical transfer on-site stack gas measurement. 1-1-2 DAAP with JICA Experts re-constructs 2 teams of stack gas measurement. 1-1-3 IACC and the relevant agencies with JICA Experts implement HOB inspection based on on-site stack gas measurement. 1-1-4 IACC with JICA Experts introduces simplified measurement method by using IACC's portable gas measurement equipment including parallel measurement with JIS method, elaboration of manuals and manufacturer's calibration. 1-1-5 DAAP and IACC with JICA Experts elaborate emission measurement reports. 1-1 1-2 TPP3 and TPP4 with JICA Experts enhance emission gas control by utilizing CEMS. 1-2-1 TPP3 and TPP4 with JICA Experts elaborate and implement CEMS operation and maintenance plan. 1-2-2 TPP3 and TPP4 with JICA Experts perform quality control of emission gas data of CEMS. 1-2-3 TPP3 with MET and the relevant agencies elaborates online emission data reporting system for the CEMS. 1-2-4 NAMEM and the relevant agencies share and evaluate CEMS emission data. 1-2-5 NAMEM compiles monitoring data of emissions from TPP2, TPP3, TPP4 and new large heat supply facilities and share them with relevant agencies.	Japanese side 1. JICA experts (necessary fields) (1) Chief Advisor (2) Air Pollution Control Planning and Policy (3) Emission Measurement for Stationary Sources (4) Ambient Air Quality Monitoring (5) Ambient Air Quality Analysis (6) PM10 and PM2.5 Sampling (7) PM10 and PM2.5 Apportionment Study (8) Emission Inventory (Stationary, Mobile and Others) (9) Air Quality Simulation Modeling / Air Pollution Control Measures Evaluation (10) Auto-mobile Emission Control 1 (Traffic Signal Control) (11) Auto-mobile Emission Control 2 (RSD and others) / Emission	Mongolian side 1. C/P and C/P-WG (1) JCC Chairperson (2) JCC Vice-Chairperson (3) Project Director (4) Project Manager (5) Necessary C/P and C/P-WG staff according to the fields of JICA Experts 2. Facility (1) Provision of necessary office space in DAAP and MET (including internet access) (2) CLEM Laboratory (3) Storage Space for Equipment 3. Local cost (1) Counterpart expenses such as salary, allowance, travel cost and accommodation (2) Project administrative expenses
1-3 MRTD and PTSD introduce relevant regulations of vehicles based on emission measurement. 1-3-1 MRTD and PTSD with JICA Experts implement vehicle emission measurements by RSD, assess distribution of vehicles emission intensity and define target vehicles to be regulated. 1-3-2 MRPA and IACC with JICA Experts implement automobile fuel surveys. 1-3-3 JICA Experts conduct training to NRTC, in addition to DAAP, on vehicle emission measurement using on-board emission measurement system, and DAAP and NRTC implement vehicle emission measurement using on-board emission measurement system. 1-3-4 PTSD with JICA Expert transfer the DPF which were installed on 24 large buses by the project "Verification Survey with the Private Sector for Disseminating Japanese Technologies for Emission Reduction of Particulate Matter (PM) from Diesel Buses by DPF" to other buses.		1. There are no frequent leaves, transfers or resignations of C/P and C/P-WG members. 2. Necessary coordination among UB city, districts, khoroos and communities in Ger area is secured by Mongolian side for implementation of pilot projects.

1-4 DAAP and NAMEM with JICA Experts strengthen AQMS utilization. 1-4-1 CLEM and JICA Experts assess the current status of equipment in reference laboratory of CLEM and identify necessary actions if necessary. 1-4-2 DAAP reinforces AQMS operation and maintenance based on the plan by Phase 2. 1-4-3 DAAP with JICA Experts starts air quality monitoring at pilot project area for improved household fuels by utilizing mobile AQMS. 1-4-4 DAAP with JICA Experts reinforces the AQMS at Bayankhoshuu station. 1-4-5 DAAP and NAMEM with JICA Experts implement parallel measurement by FRM sampler for PM concentration, and implement quality control of PM measurements of AQMS. 1-4-6 DAAP and NAMEM with JICA Experts maintain the online information system of AQMS. 1-4-7 DAAP and NAMEM share real-time monitoring data with the relevant agencies through the online information system. 1-4-8 DAAP and CLEM with JICA Experts analyze air quality monitoring data and elaborate air quality monitoring reports. 1-4-9 The relevant agencies utilize air quality monitoring data. 1-4-10 DAAP with JICA Experts establishes the data transfer system of air quality monitoring data of Dambadarjaa station to the online information system of AQMS. 2-1 NAMEM and JICA Experts conduct PM apportionment study based on PM speciation throughout the year. 2-1-1 CLEM and JICA Experts elaborate PM sampling plan throughout the year, and implement PM samplings. 2-1-2 JICA Experts perform PM speciation analysis in Japan. 2-1-3 NAMEM and CLEM with JICA Experts learn PM speciation technologies (ion analysis, element analysis and carbon analysis). 2-1-4 NAMEM and CLEM with JICA Experts formulate equipment and laboratory plan for PM speciation. 2-1-5 DAAP and NAMEM with JICA Experts perform PM apportionment study based on receptor modeling. 2-2 DAAP and NAMEM with JICA Experts evaluate air pollution structure and health impact based on air quality simulation model and receptor model. 2-2-1 DAAP and NAMEM elaborate plans for updating emission inventory. 2-2-2 DAAP TCC and PTSD implement studies for mobile sources including update of emission inventory, examination of traffic signal control, traffic volume and vehicle traveling speed. 2-2-3 DAAP and JICA Experts select the pilot areas and assess Ger stoves usage pattern (type and model of stoves, seasonal pattern of usage, insulation of Ger housing and coal consumption). 2-2-4 DAAP and NAMEM with JICA Experts implement studies for other emission sources as necessary. 2-2-5 DAAP and NAMEM with JICA Experts elaborate BAU (Business as usual) scenario for the future year based on TPPs future development plans, projection of number of vehicle, population, economic growth, emission regulation, fuel quality regulation and so on. 2-2-6 DAAP and NAMEM update emission inventory for the present year and the future year for the BAU scenario. 2-2-7 DAAP and NAMEM update the air quality simulation model for PM10, SO₂ and NO_x. 2-2-8 DAAP and NAMEM evaluate the air pollution structure of UB city. 2-2-9 DAAP and NAMEM evaluate indicative population exposure of PM10 based on population weighted concentration and so on. 3-1 DAAP and the relevant agencies elaborate a draft MNS on an emission measurement method of improved fuel and fuel quality, and propose it to MASM. 3-2 ME with JICA Experts elaborates safety standards on the household gas distribution. 3-3 DAAP and the relevant agencies elaborate implementation plans and terms of reference for pilot projects such as improved fuel, HOB, traffic signal control, eco-driving, RSD, smoke belching program based on portable emission device, DPF, low sulfur fuel and low emission vehicles. 4-1 DAAP and NAMEM submit to the decision makers the analysis of air pollution status, short-, medium- and long-term air pollution control strategies (including BAU analysis) and evaluation of air pollution control measures (including implemented and planned). 4-2 Relevant agencies with pilot projects elaborate technical guidelines and utilizes them. 4-3 The relevant agencies discuss and endorse the selection of pilot projects. 4-4 NCEPR and the relevant agencies approve large scale investments based on pilot projects implementation and assessment. 4-5 NCEPR, or the sections of the relevant agencies in charge of allocating funds for air pollution control in the Mongolian government such as the Environment and Climate Fund utilizes the Outputs of the Projects and pilot projects implementation and assessment.	Measurement 2 for Air Pollution Control Measures (12) Clean Coal Technology for Air Pollution Control Measures (13) CEMS Data Analysis (14) Stationary Source Emission Control Measures (15) Air Quality Administration (16) Public Awareness and Public Relations 2. Training (1) Local seminars and workshops (2) Training course in Japan 3. Provision of necessary equipment 4. Local cost Necessary expenses for activity of JICA Experts
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- 5-1 DAAP with Health Department of Capital City and the relevant agencies implements public awareness and advisory activities for citizens including school students and parents.
- 5-2 MET and DAAP publish progress of the Project by newsletter, newspaper articles, web-site and other medias.
- 5-3 DAAP and JICA Experts provide technical guidance to manufacturers for improved fuel production.
- 5-4 The relevant agencies with JICA Experts implement pilot projects according to the implementation plan by Activity 3-3.
- 5-5 The relevant agencies with JICA Experts evaluate pilot projects results in terms of emission reduction, air quality improvement and exposure to citizens, and extract lessons learned.
- 5-6 The relevant agencies with JICA Experts report the pilot projects results to NCEPR.
- 5-7 TPP3 and TPP4 analyze CEMS data, and examine viable air pollution control measures.
- 5-8 TPP3 and TPP4 with JICA Experts elaborate emission reduction plans.
- 6-1 The relevant agencies discuss and elaborate written agreements on demarcation of roles in air quality management related with each Output and Activity of the Project.
- 6-2 DAAP with JICA Experts submits technical documents to NCEPR for improved fuel standard, emission standard on stationary sources, mobile sources and other emission sources, and revision of ordinance.
- 6-3 NCEPR and the relevant agencies elaborate fuel standard and emission standard, and submit them to MASM.
- 6-4 Relevant ministries / relevant agencies of UB city elaborate laws, regulations and ordinances on air pollution control measures, and submit them to national parliament / city council.
- 6-5 JICA Experts provide training on air pollution control measures and technical appraisal guidelines for staff of the sections of the relevant agencies in charge of allocating funds for air pollution control.
- 6-6 Staff of the sections of the relevant agencies in charge of allocating funds for air pollution control with JICA Experts improve relevant operations with allocating funds for air pollution control measures, if necessary.
- 6-7 Mongolian side enhances donor coordination in air pollution control.
- 6-8 Relevant agencies of pilot projects with JICA Experts develop an operational guideline for elaboration, implementation and evaluation of air pollution control measures based on pilot projects implementation.

- Pre-conditions**
1. Appropriate number of qualified staff of C/P and C/P-WG is assigned.
 2. Adequate amount of budget related with the Project implementation is secured.
 3. Necessary human resources mobilization related with pilot projects is secured by Mongolian side.

AGMS: Air Quality Monitoring Station

BAU: Business as Usual

CEMS: Continuous Emission Monitoring System

CFWH: Coal Fired Water Heater

C/P: Counterpart

C/P-WG: Counterpart Working Group

DAAP: Department of Against Air Pollution of Capital City

DPF: Diesel Particulate Filter

FRM: Federal Reference Method

HOB: Heat Only Boiler

IACC: Inspection Agency of the Capital City

MASM: Mongolian Agency for Standardization and Metrology

MET: Ministry of Environment and Tourism

MMH: Ministry of Mining and Heavy Industry

MNS: Mongolian National Standard

MRPA: Mineral Resources and Petroleum Authority

MRTD: Ministry of Road and Transport Development

NAMEM: National Agency for Meteorology and Environment Monitoring

NPREP: National Committee for Environment Pollution Reduction

NRTC: National Road Transport Center

PM: Particulate Matter

RSD: Remote Sensing Device

TCC: Traffic Control Center of the Capital City

TPP: Thermal Power Plant

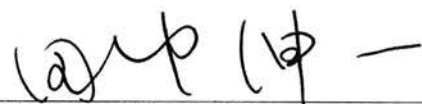
MINUTES OF MEETING OF
THE SEVENTH JOINT COORDINATING COMMITTEE MEETING
ON JAPANESE TECHNICAL COOPERATION FOR
CAPACITY DEVELOPMENT PROJECT FOR AIR POLLUTION CONTROL IN
ULANBAATAR CITY PHASE 3 in MONGOLIA

The Japan International Cooperation Agency (hereinafter referred to as "JICA") Supervisory Team for "Capacity Development Project for Air Pollution Control in Ulaanbaatar City Phase 3 in Mongolia (hereinafter referred to as "the Project"), JICA Mongolia Office, and JICA Expert Team (hereinafter referred to as "JET") had a series of meetings with Department of Against Air and Environmental Pollution of Capital City (hereinafter referred to as "DAAEP"), Ministry of Environment and Tourism (hereinafter referred to as "MET") and Joint Coordinating Committee (hereinafter referred to as "JCC") members from 23rd May to 9th June 2022 to discuss the Progress Report 4, Monitoring Sheet No.7, and held the seventh Counterpart Working Group (hereinafter referred to as "C/P-WG") meeting in online video format on 6th June and the seventh JCC meeting of the Project chaired by Mr. Enkhbat ALTANGEREL, Director General of Environment and Natural Resources Management Department of Ministry of Environment and Tourism in hybrid format on 9th June 2022. Participants list of the seventh JCC meeting is shown in Annex I.

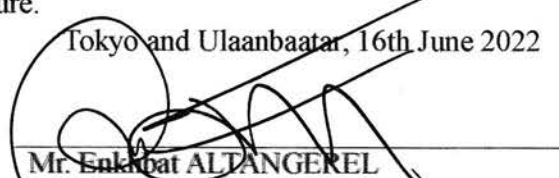
Japanese side and the Mongolian authorities had a series of discussions. As a result of discussions, both sides agreed on matters referred to the document attached hereto.

The parties acknowledge and agree that this Minutes of Meetings may be executed by electronic signature, which is considered as an original signature for all purposes and has the same force and effect as an original signature. "Electronic signature" includes faxed versions of an original signature or electronically scanned and transmitted versions (e.g., via pdf) of an original signature.

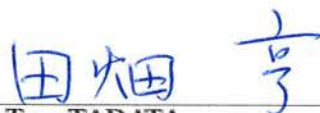
Tokyo and Ulaanbaatar, 16th June 2022



Mr. Shinichi TANAKA
Leader, JICA Supervisory Team,
Chief Representative
JICA Mongolia Office
Japan International Cooperation Agency,
Japan,



Mr. Enkhbat ALTANGEREL
Director General
Environment and Natural Resources
Management Department, Ministry of
Environment and Tourism, Mongolia



Mr. Toru TABATA
Leader, JICA Expert Team, Japan



Mr. Choigunsen CHIMEDSUREN
Director General
Development Financing Department
Ministry of Finance, Mongolia

ATTACHED DOCUMENT

I. Progress Report 4 and the Project Monitoring Sheet 7

JET explained the progress of the Project, future activity plan, and issues that the Project is facing since its beginning. After active discussions, the JCC approved the Progress Report 4 and the Project Monitoring Sheet 7.

II. Revision of the Project Design Matrix

1. Project Design Matrix (Revision of Organization Name)

The Japanese side proposed the revision of the Project Design Matrix (hereinafter referred to as PDM), which was approved by the Mongolian side. The revised contents in the PDM are indicated in Annex II.

III. Demand from the Japanese side of the issues on the future project activities

1. Demand for transfer of Diesel Particulate Filters (hereinafter referred to as "DPFs")
Transfer of DPFs is an additional activity requested by the Mongolian side. However, since only the Japanese side is performing this activity, it is difficult to transfer DPFs at this point. Currently since there is no incentive for bus companies to install DPFs, the cost of labor and consumables to maintain and manage DPFs is a freight for the bus companies which are using DPFs. In addition, even if the DPFs are transferred this time, there is an issue that DPFs will no longer be used in a few years, so it is necessary to establish a system of operational method for continuous utilization of DPFs.. Therefore, the Japanese side demanded the following to Public Transportation Service Department (hereinafter referred to as "PTSD") of the Capital City;

- (1) Check and report on the status of current DPFs equipment (number of pieces, working condition, etc.) for transfer of DPFs
- (2) Develop a support plan for transfer of DPFs
- (3) Selection of bus companies and buses to which DPFs will be transferred
- (4) Develop an implementation plan for operational support to the bus company after DPFs are transferred
- (5) Develop an implementation plan that includes incentives for bus companies operating DPFs and secure a budget for this purpose

Ms. Tsesehmaa SAIKHANJARGAL, head of PTSD responded that:

- (1) Report on the status of current DPFs equipment (number of pieces, working condition, etc.) for transfer of DPFs will be submitted by July 5, 2022.
- (2) PTSD will make efforts to develop a support plan for transfer of DPFs.
- (3) PTSD has already selected bus companies to transfer DPFs and has requested that the bus companies provide a list of busses to be transferred.

PTSD will review and respond for items (4) and (5) from now on.

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2. Demand for securing human resources and succession of duties necessary for the project

JET had implemented the technology transfer of inventory and auto vehicle emissions measurement to DAAEP on multiple occasions, however, once again personnel in charge of DAAEP left without succession of duties. The Japanese side demanded that DAAEP not only take over the files under the responsibility of DAAEP, but also DAAEP raises its capacity to at least the same level as its predecessor. The Japanese side also demanded that DAAEP provides a clear answer as to how this issue would be resolved.

Mr. Davaajargal GAN-OCHIR of DAAEP responded that DAAEP recognizes that one of the challenges for DAAEP is the lack of sustainability of human resources who were transferred technology. DAAEP has not been able to sustain its human resources and organizational capacity due to personal circumstances such as retirement and study abroad. For the emission inventory, a person in charge of the inventory retired in March 2022, and a staff who was in charge of the inventory previously is scheduled to return from maternity leave. The sustainability of the capability to develop inventories will be maintained due to the return of experienced person in charge. A person in charge of auto vehicle emissions measurement is being considered and is in the process of being appointed.

IV. Request based on the 4th, 5th and 6th JCC

1. Establishment of a forum to discuss household improved fuels

JET considers that there is not enough opportunity to discuss results of the pilot project of household improved fuels and cost-effectiveness of household improved fuels only in the JCC meeting and C/P-WG meeting.

The Japanese side requested that:

- (1) An expert meeting on improved fuel will be held to consult the Mongolian side's opinion on improved fuels in the pilot project.
- (2) A meeting will be held with higher level decision-makers such as National Committee for Environmental Pollution Reduction (hereinafter referred to as "NCEPR") to report results of the pilot project and its cost effectiveness in order to propose household improved fuels to the Mongolian government.

Mr. Ganbold TSOG, Acting Head of DAAEP mentioned that the Japanese side and the Mongolian side will continuously discuss improved household fuels to be produced in the future.

V. Other Issue

1. Mr. Altanzul BASSAHJAV, Secretary General of NCEPR mentioned the following;

- (1) From 2018 to the present, the situation of auto vehicle traffic volume has changed. Since a ratio of emissions from auto vehicles in air pollution should be increasing, he requested the Japanese side to study the emissions from auto

vehicles.

- (2) Regarding the transfer of DPFs, it has been pointed out that the operational management of DPFs is inadequate, and he requested the Japanese side to add 100 units of DPFs equipment in the project budget.
- (3) The Mongolian side is performing tests to improve the quality of household improved fuels, and results are clear. He requested the Japanese that the pilot project of household improved fuels is discontinued, and the project budget will be used for the provision of detectors for the prevention of Carbon Monoxide (hereinafter referred to as "CO") poisoning and the transfer of technology related to this purpose.

Mr. Natsuji SAWAKI, Vice Leader of JET responded that the Japanese side implemented an auto vehicle traffic volume survey in 2019. Since auto vehicle traffic volume is increasing, the auto vehicle traffic volume survey will be done in 2022 to create an emission inventory for 2022 that reflects the actual situation. He also responded that the 24 DPFs provided under other JICA schemes are not being utilized. Therefore, as a first step, it is necessary for the Mongolian side to establish a system of operational method for continuous utilization of DPFs. The cost of providing 100 DPFs is approximately USD 1,400,000. Since the purpose of this project is not to provide equipment, it is not possible to provide an additional 100 DPFs to the Mongolian side.

Mr. Hajime ENDO, person in charge of Clean Coal Technology and Pilot Project for Improved Fuel of JET responded that there are two problems with the current improved fuels: first, when using the improved fuel, Sulfur Dioxides (hereinafter referred to as "SO₂") concentration in the air quality is higher than when using raw coal. Currently, Tavan Tolgoi Tulsh LLC (hereinafter referred to as "TTT") does not add desulfurizer to its improved fuel. Therefore when using the improved fuels, SO₂ emissions are three to four times higher each year than when using raw coal. The second is CO. CO emissions using improved fuel must reduce CO emissions to at least the same level as raw coal. CO emissions concentration of the improved fuel must be reduced to at least the same level as raw coal. Since the current improved fuel tends to generate CO when it was burned, the focus of improvement for the improved fuel is how to reduce CO concentration. The first measure should be to produce the improved fuel that emits less CO. Increasing the number of instruments is the second measure. JET would like to consult with the Secretary General of NCEPR on whether or not to implement the pilot project in the future.

VI. Other Comments from the Mongolian side

1. Mr. Munkhbat TSENDEEKHUU of MET mentioned that:

- (1) Regarding Euro 5 fuels, The Mongolian Government decided to amend the Air Law dated April 22, 2022 by adding a stipulation in Article 16.1.6 to provide retail and sale of the highest grade fuel of Mongolian National Standards

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(hereinafter referred to as “MNS”) and to prohibit the retail and sale, etc. of lower grade fuel in Air Quality Improvement Area of Ulaanbaatar City.

- (2) Ministry of Energy is drafting a revision of MNS 5689: 2019 for improved fuels. As the Improved Fuels Pilot Project is implemented in the winter of 2022, he requested JET to implement a pilot project in the future with the proposed revision of MNS, which is targeted to produce household improved fuels of good quality in the future. Regarding the issue of consultation on household improved fuels at the decision-maker level, he requested that JET with the Ministry of Energy will discuss a course of action, including the revision of MNS 5689:2019.

Mr. Hajime ENDO of JET responded that Yesterday, JET discussed with the Minister of Energy, TTT and DAAEP, and JET would like to have more opportunities to discuss with the Ministry of Energy. Regarding the revision of MNS5689: 2019, the Mongolian side will only revise the criteria of industrial analytical values for the quality of improved fuels. Air pollution will not improve unless the emission concentrations when improved fuels are burned are regulated. Regarding MNS, emission standards for improved fuel should be decided as soon as possible. Combustion test laboratory of DAAEP should be utilized to conduct exhaust gas measurements of the improved fuel to verify exhaust gas concentrations, and then the improved fuels should be burned in a private stove to verify combustion conditions. Based on them, emission standards will be developed. Currently, the Mongolian side judges the quality of the improved fuels only based on the combustion conditions of the fuel burned in the stove. Under this condition, it is difficult to reduce air pollutant emissions from improved fuels.

2. Mr. Ganbold TSOG, Acting Head of DAAEP stated that the 62nd Cabinet Decision of the Mongolian Government on February 28, 2018 "On the Prohibition of Raw Coal Use" was amended on June 8, 2022, and Nalaikh District was added to the Air Quality Improvement Area. Accordingly, revision of Air Quality Improvement Area Enforcement Regulation for 2022 is necessary. He requested the Mongolian side to consider whether prohibit on the retail and sale of fuels below EURO 5 regulation in Ulaanbaatar City could be included in the Air Quality Improvement Enforcement Regulations.
3. Mr. Khishigdalai of Ministry of Mineral and Heavy Industries (hereinafter referred to as “MMHI”) mentioned that the legal foundation has been established through the amendment of the Air Law. However, the Air Law stipulated the prohibition of the use of fuels other than EURO 5 standard, improvement of the environment, including laws and regulations to implement the regulation, is not yet. The price difference between EURO 2 and EURO 5 fuel is significant freight. He requested that the project activities will include an awareness campaign to improve awareness

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regarding introduction of EURO 5 fuel as well as eco-driving. He also demanded that Ulaanbaatar City will implement countermeasures, such as mandating the use of EURO5 fuel for public transportation busses.

4. Mr. Batbayar JADAMBA of National Agency for Meteorology and Environment Monitoring (hereinafter referred to as "NAMEM") commented that cooperation and participation of the Mongolian side is insufficient in achieving project goals, and cooperation of the Mongolian side is necessary to achieve the indicators. Therefore, he proposed 2 suggestions. First, the Mongolian side evaluated that the introduction of household improved fuels has almost solved the air pollution problem, it is only an improvement to some extent of the terrible situation of air pollution. Until air quality standards are met, it is not able to be said that air pollution problem has been truly solved. Some commented that the pilot project should be discontinued, however, the pilot project should be implemented. Second, he will discuss with Head of DAAEP regarding joint agreement on the role sharing in developing emission inventories, implementing simulation models, and assessing air pollution control measures between DAAP, NAMEM and Information and Research Institute of Meteorology, Hydrology and Environment, and issue the joint agreement. He also stated that because simulation and inventory tasks require specialized knowledge, it is important to ensure that skills are transferred and sustained even as people change.

END

ANNEX I Participants of Seventh Joint Coordination Committee

ANNEX II Presentation of Progress Report 4 and Monitoring Sheet No.7, Revised
Activity Plan and Important Issue

ANNEX III PDM (ver. 1.6)

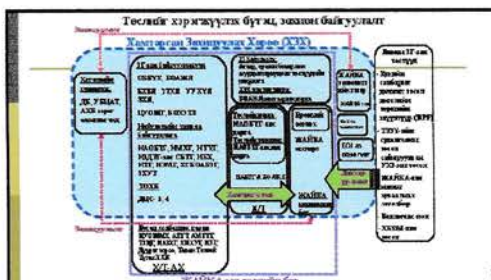
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ANNEX I Participants of Seventh Joint Coordination Committee

	Name	Organization	Position
1	Mr. Enkhbat LT TANGEREL	Ministry of Environment and Tourism, Environment and Natural Resources Management Department,	Director General
2	Mr. Munkhbat TSENDEEKHUU	Ministry of Environment and Tourism, Environment and Natural Resources Management Department,	Officer
3	Mr. Luvsantseren ICHINKHRLOO	Ministry of Energy Fuel Policy Implementation and Coordination Department	Director General
4	Mr. Khishigdalai CHULUUN	Ministry of Mining and Heavy Industry, Fuel Policy Department	Director General
5	Ms. Mongolmaa DORJNAMJIL	Ministry of Mining and Heavy Industry, Fuel Policy Department	Head of Department
6	Mr. Baysgalan BATSAIKHAN	Ministry of Road and Transport Development, Policy and Planning Department Air Pollution Reducing and Green Development Division	Expert
7	Ms. Bolormaa DARHIJAVI	Ministry of Construction and Urban Development, division of Policy and Planning	Officer
8	Mr. Altanzul BASSAHJAV	Secretariat of the National Committee for Air Pollution Reduction	Secretary- general
9	Mr. Batbayar JADAMBA	National Agency for Meteorology and Environment Monitoring Environment Monitoring Division	Head of Division
10	Mr. Munkhbold ADIYA	Mayor's office Development Policy Planning Department	Head of Department
11	Ms. Tsetsegmaa SUKHBAATAR	Public Transport Service Department	Head of PTSD
12	Mr. Adiyasuren SAIKHANJARGAL	Traffic Control Center of the Capital City	Director General
13	Ms. Narangerel NAMSRAI	Inspection Agency of the Capital City Division of Air Quality Control	Head of Division
14	Ms. Ulziisaikhan DAGDAN	Urban Regulation, Environmental Safety Control Coordination Department Environmental Safety Control Division	Head of Division
15	Ms. Nomin DASHZEVEG	Urban Regulation, Environmental Safety Control Coordination Department Environmental Safety Control Division	Expert
16	Mr. Ganbold TSOG	Department of Against Air and Environmental Pollution of the Capital City	Acting Head of DAAEP
17	Ms. Tsolmon TSOGBADRAKH	Department of Against Air and Environmental Pollution of the Capital City Head of Policy Implementation Division	Head of Division
18	Mr. Davaajargal GAN-OCHIR	Department of Against Air and Environmental Pollution of the Capital City Air Quality Management Division	Head of Division
19	Ms. Byambatsetseg ENKHBAT	Department of Against Air and Environmental Pollution of the Capital City	Expert
20	Mr. Shinichi TANAKA	JICA Mongolia Office	Chief Representative
21	Mr. Atsuki TAKEDA	JICA Mongolia Office	Project Formulation Advisor

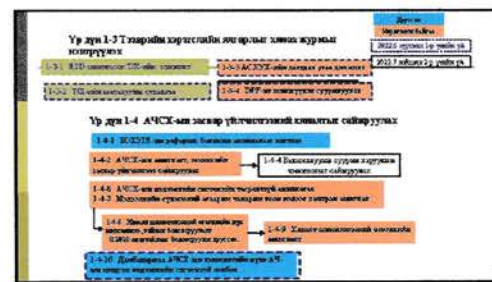
22	Ms. Oyuntsetseg CH	JICA Mongolia Office	National Staff
23	Mr. Hiroaki TAKIGUCHI	JICA Headquarter JICA Supervisory Team	Senior Technical Advisor (Environment)
24	Mr. Kouji MAEJIMA	JICA Global Environment Department Environmental Management Group Environmental Management Team 1 JICA Supervisory Team	Deputy Director
25	Mr. Toru TABATA	JICA Expert Team	Chief Advisor
26	Mr. Natsuji SAWAKI	JICA Expert Team	Sub Leader
27	Mr. Atsushi SATO	JICA Expert Team	Group Leader of Auto- mobile Countermeasure
28	Mr. Hajime Endo	JICA Expert Team	Clean Coal Technology / Pilot Project for Improved Fuel 1
29	Mr. Nobuhiro KOYANAGI	JICA Expert Team	Production of Improved Fuel
30	Mr. Jun OKABE	JICA Expert Team	Auto-mobile Emission Control 2/ Emission Measurement for Mobile Sources
31	Mr. Shinya NAKATA	JICA Expert Team	Air Quality Simulation Model / Air Pollution Control Measures Evaluation / Emission Inventory
32	Mr. Yukino YAMAKAMI	Embassy of Japan in Mongolia	Second Secretary

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1.2. ХЗХ-ны хуралдаан, нээлтийн семинар зохион байгуулалт

- 2021 оны 12-р сарын 6-ны өдөр ХТ-АХ-ын хуралдаан, 2021 оны 12-р сарын 9-ний өдөр ХЗХ-ны 6 дугаар хуралдааныг онцгойгоор зохиож байгуулсан
- ХЗХ-ны 6-р хуралдаанаар дараах үйлсийн хяналтын баталсан
 - Төслийг зоргоо, үр дүнгийн шагуудыг баталгаажуулж, нэмэгдэл оруулах үйл ажиллагааг тусламь ТДМ-ийг (ver. 1.5) шинэчилсэн
 - Монгол талын ДРР-ийг шинэчилсэн суурьшуулалд дэмжжэ үүдний түслтийг хүлээн авч үй-ийн төлөвлөгөөнд нэмэгдэл оруулсан
 - Эх үүсвэрийн нөөцтөр, тархалтын загварилал боловсруулж, агаарын бохирдлын арга хэмжээ үйлэнтэй холбогдуулан НАОБТ, ЦУОШГ, УЦУОСМД-ийн хариуцаж ажил, үүрэг зориолот тодорхойлогч гэрээ байгуулалт Янвал тавьж тусал
- ХЗХ-аас 2018 оны түрүүн бүтээл хэрэгжүүлж 2020 оны сайруулалт шалтма түрүүлж шалтма арга хэмжээний үр дүн үүснэ зориолот 2020 оны тархалтын загварилалын үр дүн тайлбар хуучинг нэлэлүүлж хүснэгт гаргасан



1.3. Үр дүнгийн хэрэгжилтийн явц

- 2021 оны 10-р сарын 20-ны өдрөөс Монгол улсын хилийн хориг цуцлагдаж, тээврийн хэрэгсэлийн загвар төслийн үйл ажиллагааг 2021 оны 11 сараас, ахуйн хэрэгсэлийн сайруулалт шалтма түрүүлж загвар төслийг 2022 оны 4 сараас тус тус хэрэгжүүлж эхэлсэн
- ЖАЙКА төслийн баг НАОБТ-ын дарга, холбогдох мэргэжилтэнтэй уулзалт, хурал хийж, онлайнаар харицдаж хэрэгжүүлэх боломжтой үй/а 1-4-10, үй/а 2-2, 5-3 зэрэг технологийн загварчиллаа, зөвлөлөөг өгч нэлэлэлсэн.

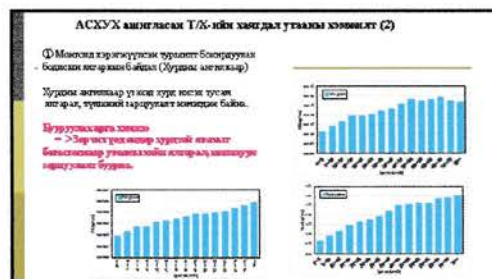
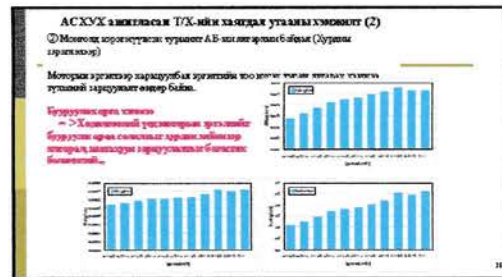
Үр дүн 1-Эх үүсвэрийн болон орны агаарын хийн хийлэгт шинэчилсэн сайруулалт

Хэрэгжилтийн байдлы (2021/12-2022/5)

- Улаанбаатар хотын хилийн хориг цуцлагдаж, тээврийн хэрэгсэлийн загвар төслийн үйл ажиллагааг 2021 оны 11 сараас, ахуйн хэрэгсэлийн сайруулалт шалтма түрүүлж загвар төслийг 2022 оны 4 сараас тус тус хэрэгжүүлж эхэлсэн
- ЖАЙКА төслийн баг НАОБТ-ын дарга, холбогдох мэргэжилтэнтэй уулзалт, хурал хийж, онлайнаар харицдаж хэрэгжүүлэх боломжтой үй/а 1-4-10, үй/а 2-2, 5-3 зэрэг технологийн загварчиллаа, зөвлөлөөг өгч нэлэлэлсэн.

Автошатахууны хүүхрийн судалгаа
Дэлхийн хүүхдийн агууламж өндөр (1 гастр 2000 рол-тос дөнгөж байсан)

Gas. татан	Type of Fuel	Grade	Байршил
A	Gasoline	92	351
	Gasoline	95	51
	Gasoline	98	1801
	Gasoline	99	20
B	Gasoline	92	366
	Gasoline	95	63
	Gasoline	98	44
	Gasoline	99	31
C	Gasoline	92	328
	Gasoline	95	87
	Gasoline	98	428
D	Gasoline	92	375
	Gasoline	95	8
	Gasoline	98	901
E	Gasoline	92	120
	Gasoline	95	2
	Gasoline	98	49
	Gasoline	99	2373



1.3.2 Үр дүн-2 Бүтэн жилийн агаарын бохирдлын бүтцийн шинжилгээ, үнэмлэхүйн чадавхыг сайжруулах

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Хэрэгжээгүй байдал (2021.12 – 2022.5)

Угледок уља одолетина

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*III: Така Тимоті Платонівський снігочув не був!

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Activity 1

РSD: 2022 оны 4 сард хэрэгжүүлэхээр төлөвлөсөн боловч КОВИД-19, Орос Украины дэйн зэргээс шалтгаалж, Америкээс Монгол руу тээвэрлэхэд хүндрэлтэй байгаа

Ялгавар байгааг ТХ Импортёр татварын хөнгөлөлт 50% байгааг 100% хөнгөлөх зорилгын төсөл хэлэлцээнд байгаа боловч хязгаар утгагүй ялгаврын стандартыг зурвалж, хуульчлах талаар судалгааг хийгдээгүй.

Тогтмил үнцүүтүү (DPE), DPF өмчийн НТУУ-ын ажилтдад мөхөөдөг хямалгүй. Евро-5, цэцэглэн автобусанд бүрэн шилжих бодлого баримтлах учраас DPF-г шилжүүлэн суурилуулж төлөвлөгөө байхгүй.

SAMPLE DESCRIPTION	M	A	VM		FC	TS		GCV
	(a°)	(a°)	(a°)	(°)	(a°)	(a°)	(°)	(a/kG)
Bernard's 12.5%	0.64	25.2	19.4	17.5	50.7	0.07	0.08	6.10
Bernard's 25%	0.70	25.5	17.9	15.1	57.8	1.00	1.01	8.40
Bernard's 50%	0.78	26.0	13.7	13.9	50.5	1.08	1.06	6.02
Bernard's 100%	0.89	26.9	0.7	0.8	83.0	1.06	1.08	5.90
Standard 14%	0.72	24.9	22.6	22.7	51.8	0.90	0.90	5.07
Standard Cow dung 15%	0.72	25.5	24.8	24.8	40.2	0.76	0.80	5.55

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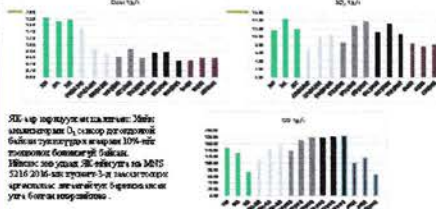
- Туушентым дүкт тавокилуука.

1. Дүжәйн талар ойрот

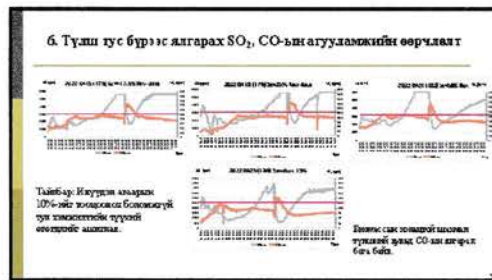
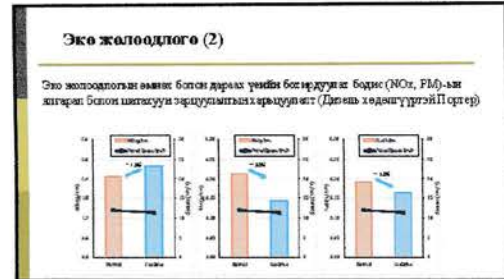
Ухаа хүнийн үзэгдэлтэй хамт хамс. Бичлэггүй хотынхүй

	Domestic % of GDP	Private % of GDP	Domestic % of GDP O/E 2000	Private % of GDP	Private % of GDP O/E 2000	Domestic % of GDP O/E 2000
1	100	100	100	100	Some cities 90%	2072.426
2	100	100	2070.122	97	Some cities 90%	2070.651
3	100	100	2072.65	100	Some cities 90%	2072.622
4	178	Some cities 10%	2070.94	14	Some cities 10%	2070.94
5	178	Some cities 10%	2072.94	14	Some cities 10%	2072.94
6	178	Some cities 10%	2072.91	12	Some cities 10%	2072.91
7	178	Some cities 10%	2072.91	12	Some cities 10%	2072.91

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ЖК-картердуу жетекчилер: Майк
малыктарын D_1 санжыра дугалары
байкап туруп, алар менен 10%-ге
түшүрүп бөлүшкү байкап.
Николас: жоо уулам. ЖК-караууна D_1
5216 2016-жыл түшкөн 3-д жасалма
архивдик жетекчилер байкап
ула болуп көрүшкү.



2. Үр дүнгийн биелэлтийн байдал

Төслийн гүйцэтгэл	Төлөвлөгөө (2022.5 сарын байдлаар)
Шатлуур 1: Шатлуур төсвийн бэлэн дарах үеийн бодис (NOx, PM)-ийг хянаж, бэлэн шатгуур эвцүүлэгтэй харьцуулж (Давьд хэдхэн үүсгэж П-сгэр)	Төлөвлөгөө (2022.5 сарын байдлаар)
Шатлуур 2: Шатлуур төсвийн бэлэн дарах үеийн бодис (NOx, PM)-ийг хянаж, бэлэн шатгуур эвцүүлэгтэй харьцуулж (Давьд хэдхэн үүсгэж П-сгэр)	Төлөвлөгөө (2022.5 сарын байдлаар)
Шатлуур 3: Шатлуур төсвийн бэлэн дарах үеийн бодис (NOx, PM)-ийг хянаж, бэлэн шатгуур эвцүүлэгтэй харьцуулж (Давьд хэдхэн үүсгэж П-сгэр)	Төлөвлөгөө (2022.5 сарын байдлаар)



2. Үр дүнгийн биелэлтийн байдал

Үр дүнгийн биелэлтийн байдал	Төлөвлөгөө (2022.5 сарын байдлаар)
1. Шатлуур 1: Шатлуур төсвийн бэлэн дарах үеийн бодис (NOx, PM)-ийг хянаж, бэлэн шатгуур эвцүүлэгтэй харьцуулж (Давьд хэдхэн үүсгэж П-сгэр)	Төлөвлөгөө (2022.5 сарын байдлаар)
2. Шатлуур 2: Шатлуур төсвийн бэлэн дарах үеийн бодис (NOx, PM)-ийг хянаж, бэлэн шатгуур эвцүүлэгтэй харьцуулж (Давьд хэдхэн үүсгэж П-сгэр)	Төлөвлөгөө (2022.5 сарын байдлаар)
3. Шатлуур 3: Шатлуур төсвийн бэлэн дарах үеийн бодис (NOx, PM)-ийг хянаж, бэлэн шатгуур эвцүүлэгтэй харьцуулж (Давьд хэдхэн үүсгэж П-сгэр)	Төлөвлөгөө (2022.5 сарын байдлаар)

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2022 оны 6 сар
ЖАЙКА төслийн баг

- 2022 оны 10 сард АНГАТ-ийн хэмжээний НМХТ-ийн TEST 0340-ийг ашиглан харуулахуурын хэмжээний тэгийг сурталтай зохион байгуулах.
- ДГД-3, 4-ийн СЕМҮ-ын төлөөллийг жагвар үйлдүүлж, чадварыг хэмжээний 2021 оны хэрэгтэйлтийн байдал, 2021 оны төлөвлөсөн хэмжээг судалж.
- БОАЖЯ, НУСӨМ-ын ажил хэрэгсэл, мэдээллийн ажил, хэрэгтэйлтийн хөдөлгөөн
 - 2021 оны СЕМҮ-ын хэмжээний дүн, мэдээллийн холбоодод байгууллагад ашигласан байдал
 - ДГД-2,3,4, Амгалан-ДС-ын хяналдаа утасны хэмжээний дүн, мэдээт нэгтгэж, холбоодод байгууллагад мэдээллийг хүргэсэн байдал
- Дүрс мэдээлэл тогтоож, шаардлагатай төлөвлөлийн удирдлага, зохиогч өгч дараахыг

Түлгэмэйн тусуудыг, хэлэлцэх зүйлс
Түлгэмэж буй тусуудтай холбоотой хүсэлт, шаардлага
Явон явон саналыг хүлээнж, зорилыг батлах
ПТМ-ын байгууллагын өмчид өсгөлөх

- RSD
 - 2022 онд нөдөр RSD болон төрөлсний тээврийн (фрахт)-ээр хэрэгжүүлж эрхлэх буй ТХ-ийн хэлдэг утгаар хяналтын багцт байгуулгын гэдэгдснээс, хамгийнх нь тоон өгөгдөл хүснэгтүүд
- Хуур багачийн шалгуурын үзүүлэлт
 - Зөвхөн хамгийн багачаар ШТС-ын шалгуурын журмын хяналтын үзүүлэлт: судалгаа 2021 оны 11 сарын 20 өдөр хуульчилж хэлдэг байна.
- АСОХХ-ийн амжилтын ТХ-ийн хэлдэг утгаар тээврийн
 - Төх хуульчилж тэр үеийн хуульчилж, хуульчилж байгуулалт бүтээхгүй арга хэмжээний төмөр тээврийнхний (шалгалт) сайгуурын хэмжээг хуульчилж АСОХХ-ээр хэмжээний хийх.
- DFF-ын шалгуурын үзүүлэлтүүд
 - НТГ-д амжилтын хэмжээний: сайгуурын шалгалтын төлөв, DFF-ын шалгуурын ААН, автобусын гэдэгдснээс, хамгийнх нь тоон өгөгдөл хүснэгтүүд

□ Төслийн үйл ажиглалгаа 2024 оны 7 сар хүртэл үргэлжилнэ.
Энэ удаад 2022 оны 6 сараас 2023 оны 5 сар хүртэлх 1 жилийн
хэрэгжилтийн явцыг танилцуулна.

Хүргэлэх хугацаа
Төслийн 2-р үе шатанд 1 ш, 3-р үе шатанд 2 ш РМ сорацлогч төлөөрөмжийг шийдүүтгэн;
3-рт 3 сорацлогчоор 2021 оны 12 сарын РМ сорац ноог олжиг; жилсэн. 2022 оны 11 сард бүтэн
жилийн сорац ноог дуусгана. Энэ үүсгэрийн нөөцөөллийн дүн шинжилгээний 2 төмөргийн чадал;
хэмжүүрүүг жилж 2023 оны хялалд хэрэгжүүлж; жилсэн.

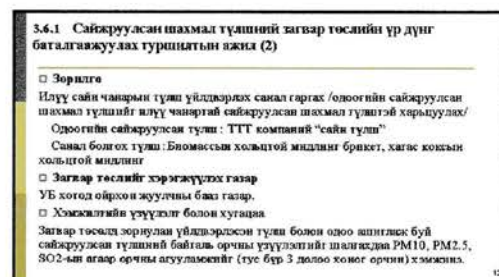
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3.6 ТХ-ийн загвар төслийг хэрэгжүүлэх, үр дүнд үнэлгээ хийх хугацаа

Загвар төслийг хэрэгжүүлэх хугацаа	Загвар төслийг хэрэгжүүлэх хугацаа	Арга хэмжээний үнэлгээ
Түрэмг, агаарын бохирдлын үнэлгээ	~2023.04	2023.06-2023.12
Тус төслийн төсвийн үнэлгээ	~2023.12	2023.08-2024.05
ТХ-ийн төсвийн үнэлгээ	~2023.04	2022.08-2022.12
Хүснэгт, загварчлалын үнэлгээ	~2024.05	2022.07-2024.01 (тасралтгүй)
ТХ-ийн төсвийн үнэлгээ	~2024.05	2022.09-2023.03
Хүснэгт, загварчлалын үнэлгээ	~2022.04-2023.03	2023.02-2023.06
ТХ-ийн төсвийн үнэлгээ	2023.04-2024.03	2024.02-2024.05



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3. Тогтоогийн шүтлүүр (DPF)

③ DPF-ийн шүтлэлийн тухай
 АХСХХ-ийн байршил болон тухайн газрын өндөр нь PM 4-ий 35%-ыг бүхэлдүүрснэ.

The graph displays the relationship between vehicle speed and PM4 concentration. The x-axis represents speed in km/h, ranging from 0 to 100. The y-axis represents PM4 concentration in µg/m³, ranging from 0 to 0.5. Two data series are shown: DPF (red circles) and DPF-fact (green circles). A green callout box indicates a 35% increase in PM4 concentration for the DPF-fact series compared to the DPF series. The legend also includes DPF-fact(data) (red squares) and DPF (data) (green squares).

3. DPF (дизелийн торлогийн шүүлтүүр)

3. Тогтгогийн шүүлтүүр (DPF)

DPF-ийн шүүлтүүрийн үр дүн
 2015 оны 1 сарын 1-н өдөр УБ хотын хиймэл газартай уламжлалтай 1187 автобусны DPF-ийг суурилуулсан бийр эрхлэхээр PM-ийн бууруулалт үр дүр Үсэлдснээр

УБ хотын хиймэл газартай уламжлалтай газартайгаас өргөн хоолой дотруу
 155 өдөр PM-ийн бууруулалт бууруулалт

DPF-ийн шүүлтүүрийн үр дүн

Хиймэл газартай уламжлалтай газартайгаас өргөн хоолой дотруу	PM T (µg/m³)
NO2_2000	~360
DPF	~200

44% reduction

Хиймэл газартай уламжлалтай газартайгаас өргөн хоолой дотруу	PM T (µg/m³)
NO2_2000	~65
DPF	~25

60% reduction

УБ хотын хиймэл газартай уламжлалтай газартайгаас өргөн хоолой дотруу
 155 өдөр PM-ийн бууруулалт бууруулалт

3. Тогтогний шүүлтүүр (ДФГ)

Амьсгалын суурьлусаар байдал

② ДФГ



Монгол төстэйг үр дүн



Шүүр



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2022 оны 6 сар
ЖАЙКА төслийн баг

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1. Мэдэл тухайн Эгварч 4 багцны 2023.12.2023-ы
2. Хүндэтгэлийн тухайн "Батлах" 2023.12.2023-ы
3. Хүндэтгэлийн тухайн "Батлах" 2023.12.2023-ы
4. Хүндэтгэлийн асуудал, хэлэлцэх зүйлс
- 4.1 Цаашдын үй-ны хүндэтгэлийн холбоотой шаардлага
5. Япон талын санхүүг хэлэлцэх, эмгэсэн батлах
- 5.1 ТТМ-ын байгууллагын кирилл өөрчлөх

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Асуулал	Шийдэл
2021 оны 11 сарын 2022 оны 4	НАОБТ-ын өсүүлсэн технологийг сэр хүртэл ТХ-ийн хамтад хадгалах үлдээх ажлыг олон удаа утвины хэмжээний технологиуд таслуулж байгаа асуудал дээрх сүрьеа ажлыг НАОБТ-г дахин шинэчлэх талаар гэдэвхэр хөрүл хэрэгжүүлсэн. Гэвч НАОБТ-ын гаргаж өгөхийн шаардлага байна.

6.1 Цаашдын хэрэгжилтэнд тавигдах шаардлага (3)
Инвентор, тархалтын загварчлалын асуудал

Асуудал	Шаардлага
НАОБТГ-ын хариуцсан мэргэжилтэнд 2021-2022 оны 3 сар хүртэл инвентор, тархалтын загварчлалын технологи эзэмшүүлэх ажил дахин хийгдсэн. Төслийн 1, 2, 3-р үе шатанд хариуцсан хүн ажлаас гарах, солигдох үед тооцоолох ажиллагааг хийх шаардлага байна.	НАОБТГ-аас зөвхөн файл, материалыг хүлээлгэн өгөх бус шаардлагатай ноу-хү ажилын өгөгдлийн боловсруулалт, ялгарлыг дотооддоо эмж сургал, тасралтгүй хэрэгжилтийг хүргэхийг шаардаж байна.

5. Япон талын санхүүг хэлэлцэж, эцэслэн байлх

5.1 ТГМ-ын байгууллагын нэршил өөрчлөх

□ Нийслэлийн байгууллагын нэрийн өөрчлөлт

- Нийслэлийн Засаг даргын 2021 оны 12 дугаар сарын 28-ны өдрийн А/1037 тоот захирамжаар Агаарын бохирдолтой тэмцэх газар (НАОБТГ)-ыг Агаар, орчны бохирдолтой тэмцэх газар (НАОБТГ) болгон өөрчилсөн тул ТГМ-ын НАОБТГ-ыг НАОБТГ болгон өөрчлөх.

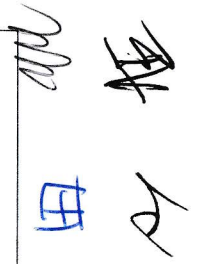
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Project Design Matrix (PDM)

 Ver. 1.6
 Dated: June 9, 2022
Project Title: Capacity Development Project for Air Pollution Control in Ulaanbaatar City Phase 3**Implementing Agency:** Department of Against Air and Environmental Pollution (DAAEP) of Ulaanbaatar (UB) City, Ministry of Environment and Tourism (MET) and Counterpart Working Group (C/P-WG)**Target Group:** DAAEP, MET, C/P-WG and Relevant Agencies**Duration of the Project:** November 2018 – July 2024 (5 years and 9 months)**Project Site :** UB City

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
Overall Goal Emission reduction at major emission sources is enhanced towards air quality improvement in Ulaanbaatar City.	1. XX% of emissions from major pollution sources is reduced compared with the BAU baseline.	1. Comparison between BAU and updated inventory for target year (3 to 5 years after completion of the Project)	
Project Purpose Capacity for air pollution control in Ulaanbaatar City is strengthened, paying special attentions to implementation of effective pollution control measures and to the necessary coordinating mechanism of DAAEP and the relevant agencies.	1. One of pilot projects are adopted as full scale implementation by relevant authorities. 2. At least one case of lessons learned from the pilot projects are utilized by the decision makers. 3. Relevant laws, regulations and standards on air pollution control measures are implemented in UB City. (At least establishment of one MNS, and/or 70% of compliance in the dust emission standards of existing MNS; MNS5043:2016 (General technical requirement of heat water boiler under 4.2MW) and MNS5919:2008 (Emission limit value and measurement method of power plant, steam boiler))	1. The Project reports 2. Interview survey to the relevant agencies 3. Laws, regulations, MNS standards, and ordinances of UB City	
Outputs			
Output 1: Capabilities of emission monitoring for the major pollution sources and of air quality monitoring are strengthened.	1-1. During the Project duration, at least 50 % of inspections for boiler registration based on emission measurements (including standard and simplified methodologies) are implemented by DAAEP and IACC. 1-2. The emission measurement reports are submitted to Project Leader of UB city in charge of air and environmental pollution at least 3 times during the Project duration. 1-3. Emission monitoring for the major pollution sources and air quality monitoring information are shared regularly among the relevant agencies through coordination between DAAEP and NAMEM. 1-4. The CEMS measurement is compared with the standard measurement once in a year. 1-5. Distribution of emission measurements from vehicles in UB City is prepared based on the study with RSD at least once a year.	1. Emission measurement reports by DAAEP / IACC 2. The Project reports 3. Boiler registration database 4. Air quality monitoring monthly reports and annual reports 5. CEMS data	1. Legal and political framework for air quality management is maintained, which defines decision making mechanism such as NCEPR and professional agencies like DAAEP and NAMEM. 2. The COVID-19 pandemic situation will be improved and JICA will be able to send JICA Experts to Mongolia toward April 2021 until the end of the Project.
Output 2: Capabilities to analyze and evaluate pollution structure of PM, SO ₂ , and NO _x throughout the year are strengthened.	2-1. The results of PM apportionment study are reported at least three times during the Project. 2-2. Pollution structures are assessed at least 3 times during the Project duration including emission inventory, simulation model, PM speciation, receptor model, air quality monitoring and population exposure throughout the year.	1. The Project reports	
Output 3: Capabilities of technical evaluation and preparation of air pollution control measures for implementation are strengthened.	3-1. Drafts of emission measurement methods and quality standards of improved fuel for households in Ger area are submitted to MASM. 3-2. At least three of implementation plans of the pilot projects are prepared.	1. The Project reports	

Output 4: Decision making process for air pollution control is improved by utilizing the Professional agencies including DAAEP, NAMEM and the relevant agencies.	4-1. Analysis of air pollution status, short-, medium- and long- term air pollution control strategies (including BAU analysis) and evaluation of air pollution control measures (including implemented and planned) are presented to decision makers at least 2 times. 4-2. Results of pilot project implementation and other Project results are utilized for the revision of NCEPR and for decision making on implementation/non-implementation of pollution control measures at least once.	1. The Project reports 2. Reports on NPREP	
Output 5: Air pollution control measures are enhanced for PM, SO ₂ and NO _x emission reduction at major sources.	5-1. At least three pilot projects selected by C/P-WG are implemented 5-2. The results of each pilot project (emission reduction, improvement of ambient air quality and population exposure for PM, SO ₂ and NO _x) are presented to the relevant agencies.	1. The Project reports	
Output 6: Legal framework, resource allocation and coordinating mechanism as a Platform for the Air Quality Management Cycle are strengthened for the Outputs 1 to 5.	6-1. At least three of drafts on laws and regulations, such as fuel regulations, MNS emission standards and ordinances of UB City, are submitted. 6-2. More than 3 air pollution control measures and technologies are funded by the sections of the relevant agencies in charge of allocating funds for air pollution control by utilizing technical appraisal guideline provided by the Project. 6-3. At least three agreements are made on demarcation of roles of the relevant agencies for air pollution control measures in the Project. 6-4. The operational guideline is distributed to relevant agencies.	1. Laws and regulations, fuel regulations, MNS emission standards and ordinances of UB City 2. Minutes of Meeting of NCEPR 3. Official documents including UB city Governor's orders 4. Operational guideline	

Activities	Inputs	
1-1 1-1 DAAEP and IACC reinforce HOB inspections based on on-site stack gas measurements. 1-1-1 DAAEP and JICA Experts assess the technical transfer on-site stack gas measurement. 1-1-2 DAAEP with JICA Experts re-constructs 2 teams of stack gas measurement. 1-1-3 IACC and the relevant agencies with JICA Experts implement HOB inspection based on on-site stack gas measurement. 1-1-4 IACC with JICA Experts introduces simplified measurement method by using IACC's portable gas measurement equipment including parallel measurement with JIS method, elaboration of manuals and manufacturer's calibration. 1-1-5 DAAEP and IACC with JICA Experts elaborate emission measurement reports. 1-1 1-2 TPP3 and TPP4 with JICA Experts enhance emission gas control by utilizing CEMS. 1-2-1 TPP3 and TPP4 with JICA Experts elaborate and implement CEMS operation and maintenance plan. 1-2-2 TPP3 and TPP4 with JICA Experts perform quality control of emission gas data of CEMS. 1-2-3 TPP3 with MET and the relevant agencies elaborates online emission data reporting system for the CEMS. 1-2-4 NAMEM and the relevant agencies share and evaluate CEMS emission data. 1-2-5 NAMEM compiles monitoring data of emissions from TPP2, TPP3, TPP4 and new large heat supply facilities and share them with relevant agencies. 1-3 MRTD and PTSD introduce relevant regulations of vehicles based on emission measurement. 1-3-1 MRTD and PTSD with JICA Experts implement vehicle emission measurements by RSD, assess distribution of vehicles emission intensity and define target vehicles to be regulated. 1-3-2 MRPA and IACC with JICA Experts implement automobile fuel surveys. 1-3-3 JICA Experts conduct training to NRTC, in addition to DAAEP, on vehicle emission measurement using on-board emission measurement system, and DAAEP and NRTC implement vehicle emission measurement using on-board emission measurement system.	Japanese side 1. JICA experts (necessary fields) (1) Chief Advisor (2) Air Pollution Control Planning and Policy (3) Emission Measurement for Stationary Sources (4) Ambient Air Quality Monitoring (5) Ambient Air Quality Analysis (6) PM10 and PM2.5 Sampling (7) PM10 and PM2.5 Apportionment Study (8) Emission Inventory (Stationary, Mobile and Others) (9) Air Quality Simulation Modeling / Air Pollution Control Measures Evaluation Mongolian side 1. C/P and C/P-WG (1) JCC Chairperson (2) JCC Vice-Chairperson (3) Project Director (4) Project Manager (5) Necessary C/P and C/P-WG staff according to the fields of JICA Experts 2. Facility (1) Provision of necessary office space in DAAEP and MET (including internet access) (2) CLEM Laboratory (3) Storage Space for Equipment 3. Local cost (1) Counterpart expenses such as salary, allowance,	1. There are no frequent leaves, transfers or resignations of C/P and C/P-WG members. 2. Necessary coordination among UB city, districts, khoros and communities in Ger area is secured by Mongolian side for implementation of pilot projects.

1-3-4 Public Transportation Service Department of the Capital City with JICA Expert transfer the DPF which were installed on 24 large buses by the project "Verification Survey with the Private Sector for Disseminating Japanese Technologies for Emission Reduction of Particulate Matter (PM) from Diesel Buses by DPF" to other buses. 1-4 DAAEP and NAMEM with JICA Experts strengthen AQMS utilization. 1-4-1 CLEM and JICA Experts assess the current status of equipment in reference laboratory of CLEM and identify necessary actions if necessary. 1-4-2 DAAEP reinforces AQMS operation and maintenance based on the plan by Phase 2. 1-4-3 DAAEP with JICA Experts starts air quality monitoring at pilot project area for improved household fuels by utilizing mobile AQMS. 1-4-4 DAAEP with JICA Experts reinforces the AQMS at Bayankhosuu station. 1-4-5 DAAEP and NAMEM with JICA Experts implement parallel measurement by FRM sampler for PM concentration, and implement quality control of PM measurements of AQMS. 1-4-6 DAAEP and NAMEM with JICA Experts maintain the online information system of AQMS. 1-4-7 DAAEP and NAMEN share real-time monitoring data with the relevant agencies through the online information system. 1-4-8 DAAEP and CLEM with JICA Experts analyze air quality monitoring data and elaborate air quality monitoring reports. 1-4-9 The relevant agencies utilize air quality monitoring data. 1-4-10 DAAEP with JICA Experts establishes the data transfer system of air quality monitoring data of Dambadarjaa station to the online information system of AQMS. 2-1 NAMEM and JICA Experts conduct PM apportionment study based on PM speciation throughout the year. 2-1-1 CLEM and JICA Experts elaborate PM sampling plan throughout the year, and implement PM samplings. 2-1-2 JICA Experts perform PM speciation analysis in Japan. 2-1-3 NAMEM and CLEM with JICA Experts learn PM speciation technologies (ion analysis, element analysis and carbon analysis). 2-1-4 NAMEM and CLEM with JICA Experts formulate equipment and laboratory plan for PM speciation. 2-1-5 DAAEP and NAMEM with JICA Experts perform PM apportionment study based on receptor modeling. 2-2 DAAEP and NAMEM with JICA Experts evaluate air pollution structure and health impact based on air quality simulation model and receptor model. 2-2-1 DAAEP and NAMEM elaborate plans for updating emission inventory. 2-2-2 DAAEP, TCC and PTSD implement studies for mobile sources including update of emission inventory, examination of traffic signal control, traffic volume and vehicle traveling speed. 2-2-3 DAAEP and JICA Experts select the pilot areas and assess Ger stoves usage pattern (type and model of stoves, seasonal pattern of usage, insulation of Ger housing and coal consumption). 2-2-4 DAAEP and NAMEM with JICA Experts implement studies for other emission sources as necessary. 2-2-5 DAAEP and NAMEM with JICA Experts elaborates BAU (Business as usual) scenario for the future year based on TPPs future development plans, projection of number of vehicle, population, economic growth, emission regulation, fuel quality regulation and so on. 2-2-6 DAAEP and NAMEM update emission inventory for the present year and the future year for the BAU scenario. 2-2-7 DAAEP and NAMEM update the air quality simulation model for PM10, SO₂ and NO_x. 2-2-8 DAAEP and NAMEM evaluate the air pollution structure of UB city. 2-2-9 DAAEP and NAMEM evaluate indicative population exposure of PM10 based on population weighted concentration and so on. 3-1 DAAEP and the relevant agencies elaborate a draft MNS on an emission measurement method of improved fuel and fuel quality, and propose it to MASM. 3-2 ME with JICA Experts elaborates safety standards on the household gas distribution. 3-3 DAAEP and the relevant agencies elaborate implementation plans and terms of reference for pilot projects such as improved fuel, HOB, traffic signal control, eco-driving, RSD, smoke belching program based on portable emission device, DPF, low sulfur fuel and low emission vehicles.	(10) Auto-mobile Emission Control 1 (Traffic Signal Control) (11) Auto-mobile Emission Control 2 (RSD and others) / Emission Measurement 2 (12) Clean Coal Technology for Air Pollution Control Measures (13) CEMS Data Analysis (14) Stationary Source Emission Control Measures (15) Air Quality Administration (16) Public Awareness and Public Relations 2. Training (1) Local seminars and workshops (2) Training course in Japan 3. Provision of necessary equipment 4. Local cost Necessary expenses for activity of JICA Experts travel cost and accommodation (2)Project administrative expenses
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4-1 DAAEP and NAMEM submit to the decision makers the analysis of air pollution status, short-, medium- and long-term air pollution control strategies (including BAU analysis) and evaluation of air pollution control measures (including implemented and planned) . 4-2 Relevant agencies with pilot projects elaborate technical guidelines and utilizes them. 4-3 The relevant agencies discuss and endorse the selection of pilot projects. 4-4 NCEPR and the relevant agencies approve large scale investments based on pilot projects implementation and assessment. 4-5 NCEPR, or the sections of the relevant agencies in charge of allocating funds for air pollution control in the Mongolian government such as the Environment and Climate Fund utilizes the Outputs of the Projects and pilot projects implementation and assessment.		
5-1 DAAEP with Health Department of Capital City and the relevant agencies implements public awareness and advisory activities for citizens including school students and parents. 5-2 MET and DAAEP publish progress of the Project by newsletter, newspaper articles, web-site and other medias. 5-3 DAAEP and JICA Experts provide technical guidance to manufacturers for improved fuel production. 5-4 The relevant agencies with JICA Experts implement pilot projects according to the implementation plan by Activity 3-3. 5-5 The relevant agencies with JICA Experts evaluate pilot projects results in terms of emission reduction, air quality improvement and exposure to citizens, and extract lessons learned. 5-6 The relevant agencies with JICA Experts report the pilot projects results to NCEPR. 5-7 TPP3 and TPP4 analyze CEMS data, and examine viable air pollution control measures. 5-8 TPP3 and TPP4 with JICA Experts elaborate emission reduction plans.		Pre-conditions 1. Appropriate number of qualified staff of C/P and C/P-WG is assigned. 2. Adequate amount of budget related with the Project implementation is secured. 3. Necessary human resources mobilization related with pilot projects is secured by Mongolian side.
6-1 The relevant agencies discuss and elaborate written agreements on demarcation of roles in air quality management related with each Output and Activity of the Project. 6-2 DAAEP with JICA Experts submits technical documents to NCEPR for improved fuel standard, emission standard on stationary sources, mobile sources and other emission sources, and revision of ordinance. 6-3 NCEPR and the relevant agencies elaborate fuel standard and emission standard, and submit them to MASM. 6-4 Relevant ministries / relevant agencies of UB city elaborate laws, regulations and ordinances on air pollution control measures, and submit them to national parliament / city council. 6-5 JICA Experts provide training on air pollution control measures and technical appraisal guidelines for staff of the sections of the relevant agencies in charge of allocating funds for air pollution control. 6-6 Staff of the sections of the relevant agencies in charge of allocating funds for air pollution control with JICA Experts improve relevant operations with allocating funds for air pollution control measures, if necessary. 6-7 Mongolian side enhances donor coordination in air pollution control. 6-8 Relevant agencies of pilot projects with JICA Experts develop an operational guideline for elaboration, implementation and evaluation of air pollution control measures based on pilot projects implementation.		

AQMS: Air Quality Monitoring Station

BAU: Business as Usual

CEMS: Continuous Emission Monitoring System

CFWH: Coal Fired Water Heater

C/P: Counterpart

C/P-WG: Counterpart Working Group

DAAEP: Department of Against Air and Environmental Pollution of Capital City

DPF: Diesel Particulate Filter

FRM: Federal Reference Method

HOB: Heat Only Boiler

IACC: Inspection Agency of the Capital City

MASM: Mongolian Agency for Standardization and Metrology

MET: Ministry of Environment and Tourism

MMHI: Ministry of Mining and Heavy Industry

MNS: Mongolian National Standard

MRPA: Mineral Resources and Petroleum Authority
MRTD: Ministry of Road and Transport Development
NAMEM: National Agency for Meteorology and Environment Monitoring
NCEPR: National Committee for Environment Pollution Reduction

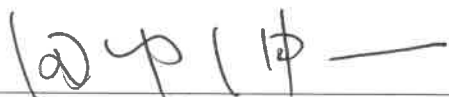
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MINUTES OF MEETING OF
THE EIGHTH JOINT COORDINATING COMMITTEE MEETING
ON JAPANESE TECHNICAL COOPERATION FOR
CAPACITY DEVELOPMENT PROJECT FOR AIR POLLUTION CONTROL IN
ULAANBAATAR CITY PHASE 3 in MONGOLIA

The Japan International Cooperation Agency (hereinafter referred to as "JICA") Supervisory Team for "Capacity Development Project for Air Pollution Control in Ulaanbaatar City Phase 3 in Mongolia (hereinafter referred to as "the Project"), JICA Mongolia Office, and JICA Expert Team (hereinafter referred to as "JET") had a series of meetings with Department of Against Air and Environmental Pollution of Capital City (hereinafter referred to as "DAAEP"), Ministry of Environment and Tourism (hereinafter referred to as "MET") and Joint Coordinating Committee (hereinafter referred to as "JCC") members from 21st November to 14th December 2022 to discuss the Monitoring Sheet No.8, and held the seventh Counterpart Working Group (hereinafter referred to as "C/P-WG") meeting in hybrid format on 6th December and the eighth JCC meeting of the Project chaired by Mr. Tumurtumuu ZUNDUI, Deputy Governor of Capital City in Charge of Social Sector, Green Development and Air and Environmental Pollution in hybrid format on 9th December 2022. Participants list of the eighth JCC meeting is shown in Annex I.

Japanese side and the Mongolian authorities had a series of discussions. As a result of discussions, both sides agreed on matters referred to the document attached hereto.

Ulaanbaatar, 14th December 2022


Mr. Shinichi TANAKA
Chief Representative
JICA Mongolia Office
Japan International Cooperation Agency,
Japan,


Mr. Tumurtumuu ZUNDUI
Deputy Governor of Capital City
in Charge of Social Sector, Green
Development and Air and
Environmental Pollution


Mr. Toru TABATA
Leader, JICA Expert Team, Japan


Mr. Choigunsen CHIMIDSUREN
Director General
Development Financing and Public
Investment Department
Ministry of Finance, Mongolia

ATTACHED DOCUMENT

I. Project Monitoring Sheet 8

JET explained the progress of the Project, future activity plan, and issues that the Project is facing since its beginning. After active discussions, the JCC approved Project Monitoring Sheet 8.

II. Revision of the Project Design Matrix

1. Project Design Matrix (Revision of Organization Name)

The Japanese side proposed the revision of the Project Design Matrix (hereinafter referred to as PDM), which was approved by the Mongolian side. The revised contents in the PDM are indicated in Annex II.7

III. JCC Chairperson

At the 2nd JCC on 7th June 2019, JCC Chairperson of the Project, Deputy Governor of Capital City in charge of Air Pollution Reducing and Green Development, was changed to Project Leader in charge of Air Pollution Reducing and Green Development in accordance with Mayoral Order 100th (21st March 2019). Deputy Governor of Capital City in Charge of Human Development and Social Policy was changed to Deputy Governor of Capital City in Charge of Social Sector, Green Development and Air and Environmental Pollution in accordance with the Mayoral Order B/86 (8th June 2022). The position of the Project Leader was abolished. Therefore the Japanese and Mongolian sides approved that JCC Chairperson was changed from the Project Leader of Capital City in Charge of Air and Environmental Pollution to Deputy Governor of Capital City in Charge of Social Sector, Green Development and Air and Environmental Pollution.

IV. Project Director

The Japanese and Mongolian sides agreed that Director in DAAEP was assigned as Project Director as described in the Record of Discussions on 29th June 2018 although the JCC approved that a Head of Policy Implementation Division in DAAEP, was assigned as acting Project Director at the 4th JCC on 28th January 2021.

V. Demand from the Japanese side of the issues on the future project activities

1. Demand for securing human resources and succession of duties necessary for the project

Japanese side demanded to issue an agreement on the role among the relevant agencies (DAAEP, National Agency for Meteorology and Environment Monitoring (hereinafter referred to as "NAMEM"), and Information and Research Institute of Meteorology,

Hydrology and Environment (hereinafter referred to as “IRIMHE”) sharing in developing emission inventories, implementing air quality simulation, and assessing air pollution control measures at the 6th JCC on December 2021. However, the agreement on the roles among the relevant agencies has not yet been issued because persons in charge of the air quality simulation has retired and there are no personnel available, and the organization in charge of the air quality simulation has not yet been decided. Therefore, the JET demanded the Mongolian side to include the option of contracting the work to universities or private companies if the personnel of the relevant agencies are unable to implement the simulation and analyze results of air quality simulations (Activities 2-2-7~2-2-9).

Mr. Batbayar JADAMBA of NAMEM responded that the lack of institution and technology transfer personnel to implement the simulations on the Mongolian side is an issue, since NAMEM is a government agency, there is a lack of human resources capable of conducting the air quality simulation and other technical work. It is considered that the air quality simulation should be implemented by specialized institutions such as research institutes and universities. Similarly in Japan, the Ministry of the Environment outsources air quality simulations and analyses to private companies.

Mr. Munkhbat TSENDEEKHUU of MET responded that a comparison of an air quality simulation results for 2018 and 2020 was reported by JET, which was an important resource for planning long-term policies. The Mongolian side fully understands the importance of maintaining this technology. Since government agencies were unable to secure human resources due to frequent personnel transfers and retirements, he considered that the best solution for the Mongolian side to implement technical activities will be to transfer and outsource the technology to universities and other institutions that are researching simulation models. MET will fully support the university that is assigned to implement the air quality simulation. There is a budget package for air pollution reduction from the MET Minister. From this package, a budget could be generated for commissioning air quality simulation each year. It is also possible to budget for the implementation of air quality simulation as part of the MET's medium-term studies to be conducted. Regarding technology transfer, the Department of Applied Sciences at the National University of Mongolia and the Mongolian University of Science and Technology are studying air quality simulation models. During December 2022, the Mongolian side will explain the outline of the air quality simulation to professors at the target universities and ask their opinions about the outsourcing. A mid-term policy of the MET is to add a class on air quality simulation models to the university curriculum in order to in order to secure human resources in the future.

2. Demand for Popularization of low-sulfur fuel

The Mongolian Government decided to amend the Air Law dated April 22, 2022 by adding a stipulation in Article 16.1.6 to provide retail and sale of the highest grade fuel of Mongolian National Standards (hereinafter referred to as “MNS”) and to prohibit the

retail and sale, etc. of lower grade fuel in Air Quality Improvement Area of Ulaanbaatar City. However, EURO 2 fuel, which contains high sulfur concentration, is still available for sale and is still used in public buses. In addition, public buses are gradually being introduced to comply with the EURO V regulations, which require low-sulfur fuel (EURO 5), but some public buses have reported that engine failures have occurred due to the use of EURO 2 fuel, and similar failures are likely to occur in other buses in the future. Therefore, the Japanese side demanded the following items to the ministries and agencies involved in automobile fuel;

- (1) Prohibition of the sale and use of EURO 2 fuel in Ulaanbaatar
- (2) Correction of the price increase of low-sulfur fuel against EURO 2 fuel (through the use of special taxes, etc.)
- (3) Public relations activities regarding the possibility of malfunctions of vehicles comply with emission regulations above EURO V due to the use of EURO 2 fuel.
- (4) Public relations activities regarding the proper maintenance of DPFs, etc. for vehicles comply with EURO V and higher emission regulations.

Mr. Munkhbat TSENDEEKHUU of MET responded that the current issue is to secure the import volume of EURO 5 fuel. Once the import volume is secured, it is planned to proceed with its implementing regulations and legal coordination.

Mr. Khishigdalai CHULUUN of Ministry of Mining and Heavy Industry, Fuel Policy Department (hereinafter referred to as "MMHI") responded that nine hundred thousand tons of diesel fuel is imported into Mongolia per year, of which 10% are EURO 5 fuel. Most of this is sold to industrial business, so the amount of EURO 5 fuel sold in Ulaanbaatar city is limited. Currently, the government is offering exemptions of taxes on vehicles fuels in order to sell them at lower prices. In the future, after the fuel import situation improves and fuel import prices drop, the government is considering introducing a special tax to eliminate the difference in fuel sales prices. Ulaanbaatar city purchased 60 EURO V buses this year, but 60 new EURO V buses may be failure and broken because bus companies under Ulaanbaatar City jurisdiction have not used EURO 5 fuel. He demanded Ulaanbaatar City and the Project to include an awareness campaign for improving awareness regarding introduction of EURO 5 fuel. I also demand Ulaanbaatar City that Mayoral Order and Ulaanbaatar City Council Order be issued regarding the obligation to use Euro 5 fuel for EURO V buses under Ulaanbaatar City jurisdiction.

Mr. Atsushi SATO of JET responded that JET will conduct public awareness activities where EURO5 fuel must be used. Also JET will discuss with Mongolian side the best way to cooperate with them in the future regarding public awareness activities.

3. Demand for transfer of Diesel Particulate Filters (hereinafter referred to as "DPFs") Diesel Particulate Filters (hereinafter referred to as "DPFs") have been installed in 24 large buses under the project "Verification Survey with the Private Sector for Disseminating Japanese Technologies for Emission Reduction of Particulate Matter

(hereinafter referred to as “PM”) from Diesel Buses by DPFs”. The DPFs equipment has been handed over to Public Transportation Department of the Ulaanbaatar City (hereinafter referred to as “PTD”). Transfer of DPFs equipment is an additional activity requested by the PTD. The PTD assessed the condition of the DPFs equipment and coordinated with the bus companies. However, some of the DPFs equipment was unusable due to poor storage conditions, and additional costs were involved in the cleaning and transportation of the DPFs equipment. The PTD has begun selecting bus companies to which the DPFs equipment will be relocated, but because the cost of personnel and supplies to maintain and manage the DPFs equipment is a defrayment for the bus companies, the DPFs equipment relocation work has not progressed with the exception of a bus company. In addition, even if the DPFs equipment is transferred this time, there is an issue that DPFs equipment will no longer be used in a few years, so it is necessary to establish a system of operational method for continuous utilization of DPFs equipment. Therefore, the Japanese side demanded the following to the PTD;

- (1) Proper management and storage of DPFs equipment until the DPFs equipment is relocated
- (2) Operational support for bus companies that have relocated their DPFs equipment, including operational costs
- (3) Establishment of public benefits (e.g., tax exemption) for bus companies that have relocated DPFs equipment
- (4) When a bus company that has relocated its DPFs equipment reaches the end of its service life, provide for the cost of relocating the DPFs equipment to the next bus and support the relocation.

VI. Request based on the Previously conducted JCCs

1. Establishment of a forum to discuss household improved fuel

JET considers that there is not enough opportunity to discuss results of the pilot project of household improved fuel and cost-effectiveness of household improved fuel only in the JCC meeting and C/P-WG meeting.

The Japanese side requested that:

- (1) An expert meeting on improved fuel will be held to consult the Mongolian side's opinion on improved fuels in the pilot project.
- (2) A meeting will be held with higher level decision-makers such as National Committee for Environmental Pollution Reduction (hereinafter referred to as “NCEPR”) to report results of the pilot project and its cost-effectiveness in order to propose household improved fuels to the Mongolian government.

Mr. Galymbek KHALTAI of Tavan Tolgoi Tulsh LLC (hereinafter referred to as “TTT”) mentioned that the Minutes of Council of Government Ministers No. 25, dated April 27, 2022 mandated that the quality of improved fuel of TTT should be improved and emitted Sulfur Dioxides (hereinafter referred to as “SO₂”) concentrations of the improved fuel of

TTT should be reduced during combustion. On 15th December 2022, TTT and DAAEP will hold a consultation meeting on "The Way to Improve the Quality of Improved Fuel of TTT" with the participation of relevant organizations. In this consultation, technical discussions will be held on ways to improve the current improved fuel of TTT. The results of the consultations will be reported to the Council of Government Ministers. He recommended that it would be a good idea for JET to participate in this consultative meeting and make a presentation.

Mr. Toru TABATA of JET responded that JET will consider joining the consultation and making a presentation.

VII. Comment from Mr. Tumurtumuu ZUNDUI, JCC Chairperson

I regret that the Mongolian side does not fully understand the goals and policies of the project, and the importance of the activities to reducing air pollution in Ulaanbaatar City. In particular, there is a lack of positive action and leadership on the part of the Mongolian side regarding the implementation of activities and expected results. For example, with regard to the bus companies that have been an issue, solutions should be discussed at the city level to implement the activities. In order to achieve the results of the project in the future, I would like the Mongolian side to be more aware of their ownership of the project than before. Ulaanbaatar City will report to the National Committee for Environmental Pollution Reduction (hereinafter referred to as "NCEPR") and the government. In terms of project implementation, I feel that the individual efforts of the experts in charge of the activities and the C/P-WG, as well as their ability to communicate with each other, are insufficient. I am sure there are shortcomings on the Mongolian side as well. JET are encouraged to consult with me directly on which activities C/P-WG agencies are facing challenges and the way to achieve results in the future. If the efforts of the previous staff and agencies in charge are insufficient, they are able to be changed. I am dissatisfied because of many inadequacies in achieving the expected results. As deputy mayor, I am in charge of various fields and it is difficult for me to be involved in all of them, but I would like to be proactive.

VIII. Other Comments from the Mongolian side

Mr. Davaajargal GAN-OCHIR of DAAEP mentioned that DAAEP conducts HOBs emission measurements every winter; DAAEP alone is currently unable to conduct HOBs emission measurements at all facilities in one winter. A working group of the NCEPR is discussing an inspection of HOBs based on emission measurements. The working group is considering the installation of Continuous Emission Measurement System (hereinafter referred to as "CEMS") installed in thermal power plants from the viewpoint that it is important to monitor HOBs emissions constantly in the future. He requested the Japanese side to provide CEMS on a pilot basis for this project and to introduce the methodology

regarding inspection of HOB of Japan. In Mongolia, HOBs emission measurements are conducted from November to March, when the HOB load is above 70%. The implementation duration is short. Based on this situation in Mongolia, he requested to JET to advice on a solution to conduct HOBs emission measurements only in one winter. Mr. Natsuji SAWAKI responded that emission measurements of boilers in Japan are conducted by private companies once every two months under the Air Pollution Control Law, as the same method conducted by the DAAEP. There are no plans to provide CEMS in the project. CEMS is very expensive, and the CEMS was provided the thermal power plant No.4 in the Capacity Development Project for Air Pollution Control in Ulaanbaatar City Phase 2 in Mongolia, and CEMS cost was more than 40 million yen. Since there are many HOBs in Ulaanbaatar, he suggested that it might be better to increase the number of measuring agencies than to introduce CEMS. Considering DAAEP's personnel and equipment, he suggested that the frequency of inspection of all HOBs based on emission measurements is changed to once every two years instead of once a year.

END

ANNEX I Participants of Eighth Joint Coordination Committee

ANNEX II Monitoring Sheet No.8, Revised Activity Plan and Important Issue

ANNEX III PDM (ver. 1.7)

ANNEX I Participants of Eighth Joint Coordination Committee

	Name	Organization	Position
1	Mr. Tumurtumuu ZUNDUI	Ulaanbaatar City	Deputy Governor of Capital City in Charge of Social Sector, Green Development and Air and Environmental Pollution
2	Mr. Khishigdalai CHULUUN	Ministry of Mining and Heavy Industry, Fuel Policy Department	Head of Department
3	Mr. Khavidolda SHOLTAI.	Ministry of Road and Transport Development, Traffic Coordination Department	Head of Department
4	Mr. Bayasgalan BATSAIKHAN	Ministry of Road and Transport Development, Policy and Planning Department	Officer
5	Ms. Bolormaa DARKHIJAV	Ministry of Construction and Urban Development, Policy and Planning Department	Officer
6	Mr. Altanzul BASSANJAV	Secretariat of the National Committee for Environmental Pollution Reduction	Secretary- general
7	Mr. Munkhbat TSENDEEKHUU	Ministry of Environment and Tourism, Environment and Natural Resources Management Department,	Officer
8	Mr. Batbayar JADAMBA	National Agency for Meteorology and Environment Monitoring Environment Monitoring Division	Head of Division
9	Ms. Gerelmaa BAATARKHUU	Ministry of Finance Development Financing Development Department	Officer
10	Ms. Nyamtseveen TSERENDAGVA	Mayor's office Development, Urban Engineering Facility Division	Head of Division
11	Ms. Enkhtugsmaa JAMSRAN.	Mayor's office Development, Urban Development Planning Division	Officer
12	Mr. Batsuuri CHULUUNBAT	Public Transport Department, Technical Division	Head of Division
13	Ms. Narangerel NAMSRAI	Inspection Agency of the Capital City, Division of Air Quality Control	Head of Division
14	Mr. Amartuvshin GALBADRAKH	Urban Regulation, Environmental Safety Control Coordination Department Environmental Safety Control Division	Officer
15	Mr. Ganbold TSOG	Department of Against Air and Environmental Pollution of the Capital City	Head of DAAEP
16	Mr. Davaajargal GAN-OCHIR	Department of Against Air and Environmental Pollution of the Capital City, Air Quality Management Division	Head of Division
17	Ms. Byambatsetseg ENKHBAT	Department of Against Air and Environmental Pollution of the Capital City, Policy Implementation Division	Officer
18	Mr. Galymbek KHALTAI	Tavan Tolgoi Tulsh LLC	General technologist
19	Ms. Burenjargal BAASANDORJ	Thermal Power Plant No.4, Industrial Ecology Management	Engineer

		Division	
20	Mr. Shinichi TANAKA	JICA Mongolia Office	Chief Representative
21	Mr. Atsuki TAKEDA	JICA Mongolia Office	Project Formulation Advisor
22	Ms. Oyuntsetseg.CH	JICA Mongolia Office	National Staff
23	Mr. Toru TABATA	JICA Expert Team	Chief Advisor
24	Mr. Natsuji SAWAKI	JICA Expert Team	Sub Leader
25	Mr. Atsushi SATO	JICA Expert Team	Group Leader of Auto-mobile Countermeasure
26	Mr. Hajime Endo	JICA Expert Team	Clean Coal Technology / Pilot Project for Improved Fuel 1
27	Mr. Shinya NAKATA	JICA Expert Team	Air Quality Simulation Model / Air Pollution Control Measures Evaluation / Emission Inventory

ANNEX II Presentation of Monitoring Sheet and Important Issue

Монгол улс Улаанбаатар хотын агаарын бохирдлын хяналтын чадавхыг бэхжүүлэх төсөл (3 дугаар үе шат) ХЗХ-ны 8 дугаар хуралдаан 2022 оны 12 сар ЖАЙКА төслийн баг	ХЗХ-ны 8 дугаар хурлын зорилго 1. Гүйцэтгэлийн тайлан /Дугаар-8/-г батлах (2022/05-2022/10) 2. Тулгамдсан асуудал болон ХЗХ-ны 8 дугаар хуралдаанаар хэлэлцүүлэх асуудал 2.1 Цаашид тулгамдаж буй асуудалтай холбоотой шаардлага 3. Япон талын саналыг монгол талтай хэлэлцэж, эцэслэн батлах 3.1 Төсөл төлөвлөлтийн матриц (ТТМ)-д ХЗХ-ны дарга болон төслийн захирлын томилоог өөрчлөх
1	2

ХЗХ-ны 8 дугаар хурлын зорилго 1. Гүйцэтгэлийн тайлан /Дугаар-8/-г батлах (2022/05-2022/10)	1. Гүйцэтгэлийн тайлан /Дугаар-8/ тойм (2022/05-2022/10)
3	4

1.1 ХЗХ болон Х/Т-АХ-ийн хуралдаан □ 2022 оны 6-р сарын 6-нд Х/Т-АХ-ийн 6-р хуралдаан, 2022 оны 6-р сарын 9-нд ХЗХ-ны 7-р хуралдааныг тус бүр онлайнаар зохион байгуулсан □ НАБТГ-ийн НАОБТГ болж өөрчлөгдсөн тул ТТМ-д өөрчлөлт (ver. 6) оруулсан. □ DPF-ийг нийлжүүлэн суурьшуулж дэмжлэг үзүүлэх /Монгол талын хүсэлт/ хүргэнэ. НТГ-г хангаж DPF-ийг нийлжүүлэн суурьшуулж бэлтгэх (сонгог төхөөрөмжийн ажиллагааг шалгах, шилжүүлэн суурьшуулж ААНБ-ийг тогтоох, цаашид DPF ашигласнаар дэмжлэг үзүүлэх) -ийг хангаж ажиллахыг үүссэн. □ Хармундсан ажилтан ажиллаж гарах, солигдох үед ажлын хүтээлцж, технологийн ур чадавхыг өсгүүлэх ажил хийгээнтгүй Ялагшув, инвентор, тархагтын загварчлалтай ажиллах мэдлэг, чадааныг тусгай бүрт дахин эмхцэн шалгалга гарч байгааг анхаарч, эмхцэн файн, материал хамжуулах бус өгөгдөл цуглуулах арга, ялгарлыг тооцоолох аргачлан зэрэг know-how-ийг нэмжүүлж, олно нь хариуцаж байсан мэргэжилтний туршиш хүргэж ажиллахыг НАОБТГ-аас шаардсан.	1.2 Үр дүнгийн хэрэгжилтийн явц
5	6

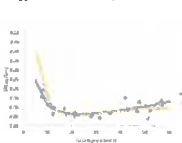
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Шатахууны нэмэгдээр агаар бохирдуулах бодисыг бууруулах үр дүнг баталгаажуулах (3)

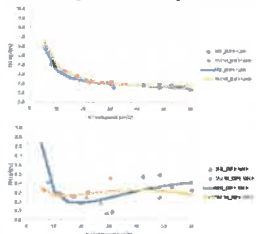
2) Агаар бохирдуулах бодисыг агаарыг бууруулах үр дүнг

Нэмэлтэй (бүтээгдэхүүний) зориулалтын хэмжээг багасгах (сэвжрүүлэх) -ний үр дүнг хяналттай бүтээгдэхүүнээр.

[Суурилуулалт]



[Ачааг агуулах]



13

DPF-ыг шилжүүлэн суурилуулах

DPF-ыг шилжүүлэн суурилуулах ажлын хүрээнд Сүтэйг буулгасн ХХК-ын нөхцөл байдлыг нягталсан



Шилжүүлэх автобус

DPF-ын шатаах камер

DPF-ийг бүрдэл

DPF-ын шүүлтүүр

14

DPF шилжүүлэн суурилуулалт (ZongTong үйлдвэрийн автобус)

Трансбус ХХК-д DPF-ыг шилжүүлэн суурилуулах байдал, нээгдэх төсвийн үр дүнг, шүүлтүүр хадгалахтай хол



DPF шилжүүлэн

суурилуулсан байдал

Нээгдэх төсвийн

Баруун DPF-ийг

Зүүн DPF-ийг

Хяналтын байдал

Сүүлтүүр автобус

Шүүлтүүр хадгалах камер

15

1.2.2 Үр дүн-2 Бүтэн жилийн агаарын бохирдлын бүтцийн шинжилгээ, үнэлгээний чадавхыг сайжруулах

Үр дүн-2.1 РМ-ын эх үүсвэрийн нөлөөллийг дүн шинжилгээ

1.1.1 РМ-ын эх үүсвэрийн нөлөөллийг дүн шинжилгээ
1.1.2 РМ-ын эх үүсвэрийн нөлөөллийг дүн шинжилгээ
1.1.3 РМ-ын эх үүсвэрийн нөлөөллийг дүн шинжилгээ
1.1.4 РМ-ын эх үүсвэрийн нөлөөллийг дүн шинжилгээ
1.1.5 РМ-ын эх үүсвэрийн нөлөөллийг дүн шинжилгээ
1.1.6 РМ-ын эх үүсвэрийн нөлөөллийг дүн шинжилгээ
1.1.7 РМ-ын эх үүсвэрийн нөлөөллийг дүн шинжилгээ
1.1.8 РМ-ын эх үүсвэрийн нөлөөллийг дүн шинжилгээ
1.1.9 РМ-ын эх үүсвэрийн нөлөөллийг дүн шинжилгээ
1.1.10 РМ-ын эх үүсвэрийн нөлөөллийг дүн шинжилгээ

Үр дүн-2.2 Агаарын бохирдлын бүтэц ба өсөлтийн үзүүлэлт

2.1.1 Агаарын бохирдлын бүтэц ба өсөлтийн үзүүлэлт
2.1.2 Агаарын бохирдлын бүтэц ба өсөлтийн үзүүлэлт
2.1.3 Агаарын бохирдлын бүтэц ба өсөлтийн үзүүлэлт
2.1.4 Агаарын бохирдлын бүтэц ба өсөлтийн үзүүлэлт
2.1.5 Агаарын бохирдлын бүтэц ба өсөлтийн үзүүлэлт
2.1.6 Агаарын бохирдлын бүтэц ба өсөлтийн үзүүлэлт
2.1.7 Агаарын бохирдлын бүтэц ба өсөлтийн үзүүлэлт
2.1.8 Агаарын бохирдлын бүтэц ба өсөлтийн үзүүлэлт
2.1.9 Агаарын бохирдлын бүтэц ба өсөлтийн үзүүлэлт
2.1.10 Агаарын бохирдлын бүтэц ба өсөлтийн үзүүлэлт

1.2.2 Үр дүн-2 Бүтэн жилийн агаарын бохирдлын бүтцийн дүн шинжилгээ, үнэлгээний чадавхыг сайжруулах

Хэрэгжилтийн байдал (2022.05 – 2022.10)

Үнэлгээний үзүүлэлт:

- 2021 оны 12 сарын эхний жилийн турш РМ-ын сөрөг амьсгал ажиг хэрэгжиж байна.
- 2022 оны 4 сард РМ-ын эх үүсвэрийн нөлөөллийг дүн шинжилгээний талар танинцуулж, 2022 оны 8 сард нөхцөлийн шинжилгээний дүн дүг тайлагнасан. 2022 оны 11 сард янши хийний хайргалын шинжилгээний технологийн дашгал суурилыг хэрэгжүүлсэн.
- НАОБТГ нь 2020 оны эх үүсвэрийн хяналтын инвенторын тайлагт боловсруулж, танинцуулсан.
- 2022 оны 10-р сарын 5-нд хийгдэх байгууллагын хүрээнд 2018, 2020 оны тархалтын загварлагын дүн танинцуулах семинарыг зохион байгуулсан.
- Гэрээг дохионы горимыг сайжруулахад шаардлагатай суурь өгөгдлийг цуглуулах зорилгоор 2022 оны 9 сард автоматын хэрэгжүүлэх нөхцөл байдал суурилыг, 2022 оны 10 сард хийгдэх эрх зориолыг суурилыг тус бүр хэрэгжүүлсэн.

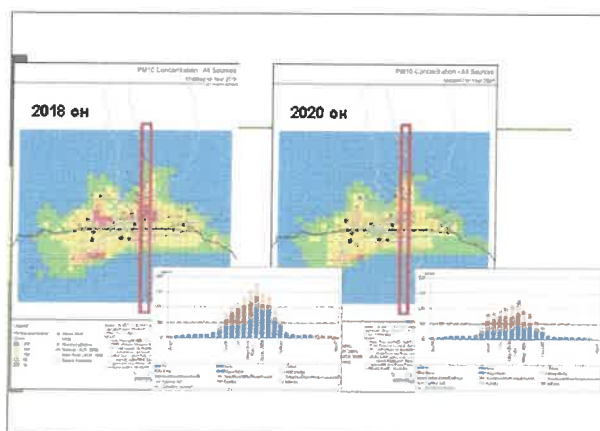
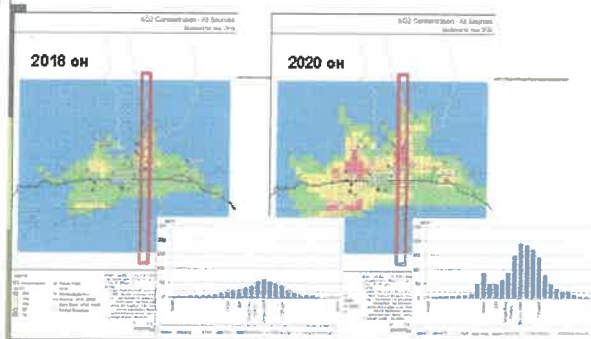
Анхны

НАОБТГ-ын инвентор, тархалтын загварлаг хэрэгжүүлэх зорилгоор. Тус зорилгоор нь давхар ажиг хэрэгжиж байгаа тус ж үүсвэрийн өгөгдөл цуглуулах ажлыг хэл улаартай байгаа. Тархалтын загварлаг боловсруулах ажлыг хэрэгжиж байгууллага байхгүй.

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2018 болон 2020 оны тархалтын загварчлалын дүн

19

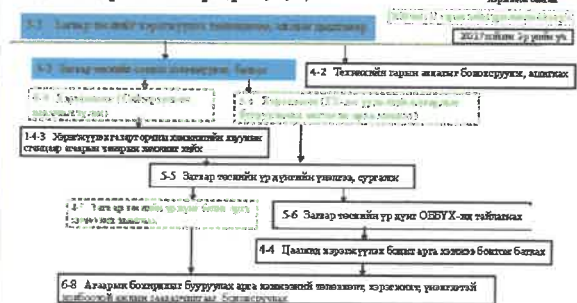


2018 болон 2020 оны тархалтын загварчлалын дүгнэлт

- Сайжруулсан түлшний хэрэглээнд шилжсэнээр ахуйн хэрэглээний зуухнаас үүдэлтэй PM10-ын агууламж бараг тал хувиар буурсан боловч SO2-ын агууламж 3 дахин нэмэгдсэн.
- 2018, 2020 оны агаарын чанарын агууламжийн дүнгээр SO2, PM10 нь агаарын чанарын стандартаас давсан хэвээр байгаа.
- Ахуйн хэрэглээний зуух ихтэй хойд болон баруун өмнө хэсэгт өндөр агууламжтай байна.
- Сайжруулсан түлшний хэрэглээнд шилжсэн нь PM10-ын агууламжийг бууруулахад үр дүнтэй хэдий ч SOx болон SO2-ын агууламжийг бууруулахын тулд түлшинд агуулагдах хүхрийг бууруулах шаардлагатай байна.

22

1.2.3 Загвар төсөл: Үр дүн 3, 4, 5, 6



1.2.3 Загвар төсөл: Үр дүн 3, 4, 5, 6

Хэрэгжилтийн байдал (2021.05 – 2022.10)

Үр дүн 3-ийн ажиглалт:

- 2022 оны 6 сард Эрчим хүчний сайд, Төвөн Тонгой Түний ХХК-ийн технологийн инженерийг оршуулан сайжруулсан шахмал түлшний асуудлаар хэлэлцүүлэг хийсэн.
- 2022.11.27 ~ 12.23, 2023.01.08 ~ 01.20-ны хооронд Тэрэлжийн гэр амарьтын газарт хэрэгжүүлэх загвар төсөлд ашиглах сайжруулсан шахмал түлшний орц наймаагьт баталгаажуулж, Төвөн Тонгой Түний ХХК-д шийтгүүлж буцаауурыг ашиглан биомассын хольцтой 8 тонн шахмал түлшийг үйлдвэрлэсэн.
- 2022 оны 9 ~ 10 сард загвар төслийн урьдчилсан туршилыг хийж, асуудлыг тодорхойлсон.
- НАОБТ-ын зууны лабораторт загвар төсөлд ашиглах сайжруулсан шахмал түлшний дээжний хамт угааны шатаалтын туршилыг хийсэн.
- Бэро-5 шатаагуулыг хэрэгжээж нэмэгдүүлжээтэй хамбадуулан ЖАЙКА-ын Монгол дахь төлөөлөгчийн гэрээс Монгол улсын Сангийн Яаманд хамдан "Бэро-7" шатаагууны үнийн зөрүүг эрхлэхэд өндөрлөхөн өнхлөх ажлаахыг хүссэн албан бичгийг 11 сарын сүүлээр хүргүүлжээр бэлтгэж байна.

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Сайжруулсан шахмал түлшний загвар төслийн хэрэгжилт (2022.05 сараас 2022.10 сар)

2022 оны өвөл хэрэгжүүлэх загвар төсөл (бодит туршилта)-д өлгийлэх нэгдсэн түлшний хангамж утганы шалтгаан туршилтад НАОБТ-ын зуухны лабораторид хийгээ.

1. Сайжруулсан шахмал түлшний төрөл, зуухны лабораторийн үнэ

ТТТ компанийн хэмжээт түлш, ТТТ компанийн түлшний 10% биомасс хольж төгрөсөн биомассын хольцтой шахмал (БХШ)

Дугаар	Төрөл	Туршилтын өдөр	Туршилтын үнэ
201	ТТТ	2022/09/21	№3 шүүрэгтүүт төгрөсөн нүүрст хангамжгүй, угааны хийн хэмжээт сайн биомасс
206	ТТТ	2022/09/28	Тоос, хийн хэмжээт сайн
202	БХШ	2022/09/22	№1 шүүрэгтүүт төгрөсөн нүүрст хангамжгүй, хийн хэмжээт сайн биомасс
205	БХШ	2022/09/27	Тоос, хийн хэмжээт сайн
207	БХШ	2022/10/19	Тоос, хийн хэмжээт сайн

2. Загвар төсөлд ашиглах түлшний дээжийн харьцуулалт (Proximity Analysis)

- Шаталтын туршилтад ашигласан сайжруулсан түлшний техникийн шинжилгээний дүнг хүснэгтээр үзүүлэв. ТТТ компанийн сайжруулсан түлшний үзүүлэлт нь 2020 оны шинжилгээний дүн бөгөөд сүүлийн үеийн шинжилгээний дүн биш болно.
- Ерөнхийдөө хүчний зууламжаас бусад үзүүлэлтээр ТТТ болон ВСВ (биомассын хольцтой шахмал) техникийн шинжилгээний дүнд ялгаа байхгүй байна.

	Moisture % (ar)	Total sulfur % (t)	Volatile matter % (t)	Ash % (a)	Calorific value kcal/kg (a)
MNS5678:2022	≤6	≤1,00	≤22	≤27	≥5,200
Tavan Tolgoi Plush	2-5,7	0,84-0,91	21-21,2	22,9-24,0	6,048-6,326
BCB	3,4	0,72	22,7	25	6,016

3. Шаталтын туршилтын дүнгийн харьцуулалт (Явцын дүн)

Цөвний шаталтын туршилтыг ТТТ-д цахил 2 удаа, БХШ-д 1 удаа хийв.

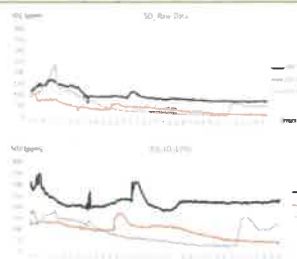
Энд явцын дүнгээс танилцуулав.

Загвар төсөлд уламжлалт зуухныг ашигласан учраас явцын туршилтад ч мөн уламжлалт зуухныг ашигласан.

Data No.	201	206	202	205	207	Average	
Test Date	2022/09/21	2022/09/28	2022/09/22	2022/09/27	2022/10/19		
Moisture Producer	TTT	TTT	BCB	BCB	BCB	TTT	BCB
Type of stove and coal	Traditional Stove	Traditional Stove	Traditional Stove	Traditional Stove	Traditional Stove	Traditional Stove	Traditional Stove
Coal	Q	Q	Q	Q	Q	Q	Q
Enrichment Factor	Dust kg/t	0,1	0,1	0,1	0,1	0,1	0,1
	SO ₂ kg/t	2,4	2,4	1,8	2,0	3,1	2,6
	CO kg/t	101,8	05,1	75,6	74,0	178,0	109,5
Enrichment Factor	Dust mg/m ³	170	170	170	170	170	170
SO ₂ mg/m ³	1,067	1,067	1,067	1,067	1,067	1,067	1,067
NO _x mg/m ³	338	338	338	338	338	338	338
CO mg/m ³	20,888	10,146	10,172	8,824	12,885	15,518	10,632

4. Түлшний SO₂-ын харьцуулалт (явцын дүн)

- Хугацааны өөрчлөлт



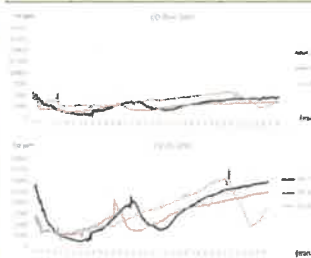
• Дээрх график нь SO₂-ийн бодит хэмжээний түүхий өгөгдөл.

• Доорх график нь SO₂ (O₂ 10%-ийг MNS 5216: 2016 стандарт заасан "Хэвийн нөхцөлд шилжүүлэх утганы хийн нүүрсжүүлэх коэффициент $\alpha = 1,9$ (хүчилтөрөгч 10%-ээр тооцогдсон утга биш).

• Биомассын хольцтой шахмал хэрэглэгдэхгүйг элсүүлсэн учраас SO₂ буурсан байна.

5. Түлшний CO-ын харьцуулалт (Явцын дүн)

- Хугацааны өөрчлөлт



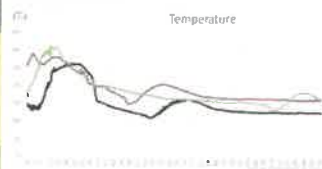
• Дээрх график нь CO-ийн бодит хэмжээний түүхий өгөгдөл.

• Доорх график нь CO (O₂ 10%-ийг MNS 5216: 2016 стандарт заасан "Хэвийн нөхцөлд шилжүүлэх утганы хийн нүүрсжүүлэх коэффициент $\alpha = 1,9$ (хүчилтөрөгч 10%-ээр тооцогдсон утга биш).

• ТТТ, БХШ агны хангамжтай CO-ыг дээжлэх нөхцөл байдалтай хамарай өөрчлөлтөөс үүдэн нүүрсжүүлэх туршилтад дүнгээс харах хэрэгтэй.

6. Түлшний шаталтаас үүсэх температурын харьцуулалт (Явцын дүн)

- Хугацааны өөрчлөлт



БХШ түлш
① Асалт сайн
② Температурын өсөлт хурдан
③ Шаталтын температурын өсөлт
④ Шаталтын хугацаа богино

Дээрх дүгнэлтээс загвар төсөлд шаталт нэмэгдүүлж

Загвар төслийн гол зорилго нь лабораторын шаталтын туршилтын дүнг бодит гагцгааны нөхцөл (төр жуулчны бааз)-ийн орчны агаарын чанарын хэмжээний дүнгтэй харьцуулах явдал юм.

Тээврийн хэрэгслийн загвар төслийн хэрэгжилт (2022.05 ~2022.10 сар)

УБ хотын автозамын гэрлэн дохионы удирдлагын систем, зохицуулалтын гормыг сайжруулах зорилгоор төвийн гол уулзварын нэвтрэх урсгалын байдлыг цаг хугацаа, тээврийн хэрэгслийн ангилал, зорчих чиглэлээр хөдөлгөөний эрчмийг тодорхойлох, үхмэл ногоон гэрлийн бөглөрөл, зөвшөөрсөн ногоон гэрлээр нэвтрэх ТХ-ийн тоо, түгжрэлийн урт, ЗХУТ-өөс зохицуулалт хийсэн гэрлэн дохионы асаалтыг барих, солих үеийн бүртгэлийн судалгааг 2022 оны 9 сарын 29 өдөр хэрэгжүүлсэн. Мөн тохиргооны гормыг өөрчлөхөөс өмнөх, дараах үед хөдөлгөөний урсгал хэрхэн өөрчлөгдөж байгааг тодорхойлохын тулд уулзвараар нэвтрэн хөдөлгөөнд оролцож, зорчих хурдны судалгаа хийсэн.

1.4 Япон дахь сургалт

Эхний сургалт

Хугацаа: 2022 оны 11/9-11/23

Сэдэв: РМ-ын химийн найрлагын шинжилгээний технологи

Оролцогч: ЦҮОШГ, БОХЗТЛ-ын 8 мэргэжилтэн (орчим)

2 дахь сургалт

Хугацаа: 2022 оны 12/7-12/21

Сэдэв: Гэрлэн дохионы гормын тохируулга, технологийн дадлага

Оролцогч: Нийслэлийн Замын хөдөлгөөний удирдлагын төв 8 мэргэжилтэн

1.5 Дараагийн хагас жилд хэрэгжүүлэх гол үйл ажиллагааны төлөвлөгөө

1.5.1 Сайжруулсан шахмал түлшний загвар төсөл

Сайжруулсан шахмал түлшний үр дүнг баталгаажуулах зорилгоор 2022 оны 11-р сарын 27-ноос 2023 оны 1-р сарын 20-ны хооронд Тэрэлжийн гэр амралтын газрыг түрээслэн ТТГ компаний сайжруулсан түлш болон тус төслөөс санал болгох биомассын холцтой шахмал түлшнийг гэрийн зууханд шатааж, орчны хэмжээнийг явуулын станцаар агаарын чанарын агууламж, салхны чиглэл, хурдныг хэмээнэ.

November												December												January, 2023															
1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12				
13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	
30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5		
31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5				
2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5					
3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5						
4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5							
5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5								
6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5									
7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5										
8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5											
9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5												
10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5													
11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5														
12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5															
13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5																
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1.6. Үр дүнгийн биелэлтийн байдал

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1.6. Үр дүнгийн биелэлтийн байдал

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1.6. Үр дүнгийн биелэлтийн байдал

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2.1 Цаашдын хэрэгжилттэй холбоотой шаардлага (1) DPF-ыг шилжүүлэн суурилуулахад тулгарч буй хүндрэл

- 1) Өмөөрхний нөхцөл байдал
 * Япон улсас 2019 оны 8 сард Коматсийн DPF 24 аж бүрдэх, сүүртүүр шаларал хамар 15 нь Нийслэлд хүртэлх өртөг. (Нийслэл зорчсон тээврийн автобусныг дахин шаларалд оруулж (DPF) суурилуулж, энэ төрлийн шаларалд оруулах арга хэмжээг баталгаажуулж, нэвтрүүлэх ХАЯКА-ын төсөл)
 → Одоо (тусламж хийх 3 жил хугацаа) DPF-ийг автобусны ашиглалтын хугацаа дууссан, шилжүүлэн суурилуулах ажил хийгдсгүй тул DPF болон хөдөлгөөн тээврийн хэрэгсэл ашиглахгүй байна
 → 2022 оны 6 сард 1 автобусны шилжүүлэн суурилуулах болон ажиллагааг горимыг дотоодуулж, хяналтгүй хял хийх асуудал үүссэн учраас 9 сард DPF-ыг салгаж авсан.
 → НТГ-ны хувийн хэвцлийн автобус компанид DPF суурилуулахаар 3 компанид тохиролцсон боловч эцсийн байдлаар зөвлөхөөрөн нэг хамтын нэгж байгуулж 2022 оны 9 сардас шилжүүлэн суурилуулах дуусгаад бүсэд тоног төхөөрөмжийн ашиглалтгн цийлж байна
- (2) Асуудал ба шийдэл
 * DPF ашиглалтын зардалгн автобус компани бие дааш хариуцаж байгаа, дэмжлэг төлөх байхгүй.
 * DPF ашиглалтын зардалгн савуулашгт байхгүйн улмаас шилжүүлэн суурилуулах санхүүгн хэрэгсэл автобус компани төлөх байна.
 → DPF ашиглалтын зардалгн тээврийн автобус компани зардалгн ачааллыг хангаж

2.1 Цаашдын хэрэгжилттэй холбоотой шаардлага (1) DPF шилжүүлэх суурилуулах

Асуудал	Шийдэл
2022 оны 6 сард шилжүүлж суурилуулсан боловч ашиглааг, автобусны хөдөлгөөнийн горим дотоодсон (HYUNDAI-д тохиролцогүй байх магадлалтай) тул DPF-ыг салгаж авсан. НТГ нь DPF тоног төхөөрөмжийн хөдөлгөөн байдлыг тодорхойлж, суурилуулах автобус компанид зохихуулашг хийсэн. Тоног төхөөрөмжийн хөдөлгөөн хувиас зарим эд анхны ашиглаа боломжгүй болсон, мөн тодорхой тохиролцогч хамт зэрлүүлгн гарсан. Автобус компанид хийсэн нь DPF-ын ашиглалтын зардалгн өөрсдөө хариуцаж боломжгүй учраас суурилуулах ажилгн (1 компаниас бусад) хүлээж авалгүй. Иймд ашиглалтын зардалгн тээвэр олгогч тохиролцогч DPF-ыг шилжүүлэн суурилуулах үйл ажиллагааг хэрэгж мэгүй болох магадлалтай байна.	Япон тээвэр НТГ-г хандаж дараах шаардлагыг тавьж байна. (1) DPF-ын тоног төхөөрөмжийн бүртгэл, хадгалалт (шилжүүлэн суурилуулах хүртэл) (2) DPF суурилуулсан автобусны компанид ашиглалтын зардалгн гаргаж өгч, өдөр тутмын ашиглалтад дэмжлэг үзүүлж (3) DPF суурилуулсан автобусны компанид хөдөлгөөн, дээр тал (татварас чөлөөлж эрх) бий болгож (4) DPF суурилуулсан автобусны ашиглалтын хугацаа дууссан тохиолдолд дараагийн автобусанд шилжүүлж суурилуулах зардалгн бүрдүүлж, шилжүүлэн суурилуулахад дэмжлэг үзүүлж

2.1 Цаашдын хэрэгжилттэй холбоотой шаардлага (1) Хүхэр багатай шатаахууныг нэвтрүүлэхтэй холбоотой асуудал

Асуудал	Шийдэл
2022 оны 4 сард Агаарын тухай хууль, агаар чадарын сайжруулсан бүсэд экологийн ангилалын хүхэр багатай шатаахуунаас доогуур ангилалын шатаахууныг жижиглэн борлуулж хориглосон. Гэсэн хэдий ч хүхэр багатай шатаахууныг (Евро-2) нийтийн тээврийн автобусанд хэрэглэсээр байна. Мөн, нийтийн тээврийн автобус баа Евро-5 стандартын автобусыг худалдан авчирсан ч Евро-5 шатаахууны хангалт байхгүй улмаас энгийн дизель түлш хийж явснаар хөдөлгөөн дотоодолд үүсч ашиглаа боломжгүй болсон байна. Өөр бусад евро-5 хөдөлгөөн автобусанд ашиглан асуудал үүсж магадлал өндөр байна.	Япон тээвэр шатаахууны түлшний асуудал хариуцаж байгууллагад дараах шаардлагыг хүргүүлж байна. (1) УБ хотод энгийн түлш борлуулалтыг хориглох. (2) Энгийн түлшгүй харуулахаад хүхэр багатай түлшний үнийн зөрүүг ариулах (Омцгой татвар гэж мэт) (3) Евро-5 ба түүнээс дээш утаа ялгаруулах журамд нийцсэн тээврийн хэрэгсэлд энгийн түлш хэрэглэснээс баях дотоодол гарч боломжгүй талаар сурталчилгаа үйл ажиллагааг хэрэгжүүлж (4) Евро-5 буюу түүнээс дээш утаа ялгаруулах журамд нийцсэн тээврийн хэрэгслийн DPF гэж мэт зохих зэвсэг үйлчилгээний мэдээллийг нийтэд түгээх үйл ажиллагаа

2.1 Цаашдын хэрэгжилттэй холбоотой шаардлага (2) Инвентар, тархалтын загварчлал

Асуудал	Шийдэл
/2021 оны 12 сарын ХЗХ-ны 6-р хуралдаанаас 2022 оны 9 сард ялгарлын инвентар, тархалтын загварчлал боловсруулах, загварчлалыг боловсруулах, үр дүнг бохирдлыг бууруулах арга хэмжээг үнэлэх нэгтгэл (у/а 2-2-7-оос 2-2-9) ажлын их ажилд Монгол талын байгууллага (НАОБТ, дээд сургууль, хувийн хэвцлээр ЦУОШП, УЦУОШМХ) -ын үүрэг, оролцоог гүйцэтгүүлж боломжийг судалж, тодорхойлсон хамтран ажиллах гэрээний төслийг хэлэлцсэн. Тархалтын загварчлалыг хариуцсан мэргэжилтэн ажлаас гарч, боловсон хүчин дутагдахтай байгаагаас хариуцах байгууллага тогтоогүй байна.	Холбогдох байгууллагын хүрээнд хариуцан ажиллах боломжгүй тохиолдолд агууламжийн тархалтын загварчлалыг боловсруулах, үр дүнг бохирдлыг бууруулах арга хэмжээг үнэлэх нэгтгэл (у/а 2-2-7-оос 2-2-9) ажлын их ажилд Монгол талын байгууллага (НАОБТ, дээд сургууль, хувийн хэвцлээр ЦУОШП, УЦУОШМХ) -ын үүрэг, оролцоог гүйцэтгүүлж боломжийг судалж, тодорхойлсон хамтран ажиллах гэрээний төслийг хэлэлцсэн. Тархалтын загварчлалыг хариуцсан мэргэжилтэн ажлаас гарч, боловсон хүчин дутагдахтай байгаагаас хариуцах байгууллага тогтоогүй байна.

Холбогдох байгууллагын үүрэг, оролцооны хувиарлалт (гэрээний төсөл)

Байгууллага	Байгууллагын үүрэг
НАОБТ	1. Агаар бохирдуулах бэрхшээл тодорхойлж, хариуцагчийг туслахын төлөө мэдээ, бүртгэлийн мэдээлэл, судалгаа өгөгдлийг оруулах гэрээ 2. Ялгаралт тодорхойлж болох агаарын тээврийн хэрэгсэл 3. НАОБТ-ын хариуцагч агаарын тээврийн хэрэгсэлд тохиромжтой өөрчлөлтөд байгууллагад 4. Улаанбаатар хотын тээврийн хэрэгсэл (Япон Агаарын) -ыг боловсруулж 5. Агаарын бохирдлыг бууруулах арга хэмжээний санал боловсруулж 6. Арга хэмжээний санал хэрэгжсэн тохиолдолд хариуцагч агаарын тээврийн хэрэгсэлд
ЦУОШП	1. ЦУОШП-ын хариуцагч агаарын тээврийн хэрэгсэлд тохиромжтой өөрчлөлтөд байгууллагад 2. Агаарын бохирдлыг тодорхойлж, хариуцагчийг туслахын төлөө мэдээ, бүртгэлийн мэдээлэл, судалгаа өгөгдлийг оруулах гэрээ 3. Тухайн агаарын тээврийн хэрэгсэлд тохиромжтой өөрчлөлтөд байгууллагад 4. Арга хэмжээний санал хэрэгжсэн тохиолдолд хариуцагч агаарын тээврийн хэрэгсэлд
УЦУОШМХ	1. УБ хотын тээврийн хэрэгсэлд тохиромжтой өөрчлөлтөд байгууллагад 2. WBF-ын тээврийн хэрэгсэлд тохиромжтой өөрчлөлтөд байгууллагад 3. Тухайн агаарын тээврийн хэрэгсэлд тохиромжтой өөрчлөлтөд байгууллагад 4. Арга хэмжээний санал хэрэгжсэн тохиолдолд хариуцагч агаарын тээврийн хэрэгсэлд
Бүтэц байгууллага	1. Агаарын бохирдлыг тодорхойлж, хариуцагчийг туслахын төлөө мэдээ, бүртгэлийн мэдээлэл, судалгаа өгөгдлийг оруулах гэрээ 2. Агаарын бохирдлыг тодорхойлж, хариуцагчийг туслахын төлөө мэдээ, бүртгэлийн мэдээлэл, судалгаа өгөгдлийг оруулах гэрээ 3. Агаарын бохирдлыг тодорхойлж, хариуцагчийг туслахын төлөө мэдээ, бүртгэлийн мэдээлэл, судалгаа өгөгдлийг оруулах гэрээ 4. Агаарын бохирдлыг тодорхойлж, хариуцагчийг туслахын төлөө мэдээ, бүртгэлийн мэдээлэл, судалгаа өгөгдлийг оруулах гэрээ

3. Хэлэлцэж, шийдвэрлэх зүйлс

3.1 ТТМ-д ХЗХ-ны дарга болон төслийн даргыг өөрчлөх

■ ХЗХ-ны дарга

- Нийслэлийн шинэчилсэн бүтэц, зохион байгуулалтаар төслүүдийн удирдлагын албан тушаал хамаарсан тул төслийн даргын бичиг болох ТТМ-д ХЗХ-ны даргыг Агаар, орчны бохирдлын асуудал хариуцсан төслүүдийн удирдлаг гэж засныг Нийслэлийн Засаг даргын Нийгмийн салбар, ногоон хөгжлийн болон агаар, орчны бохирдлын асуудал хариуцсан орлогч болгон өөрчлөх.

■ Төслийн дарга

- 2021 оны 1 сарын ХЗХ-ны 4-р хуралдаанаар төслийн даргаар НАОБТ-ын бодлогын хэрэгжлийн хэлтсийн дарга байсныг 2018 оны 10 сард байгуулсан төслийн санамж бичигт заасны дагуу НАОБТ-ын дарга болгон өөрчлөх.

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Project Design Matrix (PDM)

Ver.1.7
Dated: December 9, 2022

Project Title: Capacity Development Project for Air Pollution Control in Ulaanbaatar City Phase 3

Implementing Agency: Department of Against Air and Environmental Pollution (DAAEP) of Ulaanbaatar (UB) City, Ministry of Environment and Tourism (MET) and Counterpart Working Group (C/P-WG)

Target Group: DAAEP, MET, C/P-WG and Relevant Agencies

Duration of the Project: November 2018 – July 2024 (5 years and 9 months)

Project Site : UB City

Narrative Summary		Objectively Verifiable Indicators	Means of Verification	Important Assumptions
Overall Goal Emission reduction at major emission sources is enhanced towards air quality improvement in Ulaanbaatar City.		1. XX% of emissions from major pollution sources is reduced compared with the BAU baseline.	1. Comparison between BAU and updated inventory for target year (3 to 5 years after completion of the Project)	
Project Purpose Capacity for air pollution control in Ulaanbaatar City is strengthened, paying special attentions to implementation of effective pollution control measures and to the necessary coordinating mechanism of DAAEP and the relevant agencies.		1. One of pilot projects are adopted as full scale implementation by relevant authorities. 2. At least one case of lessons learned from the pilot projects are utilized by the decision makers. 3. Relevant laws, regulations and standards on air pollution control measures are implemented in UB City. (At least establishment of one MNS, and/or 70% of compliance in the dust emission standards of existing MNS; MNS5043:2016 (General technical requirement of heat water boiler under 4.2MW) and MNS5919:2008 (Emission limit value and measurement method of power plant, steam boiler))	1. The Project reports 2. Interview survey to the relevant agencies 3. Laws, regulations, MNS standards, and ordinances of UB City	
Outputs Output 1: Capabilities of emission monitoring for the major pollution sources and of air quality monitoring are strengthened. Output 2: Capabilities to analyze and evaluate pollution structure of PM, SO ₂ , and NO _x throughout the year are strengthened. Output 3: Capabilities of technical evaluation and preparation of air pollution control measures for implementation are strengthened.		1-1. During the Project duration, at least 50 % of inspections for boiler registration based on emission measurements (including standard and simplified methodologies) are implemented by DAAEP and IACC. 1-2. The emission measurement reports are submitted to Project Leader of UB city in charge of air and environmental pollution at least 3 times during the Project duration. 1-3. Emission monitoring for the major pollution sources and air quality monitoring information are shared regularly among the relevant agencies through coordination between DAAEP and NAMEM. 1-4. The CEMS measurement is compared with the standard measurement once in a year. 1-5. Distribution of emission measurements from vehicles in UB City is prepared based on the study with RSD at least once a year. 2-1. The results of PM apportionment study are reported at least three times during the Project. 2-2. Pollution structures are assessed at least 3 times during the Project duration including emission inventory, simulation model, PM speciation, receptor model, air quality monitoring and population exposure throughout the year. 3-1. Drafts of emission measurement methods and quality standards of improved fuel for households in Ger area are submitted to MASM. 3-2. At least three of implementation plans of the pilot projects are prepared.	1. Emission measurement reports by DAAEP / IACC 2. The Project reports 3. Boiler registration database 4. Air quality monitoring monthly reports and annual reports 5. CEMS data 1. The Project reports	1. Legal and political framework for air quality management is maintained, which defines decision making mechanism such as NCEPR and professional agencies like DAAEP and NAMEM. 2. The COVID-19 pandemic situation will be improved and JICA will be able to send JICA Experts to Mongolia toward April 2021 until the end of the Project.

Output 4: Decision making process for air pollution control is improved by utilizing the Professional agencies including DAAEP, NAMEM and the relevant agencies.	4-1. Analysis of air pollution status, short-, medium- and long- term air pollution control strategies (including BAU analysis) and evaluation of air pollution control measures (including implemented and planned) are presented to decision makers at least 2 times. 4-2. Results of pilot project implementation and other Project results are utilized for the revision of NCEPR and for decision making on implementation/non-implementation of pollution control measures at least once.	1. The Project reports 2. Reports on NPREP
Output 5: Air pollution control measures are enhanced for PM, SO ₂ and NO _x emission reduction at major sources.	5-1. At least three pilot projects selected by C/P-WG are implemented 5-2. The results of each pilot project (emission reduction, improvement of ambient air quality and population exposure for PM, SO ₂ and NO _x) are presented to the relevant agencies.	1. The Project reports
Output 6: Legal framework, resource allocation and coordinating mechanism as a Platform for the Air Quality Management Cycle are strengthened for the Outputs 1 to 5.	6-1. At least three of drafts on laws and regulations, such as fuel regulations, MNS emission standards and ordinances of UB City, are submitted. 6-2. More than 3 air pollution control measures and technologies are funded by the sections of the relevant agencies in charge of allocating funds for air pollution control by utilizing technical appraisal guideline provided by the Project. 6-3. At least three agreements are made on demarcation of roles of the relevant agencies for air pollution control measures in the Project. 6-4. The operational guideline is distributed to relevant agencies.	1. Laws and regulations, fuel regulations, MNS emission standards and ordinances of UB City 2. Minutes of Meeting of NCEPR 3. Official documents including UB city Governor's orders 4. Operational guideline

Activities		Inputs
1-1 1-1 DAAEP and IACC reinforce HOB inspections based on on-site stack gas measurements. 1-1-1 DAAEP and JICA Experts assess the technical transfer on-site stack gas measurement. 1-1-2 DAAEP with JICA Experts re-constructs 2 teams of stack gas measurement. 1-1-3 IACC and the relevant agencies with JICA Experts implement HOB inspection based on on-site stack gas measurement. 1-1-4 IACC with JICA Experts introduces simplified measurement method by using IACC's portable gas measurement equipment including parallel measurement with JIS method, elaboration of manuals and manufacturer's calibration. 1-1-5 DAAEP and IACC with JICA Experts elaborate emission measurement reports. 1-2 TPP3 and TPP4 with JICA Experts enhance emission gas control by utilizing CEMS. 1-2-1 TPP3 and TPP4 with JICA Experts elaborate and implement CEMS operation and maintenance plan. 1-2-2 TPP3 and TPP4 with JICA Experts perform quality control of emission gas data of CEMS. 1-2-3 TPP3 with MET and the relevant agencies elaborates online emission data reporting system for the CEMS. 1-2-4 NAMEM and the relevant agencies share and evaluate CEMS emission data. 1-2-5 NAMEM compiles monitoring data of emissions from TPP2, TPP3, TPP4 and new large heat supply facilities and share them with relevant agencies. 1-3 MRTD and PTD introduce relevant regulations of vehicles based on emission measurement. 1-3-1 MRTD and PTD with JICA Experts implement vehicle emission measurements by RSD, assess distribution of vehicles emission intensity and define target vehicles to be regulated. 1-3-2 MRPA and IACC with JICA Experts implement automobile fuel surveys. 1-3-3 JICA Experts conduct training to NRTC, in addition to DAAEP, on vehicle emission measurement using on-board emission measurement system, and DAAEP and NRTC implement vehicle emission measurement using on-board emission measurement system.	Japanese side 1. JICA experts (necessary fields) (1) Chief Advisor (2) Air Pollution Control Planning and Policy (3) Emission Measurement for Stationary Sources (4) Ambient Air Quality Monitoring (5) Ambient Air Quality Analysis (6) PM10 and PM2.5 Sampling (7) PM10 and PM2.5 Apportionment Study (8) Emission Inventory (Stationary, Mobile and Others) (9) Air Quality Simulation Modeling / Air Pollution Control Measures Evaluation	Mongolian side 1. C/P and C/P-WG (1) JCC Chairperson (2) JCC Vice-Chairperson (3) Project Director (4) Project Manager (5) Necessary C/P and C/P-WG staff according to the fields of JICA Experts 2. Facility (1) Provision of necessary office space in DAAEP and MET (including internet access) (2) CLEM Laboratory (3) Storage Space for Equipment 3. Local cost (1) Counterpart expenses such as salary, allowance,

- There are no frequent leaves, transfers or resignations of C/P and C/P-WG members.
- Necessary coordination among UB city, districts, khoroos and communities in Ger area is secured by Mongolian side for implementation of pilot projects.

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1-3-4 PTD with JICA Expert transfer the DPFF which were installed on 24 large buses by the project "Verification Survey with the Private Sector for Disseminating Japanese Technologies for Emission Reduction of Particulate Matter (PM) from Diesel Buses by DPFF" to other buses. 1-4 DAAEP and NAMEM with JICA Experts strengthen AQMS utilization. 1-4-1 CLEM and JICA Experts assess the current status of equipment in reference laboratory of CLEM and identify necessary actions if necessary. 1-4-2 DAAEP reinforces AQMS operation and maintenance based on the plan by Phase 2. 1-4-3 DAAEP with JICA Experts starts air quality monitoring at pilot project area for improved household fuels by utilizing mobile AQMS. 1-4-4 DAAEP with JICA Experts reinforces the AQMS at Bayankhoshuu station. 1-4-5 DAAEP and NAMEM with JICA Experts implement parallel measurement by FRM sampler for PM concentration, and implement quality control of PM measurements of AQMS. 1-4-6 DAAEP and NAMEM with JICA Experts maintain the online information system of AQMS. 1-4-7 DAAEP and NAMEM share real-time monitoring data with the relevant agencies through the online information system. 1-4-8 DAAEP and CLEM with JICA Experts analyze air quality monitoring data and elaborate air quality monitoring reports. 1-4-9 The relevant agencies utilize air quality monitoring data. 1-4-10 DAAEP with JICA Experts establishes the data transfer system of air quality monitoring data of Dambadarjaa station to the online information system of AQMS. 2-1 NAMEM and JICA Experts conduct PM apportionment study based on PM speciation throughout the year. 2-1-1 CLEM and JICA Experts elaborate PM sampling plan throughout the year, and implement PM samplings. 2-1-2 JICA Experts perform PM speciation analysis in Japan. 2-1-3 NAMEM and CLEM with JICA Experts learn PM speciation technologies (ion analysis, element analysis and carbon analysis). 2-1-4 NAMEM and CLEM with JICA Experts formulate equipment and laboratory plan for PM speciation. 2-1-5 DAAEP and NAMEM with JICA Experts perform PM apportionment study based on receptor modeling. 2-2 DAAEP and NAMEM with JICA Experts evaluate air pollution structure and health impact based on air quality simulation model and receptor model. 2-2-1 DAAEP and NAMEM elaborate plans for updating emission inventory. 2-2-2 DAAEP, TCC and PTD implement studies for mobile sources including update of emission inventory, examination of traffic signal control, traffic volume and vehicle traveling speed. 2-2-3 DAAEP and JICA Experts select the pilot areas and assess Ger stoves usage pattern (type and model of stoves, seasonal pattern of usage, insulation of Ger housing and coal consumption). 2-2-4 DAAEP and NAMEM with JICA Experts implement studies for other emission sources as necessary. 2-2-5 DAAEP and NAMEM with JICA Experts elaborates BAU (Business as usual) scenario for the future year based on TPPs future development plans, projection of number of vehicle, population, economic growth, emission regulation, fuel quality regulation and so on. 2-2-6 DAAEP and NAMEM update emission inventory for the present year and the future year for the BAU scenario. 2-2-7 DAAEP and NAMEM update the air quality simulation model for PM10, SO₂ and NO_x. 2-2-8 DAAEP and NAMEM evaluate the air pollution structure of UB city. 2-2-9 DAAEP and NAMEM evaluate indicative population exposure of PM10 based on population weighted concentration and so on. 3-1 DAAEP and the relevant agencies elaborate a draft MNS on an emission measurement method of improved fuel and fuel quality, and propose it to MASIM. 3-2 ME with JICA Experts elaborates safety standards on the household gas distribution. 3-3 DAAEP and the relevant agencies elaborate implementation plans and terms of reference for pilot projects such as improved fuel, HOB, traffic signal control, eco-driving, RSD, smoke belching program based on portable emission device, DPFF, low sulfur fuel and low emission vehicles.	(10) Auto-mobile Emission Control 1 (Traffic Signal Control) (11) Auto-mobile Emission Control 2 (RSD and others) / Emission Measurement 2 (12) Clean Coal Technology for Air Pollution Control Measures (13) CEMS Data Analysis (14) Stationary Source Emission Control Measures (15) Air Quality Administration (16) Public Awareness and Public Relations 2. Training (1) Local seminars and workshops (2) Training course in Japan 3. Provision of necessary equipment 4. Local cost Necessary expenses for activity of JICA Experts travel cost and accommodation (2) Project administrative expenses
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4-1 DAAEP and NAMEM submit to the decision makers the analysis of air pollution status, short-, medium- and long-term air pollution control strategies (including BAU analysis) and evaluation of air pollution control measures (including implemented and planned). 4-2 Relevant agencies with pilot projects elaborate technical guidelines and utilizes them. 4-3 The relevant agencies discuss and endorse the selection of pilot projects. 4-4 NCEPR and the relevant agencies approve large scale investments based on pilot projects implementation and assessment. 4-5 NCEPR, or the sections of the relevant agencies in charge of allocating funds for air pollution control in the Mongolian government such as the Environment and Climate Fund utilizes the Outputs of the Projects and pilot projects implementation and assessment.	5-1 DAAEP with Health Department of Capital City and the relevant agencies implements public awareness and advisory activities for citizens including school students and parents. 5-2 MET and DAAEP publish progress of the Project by newsletter, newspaper articles, web-site and other medias. 5-3 DAAEP and JICA Experts provide technical guidance to manufacturers for improved fuel production. 5-4 The relevant agencies with JICA Experts implement pilot projects according to the implementation plan by Activity 3-3. 5-5 The relevant agencies with JICA Experts evaluate pilot projects results in terms of emission reduction, air quality improvement and exposure to citizens, and extract lessons learned. 5-6 The relevant agencies with JICA Experts report the pilot projects results to NCEPR. 5-7 TPP3 and TPP4 analyze CEMS data, and examine viable air pollution control measures. 5-8 TPP3 and TPP4 with JICA Experts elaborate emission reduction plans. 6-1 The relevant agencies discuss and elaborate written agreements on demarcation of roles in air quality management related with each Output and Activity of the Project. 6-2 DAAEP with JICA Experts submits technical documents to NCEPR for improved fuel standard, emission standard on stationary sources, mobile sources and other emission sources, and revision of ordinance. 6-3 NCEPR and the relevant agencies elaborate fuel standard and emission standard, and submit them to MASM. 6-4 Relevant ministries / relevant agencies of UB city elaborate laws, regulations and ordinances on air pollution control measures, and submit them to national parliament / city council. 6-5 JICA Experts provide training on air pollution control measures and technical appraisal guidelines for staff of the sections of the relevant agencies in charge of allocating funds for air pollution control. 6-6 Staff of the sections of the relevant agencies in charge of allocating funds for air pollution control with JICA Experts improve relevant operations with allocating funds for air pollution control measures, if necessary. 6-7 Mongolian side enhances donor coordination in air pollution control. 6-8 Relevant agencies of pilot projects with JICA Experts develop an operational guideline for elaboration, implementation and evaluation of air pollution control measures based on pilot projects implementation.	Pre-conditions 1. Appropriate number of qualified staff of C/P and C/P-WG is assigned. 2. Adequate amount of budget related with the Project implementation is secured. 3. Necessary human resources mobilization related with pilot projects is secured by Mongolian side.
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AQMS: Air Quality Monitoring Station
BAU: Business as Usual
CEMS: Continuous Emission Monitoring System
CFWH: Coal Fired Water Heater
C/P: Counterpart
C/P-WG: Counterpart Working Group
DAAEP: Department of Against Air and Environmental Pollution of Capital City
DPF: Diesel Particulate Filter
FRM: Federal Reference Method
HOB: Heat Only Boiler
IACC: Inspection Agency of the Capital City
MASM: Mongolian Agency for Standardization and Metrology
MET: Ministry of Environment and Tourism
MMHI: Ministry of Mining and Heavy Industry
MNS: Mongolian National Standard

MRPA: Mineral Resources and Petroleum Authority
MRTD: Ministry of Road and Transport Development
NAMEM: National Agency for Meteorology and Environment Monitoring
NCEPR: National Committee for Environment Pollution Reduction
NPREP: National Program on Reducing Environment Pollution
NRTC: National Road Transport Center
PTD: Public Transportation Department of the Capital City
PM: Particulate Matter
RSD: Remote Sensing Device
TCC: Traffic Control Center of the Capital City
TPP: Thermal Power Plant

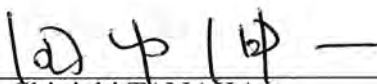
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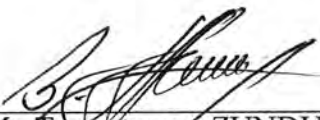
MINUTES OF MEETING OF
THE NINTH JOINT COORDINATING COMMITTEE MEETING
ON JAPANESE TECHNICAL COOPERATION FOR
CAPACITY DEVELOPMENT PROJECT FOR AIR POLLUTION CONTROL IN
ULAANBAATAR CITY PHASE 3 in MONGOLIA

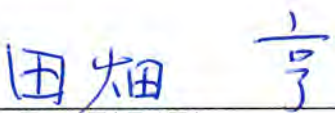
The Japan International Cooperation Agency (hereinafter referred to as "JICA") Supervisory Team for "Capacity Development Project for Air Pollution Control in Ulaanbaatar City Phase 3 in Mongolia (hereinafter referred to as "the Project"), JICA Mongolia Office, and JICA Expert Team (hereinafter referred to as "JET") had a series of meetings with Department of Against Air and Environmental Pollution of Capital City (hereinafter referred to as "DAAEP"), Ministry of Environment and Tourism (hereinafter referred to as "MET") and Joint Coordinating Committee (hereinafter referred to as "JCC") members from 18th May to 22nd June 2023 to discuss the Progress Report 5 and the Monitoring Sheet 9, and the ninth JCC meeting of the Project chaired by Mr. Tumurtumuu ZUNDUI, Deputy Governor of Capital City in Charge of Social Sector, Green Development and Air and Environmental Pollution on 12th June 2023. Participants list of the seventh JCC meeting is shown in Annex I.

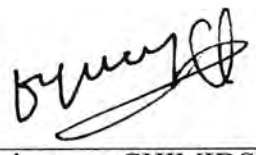
Japanese side and Mongolian authorities had a series of discussions. As a result of discussions, both sides agreed on matters referred to the document attached hereto.

Ulaanbaatar, 22nd June 2023


Mr. Shinichi TANAKA
Leader, JICA Supervisory Team,
Chief Representative
JICA Mongolia Office
Japan International Cooperation Agency,
Japan,


Mr. Tumurtumuu ZUNDUI
Deputy Governor of Capital City
in Charge of Social Sector, Green
Development and Air and
Environmental Pollution


Mr. Toru TABATA
Leader, JICA Expert Team, Japan


Mr. Choigunsen CHIMIDSUREN
Director General
Development Financing Investment
Department
Ministry of Finance, Mongolia

ATTACHED DOCUMENT

I. Progress Report 5 and the Project Monitoring Sheet 9.

JET explained the progress of the Project, future activity plan, and issues that the Project is facing since its beginning. After active discussions, the JCC approved the Progress Report 5 and the Project Monitoring Sheet 9.

II. Revision of the Activities of Project Design Matrix

1. Activity 1-1

“1-1 DAAEP and Inspection Agency of the Capital City (hereinafter referred to as “IACC”) reinforce HOB inspections based on on-site stack gas measurements.”
will be replaced by;

“1-1 DAAEP and IACC^{※1} reinforce HOB inspections based on on-site stack gas measurements.”

※1 According to Mayoral Order A/1649 "Partial Measures Related to the Abolition of Inspection Agency of the Capital City" dated December 30, 2022, Audit Division was added to DAAEP.

2. Activity 1-1-4

“1-1-4 IACC with JICA Experts introduces simplified measurement method by using IACC’s portable gas measurement equipment including parallel measurement with JIS method, elaboration of manuals and manufacturer’s calibration.”
will be replaced by;

“1-1-4 IACC with JICA Experts introduces simplified measurement method by using IACC’s portable gas measurement equipment including parallel measurement with JIS method, elaboration of manuals and manufacturer’s calibration.”^{※2}

※2 Since the Audit Division and the Air Quality Measurement and Operation Division of DAAEP do not perform simplified measurement, Activity 1-1-4 was terminated through December 30, 2022.

3. Activity 3-2

“3-2 Ministry of Energy with JICA Experts elaborates safety standards on the household gas distribution.”
will be replaced by;

“3-2 JICA Experts collect information about fuel gas usage in Mongolia, elaborate safety standards for gas based on Japanese experiences, and then submit it to Ministry of Energy.”

III. Revision of the Output Indicator of Project Design Matrix

1. Objectively Verifiable Indicator 6-2

Ms. Oyunchimeg BATJARGAL of Secretariat of National Committee for Environment Pollution Reduction (hereinafter referred to as “NCEPR”) mentioned that regarding revision of objectively verifiable indicator 6-2, we agree with the use of a guideline. On the other hand, mandates and regulations of the Secretariat of NCEPR were determined by the Mongolia Government. We need to discuss this indicator separately with Japanese Experts.

Mr. Tumurtumuu ZUNDUI of the JCC Chairperson mentioned that the members of the NCEPR are ministers of ministries and agencies, etc. It is beyond the authority of Ulaanbaatar Municipality to determine the indicators on its own and present them to NCEPR. The Japanese Experts need to discuss and change the indicator 6-2 with the Secretariat of NCEPR.

Mr. Toru TABATA of Leader of JET responded that the Japanese Experts will discuss and decide on this matter separately with the Secretariat of NCEPR.

IV. Comment from Mongolian side of the issues on the future project activities

1. Comment on continued technology transfer for implementation of simulations.

Mr. Buyannemekh of Director General of Environmental Policy Coordination Department of MET requested that although technology transfer for simulation has been conducted since Capacity Development Project for Air Pollution Control in Ulaanbaatar City Phase 1, Mongolian side has not been able to continuously secure human resources and has not been able to execute air quality simulation model. We request Japanese Experts to implement technology transfer including to the National University of Mongolia (hereinafter referred to as “NUM”) in order to enable air quality simulation model to be executed on Mongolian side after the end of the Project.

Mr. Batbayar JADAMBA of NAMEM responded that a lack of human resources to independently develop emission inventories and the lack of institutions and human resources to independently execute air quality simulation model are issues on Mongolian side. As a solution, Mongolian side hope to enable NUM to execute air quality simulation model in collaboration with NAMEN. Therefore, DAAEP, NAMEM, and NUM signed a letter of agreement. Since Mongolian side will execute the simulation model in the future, we request that Japanese Experts execute the simulation model and transfer the technology related to the simulation model to Mongolian side during the duration of the Project.

Mr. Tumurtumuu ZUNDUI of the JCC Chairperson mentioned that the inability to secure and sustain human resources in technology transfer destinations is an issues on Mongolia. Institutionally and politically, human resources are not functioning stably.

Mr. Natsuji SAWAKI of Deputy Leader of JET responded that Mongolian side requested retraining at the 3rd JCC in December 2019, and JET has been implementing the technology transfer on the condition of securing at least two persons in charge from each

institution, however, the persons in charge have not been fixed. On the other hand, there is only one year left in the Project duration. In order to achieve the Project activities to execute the simulation model and evaluate the countermeasures by the end of the Project. Japanese Experts have to execute the simulation model and explain the method of evaluating the countermeasures to Mongolian side. In addition, Japanese Experts are considering technology transfer to Mongolian side for the development of inventories and execution of simulations to the extent feasible.

2. Advice of Air Law

Mr. Buyannemekh of MET mentioned that responsibilities of the Ulaanbaatar Municipal Government and the provincial governments with respect to air pollution reduction are defined in an Air Law, however, responsibilities of the various ministries and agencies are not defined. Therefore, MET is considering revisions of the Air Law and plans to establish a working group in the future. We request Japanese Experts to participate in the working group and advise us accordingly.

Mr. Tumurtumuu ZUNDUI of the JCC Chairperson mentioned that currently, only the Ulaanbaatar Municipal Government is responsible for air pollution reduction, however, it is very important to amend the Air Law to add the responsibilities of each ministry and agency. It is important that Japanese experts will provide Mongolian side advice on the revision of the Air Law based on their extensive knowledge and experience and Japanese case studies.

Mr. Natsuji SAWAKI of Deputy Leader of JET responded that Japanese Experts are available to provide technical advice within the scope of PDM activities. We will discuss again with MET when the working group is established.

V. Comments regarding issue of popularizing low-sulfur fuels

Ms. Mongolmaa of Ministry of Mining and Heavy Industry (hereinafter referred to as "MMHI"), Fuel Policy Department responded that MMHI considers that it important to have the same price for Eueo2 and Euro5 fuel, and MMHI has proposed to Ministry of Finance that a tax credit and selling price be the same. However, Ministry of Finance has not given any positive consideration to this matter. The usage of Euro 5 fuel for Euro V public buses is considered to be a priority, however, a challenge is the regulation on tendering in Ulaanbaatar Municipality requires that the lowest priced fuel be procured.

Mr. Tumurtumuu ZUNDUI of the JCC Chairperson mentioned that Ulaanbaatar Municipal Government provides a huge budget including grant money to Transportation Public Department of Capital City. Also Ulaanbaatar Municipal Government is trying to improve a public transportation system and service management. So far, Ulaanbaatar Municipal Government purchased 270 Euro V Buses including EV buses, and plans to purchase 800 buses more this year and next year. I would like to address this issue of Euro5 fuel at the Mayor's Council and Council meetings to explain decision makers to

make effort to solve this issue.

Mr. Atsushi SATO of JET mentioned that previously, due to the usage of Euro 2 fuel for Euro IV buses, the buses broke down and were all scrapped. If the Euro 2 fuel is continued to be used in Euro V buses, it is very likely that all Euro V buses will be out of service in the near future. Although the tenders of Ulaanbaatar Municipal Government indicate that the cheapest fuel in terms of price must be procured, the Euro V bus operation manual clearly specifies that Euro 5 fuel must be used. This issue is able to be solved by changing the tender specifications to procure the lowest priced Euro V fuel when tendering for the fuel of public transportation buses. Japanese Experts request Mongolian side to take immediate action, as 112 buses of National public bus company introduced this year are likely to break down within next few months and ultimately be scrapped.

VI. Conclusions by Mr. Tumurtumuu ZUNDUI, the JCC Chair Person

The Project implementation duration is only one year left, and it is important for Mongolian side to take positive actions and responses from the concerned parties. The achievement of the results of this project is mainly the responsibility of Mongolian side and the outcome of many years of efforts by the Japanese Experts. I hope that Mongolian side will feel responsible for the Project and take a proactive approach. I expect that at the next JCC, current issues will be resolved, the activities will progress, and outputs will be stepped up to the point of achievement. As deputy mayor, I am in charge of various fields and it is difficult for me to be involved in all of them, but I would like to be proactive.

END

ANNEX I Participants of Seventh Joint Coordination Committee

ANNEX II Presentation of Progress Report 5, Monitoring Sheet9, Activity Plan
and Important Issue

ANNEX III PDM (ver. 1.8)

ANNEX I Participants of Ninth Joint Coordination Committee

	Name	Organization	Position
1	Mr. Tumurtumuu ZUNDUI	Ulaanbaatar City	Deputy Governor of Capital City in Charge of Social Sector, Green Development and Air and Environmental Pollution
2	Mr. Khishigdalai CHULUUN	Ministry of Mining and Heavy Industry, Fuel Policy Department	Head of Department
3	Ms. Mongolmaa D	Ministry of Mining and Heavy Industry, Fuel Policy Department,	Analyst of Standards, occupational safety and environmental issues
4	Mr. Gerelnyam B	Ministry of Road and Transport Development, Traffic Coordination Department	Head of Department
5	Mr. Buyannemekh.B	Ministry of Environment and Tourism, Environmental Policy Coordination Department	Director General
6	Mr. Munkhbat TSENDEEKHUU	Ministry of Environment and Tourism, Environmental Policy Coordination Department	Officer
7	Ms. Oyunchimeg BATJARGAL	Secretariat of the National Committee for Environmental Pollution Reduction	Senior specialist. Air pollution reduction
8	Mr. Enkhbat ERDENEBAT	Secretariat of the National Committee for Environmental Pollution Reduction	Air quality specialist
9	Mr. Batbayar JADAMBA	National Agency for Meteorology and Environment Monitoring Environment Monitoring Division	Head of Division
10	Mr. Barkhasragchaa BALDORJ	Central Laboratory of Environment and Metrology	Head of Environmental monitoring laboratory
11	Ms. Gerelmaa BAATARKHUU	Ministry of Finance, Development Financing Investment Department	Cooperate Adviser
12	Mr. Namuu N	Traffic Control Center of the Capital City, Traffic Control Division	Head of Division
13	Mr. Nyamsan G	Public Transport Department of the Capital City, Cargo and Logistics Division	Head of Division
14	Mr. Ganbold TSOG	Department of Against Air and Environmental Pollution of the Capital City	Head of DAAEP
15	Mr. Enkhmend A	Department of Against Air and Environmental Pollution of the Capital City, Air Quality Measurement and Operation Division	Expert
16	Mr. Ulziibat D	Tavan Tolgoi Tulsh LLC Engineering Department	Head of Department
17	Mr. Tokuji YOSHIMURA	JICA Mongolia Office	Senior Representative
18	Mr. Kousuke SHIDA	JICA Mongolia Office	Representative
19	Ms. Oyuntsetseg.CH	JICA Mongolia Office	National Staff
20	Mr. Toru TABATA	JICA Expert Team	Chief Advisor
21	Mr. Natsuji SAWAKI	JICA Expert Team	Deputy Leader
22	Mr. Atsushi SATO	JICA Expert Team	Group Leader of Auto-mobile Countermeasure
23	Mr. Hajime Endo	JICA Expert Team	Clean Coal Technology / Pilot Project for Improved Fuel 1

ANNEX II Presentation of Monitoring Sheet and Important Issue

Монгол улс Улаанбаатар хотын агаарын бохирдлын хяналтын чадавхыг бэхжүүлэх төсөл (3 дугаар үе шат)

ХЗХ-ны 9 дүгээр хуралдаан

2023 оны 6 сар
ЖАЙКА төсвийн баг

1

1.1 Үр дүн 1 Эх үүсвэрийн болон орчны агаарын хяналт шовхилгыг сайжруулах

Хэрэгжих тийн байдал (2022/12-2023.04)

Төгс үйл ажиллагаа:

- НАОБТГ, НМХГ хамтран уламж: хийн хэмжээний хялбарчилсан аргачлалт (сөөгийн хэмжээгч /Geo 340/) нарийвчилсан өгөгдөл (JIS)-тай харгалзуулах хэмжээнийг хийж байсан боловч НЗД-ын 2022 оны 12 сарын 30-ны өдрийн АЛ649 тоот захирамаар НМХГ-г тасал буулгаж, НАОБТГ-ын хэрэгшил хяналт шалгалтын хэргээ байгуулалдсан. Иймд Монгол талтай зөвшицсөний үндсэн дээр тус үйл ажиллагааг зогсоосон.
- АМТГТ-ын хэрэгшил төв лабораторт нийлүүлсэн флуоресцент рентген хүтрийн анализаторыг ашиглан сар бүр шатлууун түгжээг шалгах дээж авч, хүтрийн асуулганд шовхонж байна.
- АЧСХ-ын хэмжээгч анализаторын ажиллагаанд доголдол, гэмтэл гарах үед үйлдвэрлэгч болон дистрибьютерүүдээс техникийн зааварчилгаа авахад туслалцаа үзүүлж байна. 2023 оны 2 сард японы үйлдвэрлэгчийн инженертэй онлайн-аар холбогдож НСЖ анализаторын гэмтлийг оношилж, зааврын дагуу үзлэг томиргоо хийж засварласан. НАОБТГ, БОХСГЛ нь сайтар уялдаа холбоотой ажиллаж байна.

4

ХЗХ-ны 9 дүгээр хурлын зорилго

1. Явцын тайлан дугаар-5 (2022.06~2023.05) болон Гүйцэтгэлийн тайлан /Дугаар-9/-г батлах (2022.11~2023.04)
2. Тулгамдсан асуудал болон хэлэлцэх асуудал
 - 2.1 Цаашид тулгамдаж буй асуудалтай холбоотой шаардлага
3. Япон талын саналыг монгол талтай хэлэлцэж, эцэслэн батлах
 - 3.1 ТТМ-ын үр дүнгийн шалгуурыг өөрчлөх
 - 3.2 ТТМ-ын үйл ажиллагааны агуулгыг өөрчлөх
4. 2023 оны 12 сарын ХЗХ-ны 10-р хуралдаан дээр хэлэлцэх асуудал

2

Үр дүн 1: Эх үүсвэрийн ялгарах, агаар орчны хяналт, шовхилгыг нэмэгдүүлэх сайжрах

Хэрэгжих тийн байдал (2022/11-2023.04)

- 2022 оны 11-р сарас 2023 оны 1-р сарын хооронд Тэрэлжийн гур хурдны баазад сайжруулсан шовхон түрхэж загвар төслийн үр дүнд бэлтгэлээр хяналтын туршилтаа хэрэгжүүлж, НАОБТГ-ын хяналт шалгалт байгуулсан агаарын агуулганыг хэмжсэн.
- 2022 оны 12 сард хувийн хэвсгийн автобус компанийг нэг автобусыг DPF-ийг шинэ түрэн суурилуулах болон жолооч нүүдлүүдийг хэвсгийн шаардлагатай ойлголгүйн урмыг авчирсан нүүдлүүдтэй зэрэгцүүлж, автобусны компанийн уламж урсгал баазад хэвсгийн хэвсгүүдийг дэлгэрүүлж, нэг загвар хийж байсан. Одоо нэг загвар нүүдэл, DPF суурилуулах хэвсгийг авчирч байгааг орсон.

Ажлаарх асуудал

- ❑ DPF суурилуулах автобусны шинэ загвар, загвар үйлдвэрлэл хэрэгжүүлж байгаа, бусад загварыг загварчлах болон жолооч нүүдлүүдийг DPF-ийн шинэ загвар (нүүдлүүд шалгах загвар) авчирч, автобусны нүүдлүүдийг хэвсгийн нүүдлүүдээр солих гш)-ийг эхлүүлж баримтлах гш зүйлийг сайтар танилцуулах, бүрэн ойлгуулах шаардлагатай.

5

ХЗХ-ны 9 дүгээр хурлын зорилго

1. Явцын тайлан дугаар-5 (2022.06-2023.05) болон Гүйцэтгэлийн тайлан /Дугаар-9/-г батлах (2022.11-2023.04)

3

DPF-ын шилжүүлэн суурилуулалт (Zhongtong автобус)

Тэрэлж ХЗХ-д шилжүүлэн суурилуулах ажлын хэц



Эхлүүлсэн нүүдлүүд



DPF-ийн шинэ загвар



Ажлаарх нүүдлүүд хэрэгжлээ



III үе шат дээр нүүдлүүдийг PM



Ажлаарх нүүдлүүдийг PM

6

Хэрэгжилтийн байдал (2022/11-2023/04)

- 2022 оны 12 сард РМ-ын хэмжээний найргалын шинэчилсэний бүтэн жэлийн сорац ажлыг эхлээд дуусч, 2023 оны 3 сард ялцд хэмжээний найргалын шинэчилсэнт дуусгасан.
- 2022 оны 11 сард оны шинэчилсэний байгууллагын үйл ажиллагайг тэнцэж, дадлагажик технологийн сургалтыг эхлээд эхлээд байгуулсан.
- 2023 оны 4 сард шинэчилсэний тоон өгөгдлийн алдааг тасархыг, ресепшн моделийн алдааг РМ-ын аж үүсвэрээр нөлөөллийг тэдгэрлэлт сургалт, дадлагажик хийсэн.

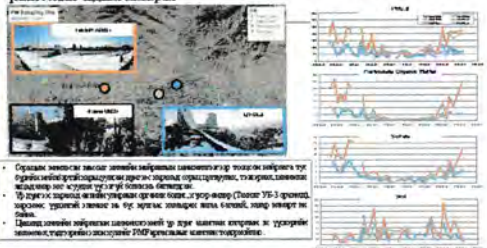
- Төлөвлөгөөний дагуу 2021 оны яг ажил тооцоолох (инвентар шалгах) эхлэл хийхдээ байцаах үнэ үзүүлэлтийг мэдээлэх дүмүүг тоон өгөгдөл алдаа нэгтгэлийг урьмдаг хэлхээг нутагцаа шалгахдад байгаа.
- Хөгжлөөний эрлийс болон тэмдэг хөгжлөөнийг нэгдэл байдлаа судалгаа, ахуйг хэрэглээний эрлийс зуунаа хийхтэйгээ судалгааг түс бүр хэрэглээгээр.
- 2023 оны 4 сара МҮИС д тарагтныг загварчлал ажиллуулна, тооцоолох дадлага эхлэл судалгааг тогтоон байгуулна.

SO₂ PM₁₀



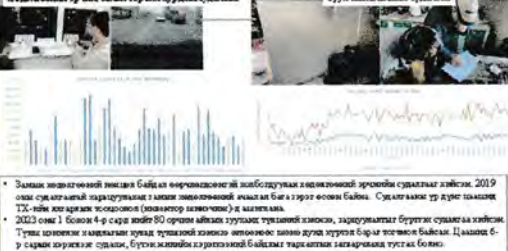
- Сайруу-уулсн цагаалмал түгшээний хэрэгтэнэ бүтэн хэлээснээр, хуучин тууламал, хуучин FM₁₈ мн агууламалын эхэн хува 62%-ыас 42% болж буурч, харин SO₂ мн агууламалын эхэн хува 64%-ыас 36%-д хүртэ өссөн байла.

Үндсэн хэмжээний найрлага



- 2023 оны 4 сард НАСВТГ, ЦОСНГ (УЦСОСМХ), МУИС хамтран анхных гэрээ байгуулав. Тус гэрээг УВ нэгж бичваруулж, улс төрийн ажлын төсвийн (консепт), агууламжийн тараалтын загварын бичлэврүүд, бичлэж бүтүүлж, ага дотоод үнэмт зогсонг анхны цахим ажлын үүрэг оролцоотойгоор тусгай өгсөн.
- Одоогийн байдлаар, агууламжийн тараалтын загварын (Capff model)-ыг агууламж чадалтай боловсрол хөгжүүлэх агай байв.

Хөдөлгөөний эрчим болон гэрлэх хурдыг судална



- * Замнаг зохиогчийн өмчийг байдал өөрчлөхөөснийг хийсвэрлүүлж хяналтынхоор хяналтын суудалтай хийсэн. 2019 оны суудалтай харьцуулбал 1 жилийн өмчлөхөөсний өмчийг байдал эрэлт өсөн байна. Судалгааг үүр дүр тэмдэгт ТХ-ийн хяналтын төсөл-оноо (мөхөөрхөн хяналтын) дүр хяналтын.
- * 2023 оны 1 буюу 4-р сард хийгдсэн 30 орчим жилийн зураглал түвшиний хяналт, хяналтын суудал бүртгэл суудалтай хийсэн.
- * Тус тус хяналтын хяналтын хяналт түвшиний хяналт өөрчлөх: тусно дүр хяналт бүртгэл түвшиний хяналт. Дээдний б-р сарын хяналт хяналт, бүтэн жилийн хяналтын хяналтын хяналт тус тус хяналтын хяналтын хяналт тус тус байна.

Хэрэгжилтийн байдал (2022/12-2023/04)

[illegible]

Гэрыян дэп'юнава па рынку тэатраў.



Үр дүнгийн үзэс гээний уухалт

1

1

1

1

[illegible]

2.1 DPF шилжүүлэн суурилуулах ажил

Өнөөгийн нөхцөл байдал

- ЖАЙКАМ артер тосгон: хүрээнд 2019 оны 8 сард /Комотек/ DPF 24 багц (филтер доторх хэмжээг:15 см) ил НГП-г нийлүүлсэн.
- 2021 оны 6 сарын ХЗХ-ын 5-р хуралд НГП-ас DPF шилжүүлэн суурилуулнахад дамжсан ажил тусламттай.
- 2019 оны 3ТН-1, 3 н. Ерүс 5, цахилгаан автобусуар гарж шавьтгал хийжээ байгаа тул DPF шилжүүлэх автобус байхгүй болсон.
 - НГП-ас хувийн хэмжээнд 2 автобус компанийн согоосон.
 - 2022 оны 6 сард 1 компанийн 1 автобус DPF суурилуулсан боловч ажил явгийн хэргийг байдалд хэдэн зуур дотоодон тул 9 сар DPF салган ил, ажилд зогсоосон.
 - 2022 оны 12 сард 2 дам компанийн 1 автобус сууриулж, хувийн компанид ага хэмжээ байгаа.

Асуудал, нарийнгүй хэрэгжилт

- DPF суурилуулах автобусгүй тоо цөөхөн байгаа, DPF шинэ дэлт, засвар үйлчилгээний зардал өндөр, хувийн хэвшилд ачаалал болох (НПТ-аас татаас олгох боломжгүй) зэргээс хямаарч төсвийн хүрээнд нэмж 2 автобус суурилуулжээ хэрэгж байгаа.

[illegible]

(1) Операция похитил багана

- Евро-5 догустуу зорилгынг шатахууныг жижигхэнээр боруулахгүй гэж Агаарын тухай хуульд заасан байгаа боловч энэ хуулийн хэрэгжлэгт байх агуулгыг бүрдэвч ангиллын шатахууны боруулалтаар байна
- 2023 оны 1 сар-ас: ЭНН-3-ын нэр шинэчлэн Евро-5 стандартын 112 автобус нийлүүлэгдсэн
- Евро-5 автобусанд хүлэр багатай /хүлэр 10 үрст хэртэй/ дивань түши хэрэгжж шалдлагатай
- 2023 оны 4-р сарын 21-нд өдөр түшигийн талаар КИТ-аас лийлгалаар Евро-5 автобусанд хүлэр, жетэй /хүлэр 1300 үрст / түши хэрэгжж байгааг мэдэгдсэн

(2) Асуудал, шийдлийн хэрэгсэлт

- [illegible]

[illegible]

3.1 ТТМ-ын үр дүнгийн шалгуурыг өөрчлөх

[illegible]

Үр дүн 1-ийн Үйл ажиллагаа 1-1

Анхаарал тавьсанд баярлалаа

Үр дүн 3-ын Үйл ажиллагаа 3-2

4. Цаашид тодорхойлох агуулга
(12 сарын ХЗХ-ны 10-р хуралдаан хүртэл)

Одоогийн хувилбар	Өөрчлөх хувилбар
1. Голлох эц үзэвчүүдээс ялгаралт бодирдуулах бодисын хэмжээг нь бууруулах төсөл, арга хэмжээг зэрэгцээгүй тоонолдоо (BAU case) -той харьцуулахад <u>32.9%-иар</u> буурах.	1. Голлох эц үзэвчүүдийн бодирдуулах бодисын ялгарлыг 2020 онтой харьцуулахад, <u>PM_{2.5}-ийн SO₂ хэвч-ийн гүс бүр буурах.</u>

¹⁰Эксперимент на тигиде дугосицеас ушине 3-5 жигику джана белугику ушадзе.

Output 4: Decision making process for air pollution control is improved by utilizing the Professional agencies including DAAEP, NAMEM and the relevant agencies.	4-1. Analysis of air pollution status, short-, medium- and long-term air pollution control strategies (including BAU analysis) and evaluation of air pollution control measures (including implemented and planned) are presented to decision makers at least 2 times.	1. The Project reports 2. Reports on NPREP
	4-2. Results of pilot project implementation and other Project results are utilized for the revision of NCEPR and for decision making on implementation/non-implementation of pollution control measures at least once.	
	5-1. At least three pilot projects selected by C/P-WG are implemented	
	5-2. The results of each pilot project (emission reduction, improvement of ambient air quality and population exposure for PM, SO ₂ and NO _x) are presented to the relevant agencies.	
Output 5: Air pollution control measures are enhanced for PM, SO ₂ and NO _x emission reduction at major sources.	6-1. At least three of drafts on laws and regulations, such as fuel regulations, MNS emission standards and ordinances of UB City, are submitted.	1. The Project reports
	6-2. More than 3 air pollution control measures and technologies are funded by the sections of the relevant agencies in charge of allocating funds for air pollution control by utilizing technical appraisal guideline provided by the Project.	
	6-3. At least three agreements are made on demarcation of roles of the relevant agencies for air pollution control measures in the Project.	
	6-4. The operational guideline is distributed to relevant agencies.	
Output 6: Legal framework, resource allocation and coordinating mechanism as a Platform for the Air Quality Management Cycle are strengthened for the Outputs 1 to 5.	1-1-1 DAAEP and IACC ¹ reinforce HOB inspections based on on-site stack gas measurements.	1. Laws and regulations, fuel regulations, MNS emission standards and ordinances of UB City 2. Minutes of Meeting of NCEPR 3. Official documents including UB city Governor's orders 4. Operational guideline
	1-1-2 DAAEP and JICA Experts assess the technical transfer on-site stack gas measurement.	
	1-1-3 IACC and the relevant agencies with JICA Experts implement HOB inspection based on on-site stack gas measurement.	
	1-1-4 IACC with JICA Experts introduces simplified measurement method by using IACC's portable gas measurement equipment including parallel measurement with JIS method, elaboration of manuals and manufacturer's calibration. ²	

Activities	Inputs	
1-1 DAAEP and IACC¹ reinforce HOB inspections based on on-site stack gas measurements. 1-1-1 DAAEP and JICA Experts assess the technical transfer on-site stack gas measurement. 1-1-2 DAAEP with JICA Experts re-constructs 2 teams of stack gas measurement. 1-1-3 IACC and the relevant agencies with JICA Experts implement HOB inspection based on on-site stack gas measurement. 1-1-4 IACC with JICA Experts introduces simplified measurement method by using IACC's portable gas measurement equipment including parallel measurement with JIS method, elaboration of manuals and manufacturer's calibration.² 1-1-5 DAAEP and IACC with JICA Experts elaborate emission measurement reports. 1-2 TPP3 and TPP4 with JICA Experts enhance emission gas control by utilizing CEMS. 1-2-1 TPP3 and TPP4 with JICA Experts elaborate and implement CEMS operation and maintenance plan. 1-2-2 TPP3 and TPP4 with JICA Experts perform quality control of emission gas data of CEMS. 1-2-3 TPP3 with MET and the relevant agencies elaborate online emission data reporting system for the CEMS. 1-2-4 NAMEM and the relevant agencies share and evaluate CEMS emission data. 1-2-5 NAMEM compiles monitoring data of emissions from TPP2, TPP3, TPP4 and new large heat supply facilities and share them with relevant agencies. 1-3 MRTD and PTD introduce relevant regulations of vehicles based on emission measurement. 1-3-1 MRTD and PTD with JICA Experts implement vehicle emission measurements by RSD, assess distribution of vehicles emission intensity and define target vehicles to be regulated. 1-3-2 MRPA and IACC with JICA Experts implement automobile fuel surveys. 1-3-3 JICA Experts conduct training to NRTC, in addition to DAAEP, on vehicle emission measurement using on-board emission measurement system, and DAAEP and NRTC implement vehicle emission measurement using on-board emission measurement system. 1-3-4 Public Transportation Department of the Capital City with JICA Expert transfer the DPF which were installed on 24 large buses by the project "Verification Survey with the Private Sector for Disseminating Japanese Technologies for Emission Reduction of Particulate Matter (PM) from Diesel Buses by DPF" to other buses.	Japanese side 1. JICA Experts (necessary fields) (1) Chief Advisor (2) Air Pollution Control Planning and Policy (3) Emission Measurement for Stationary Sources (4) Ambient Air Quality Monitoring (5) Ambient Air Quality Analysis (6) PM10 and PM2.5 Sampling (7) PM10 and PM2.5 Apportionment Study (8) Emission Inventory (Stationary, Mobile and Others) (9) Air Quality Simulation Modeling / Air Pollution Control Measures Evaluation (10) Auto-mobile Emission Control 1 (Traffic Signal Control) (11) Auto-mobile Emission Control 2 (RSD and others) / Emission Mongolian side 1. C/P and C/P-WG (1) JCC Chairperson (2) JCC Vice-Chairperson (3) Project Director (4) Project Manager (5) Necessary C/P and C/P-WG staff according to the fields of JICA Experts 2. Facility (1) Provision of necessary office space in DAAEP and MET (including internet access) (2) CLEM Laboratory (3) Storage Space for Equipment 3. Local cost (1) Counterpart expenses such as salary, allowance, travel cost and accommodation (2) Project administrative expenses	1. There are no frequent leaves, transfers or resignations of C/P and C/P-WG members. 2. Necessary coordination among UB city, districts, khoroos and communities in Ger area is secured by Mongolian side for implementation of pilot projects.

1-4 DAAEP and NAMEM with JICA Experts strengthen AQMS utilization. 1-4-1 CLEM and JICA Experts assess the current status of equipment in reference laboratory of CLEM and identify necessary actions if necessary. 1-4-2 DAAEP reinforces AQMS operation and maintenance based on the plan by Phase 2. 1-4-3 DAAEP with JICA Experts starts air quality monitoring at pilot project area for improved household fuels by utilizing mobile AQMS. 1-4-4 DAAEP with JICA Experts reinforces the AQMS at Bayankhoshuu station. 1-4-5 DAAEP and NAMEM with JICA Experts implement parallel measurement by FRM sampler for PM concentration, and implement quality control of PM measurements of AQMS. 1-4-6 DAAEP and NAMEM with JICA Experts maintain the online information system of AQMS. 1-4-7 DAAEP and NAMEM share real-time monitoring data with the relevant agencies through the online information system. 1-4-8 DAAEP and CLEM with JICA Experts analyze air quality monitoring data and elaborate air quality monitoring reports. 1-4-9 The relevant agencies utilize air quality monitoring data. 1-4-10 DAAEP with JICA Experts establishes the data transfer system of air quality monitoring data of Dambadarjaa station to the online information system of AQMS. 2-1 NAMEM and JICA Experts conduct PM apportionment study based on PM speciation throughout the year. 2-1-1 CLEM and JICA Experts elaborate PM sampling plan throughout the year, and implement PM samplings. 2-1-2 JICA Experts perform PM speciation analysis in Japan. 2-1-3 NAMEM and CLEM with JICA Experts learn PM speciation technologies (ion analysis, element analysis and carbon analysis). 2-1-4 NAMEM and CLEM with JICA Experts formulate equipment and laboratory plan for PM speciation. 2-1-5 DAAEP and NAMEM with JICA Experts perform PM apportionment study based on receptor modeling. 2-2 DAAEP and NAMEM with JICA Experts evaluate air pollution structure and health impact based on air quality simulation model and receptor model. 2-2-1 DAAEP and NAMEM elaborate plans for updating emission inventory. 2-2-2 DAAEP, TCC and PTD implement studies for mobile sources including update of emission inventory, examination of traffic signal control, traffic volume and vehicle traveling speed. 2-2-3 DAAEP and JICA Experts select the pilot areas and assess Ger stoves usage pattern (type and model of stoves, seasonal pattern of usage, insulation of Ger housing and coal consumption). 2-2-4 DAAEP and NAMEM with JICA Experts implement studies for other emission sources as necessary. 2-2-5 DAAEP and NAMEM with JICA Experts elaborates BAU (Business as usual) scenario for the future year based on TPPs future development plans, projection of number of vehicle, population, economic growth, emission regulation, fuel quality regulation and so on. 2-2-6 DAAEP and NAMEM update emission inventory for the present year and the future year for the BAU scenario. 2-2-7 DAAEP and NAMEM update the air quality simulation model for PM10, SO₂ and NO_x. 2-2-8 DAAEP and NAMEM evaluate the air pollution structure of UB city. 2-2-9 DAAEP and NAMEM evaluate indicative population exposure of PM10 based on population weighted concentration and so on. 3-1 DAAEP and the relevant agencies elaborate a draft MNS on an emission measurement method of improved fuel and fuel quality, and propose it to MASM. 3-2 JICA Experts collect information about fuel gas usage in Mongolia, elaborate safety standards for gas based on Japanese experiences, and then submit it to Ministry of Energy. 3-3 DAAEP and the relevant agencies elaborate implementation plans and terms of reference for pilot projects such as improved fuel, HOB, traffic signal control, eco-driving, RSD, smoke belching program based on portable emission device, DPF, low sulfur fuel and low emission vehicles.	Measurement 2 (12) Clean Coal Technology for Air Pollution Control Measures (13) CEMS Data Analysis (14) Stationary Source Emission Control Measures (15) Air Quality Administration (16) Public Awareness and Public Relations 2. Training (1) Local seminars and workshops (2) Training course in Japan 3. Provision of necessary equipment 4. Local cost Necessary expenses for activity of JICA Experts
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4-1 DAAEP and NAMEM submit to the decision makers the analysis of air pollution status, short-, medium- and long-term air pollution control strategies (including BAU analysis) and evaluation of air pollution control measures (including implemented and planned). 4-2 Relevant agencies with pilot projects elaborate technical guidelines and utilizes them. 4-3 The relevant agencies discuss and endorse the selection of pilot projects. 4-4 NCEPR and the relevant agencies approve large scale investments based on pilot projects implementation and assessment. 4-5 NCEPR, or the sections of the relevant agencies in charge of allocating funds for air pollution control in the Mongolian government such as the Environment and Climate Fund utilizes the Outputs of the Projects and pilot projects implementation and assessment.	5-1 DAAEP with Health Department of Capital City and the relevant agencies implements public awareness and advisory activities for citizens including school students and parents. 5-2 MET and DAAEP publish progress of the Project by newsletter, newspaper articles, web-site and other medias. 5-3 DAAEP and JICA Experts provide technical guidance to manufacturers for improved fuel production. 5-4 The relevant agencies with JICA Experts implement pilot projects according to the implementation plan by Activity 3-3. 5-5 The relevant agencies with JICA Experts evaluate pilot projects results in terms of emission reduction, air quality improvement and exposure to citizens, and extract lessons learned. 5-6 The relevant agencies with JICA Experts report the pilot projects results to NCEPR. 5-7 TPP3 and TPP4 analyze CEMS data, and examine viable air pollution control measures. 5-8 TPP3 and TPP4 with JICA Experts elaborate emission reduction plans.	6-1 The relevant agencies discuss and elaborate written agreements on demarcation of roles in air quality management related with each Output and Activity of the Project. 6-2 DAAEP with JICA Experts submits technical documents to NCEPR for improved fuel standard, emission standard on stationary sources, mobile sources and other emission sources, and revision of ordinance. 6-3 NCEPR and the relevant agencies elaborate fuel standard and emission standard, and submit them to MASM. 6-4 Relevant ministries / relevant agencies of UB city elaborate laws, regulations and ordinances on air pollution control measures, and submit them to national parliament / city council. 6-5 JICA Experts provide training on air pollution control measures and technical appraisal guidelines for staff of the sections of the relevant agencies in charge of allocating funds for air pollution control. 6-6 Staff of the sections of the relevant agencies in charge of allocating funds for air pollution control with JICA Experts improve relevant operations with allocating funds for air pollution control measures, if necessary. 6-7 Mongolian side enhances donor coordination in air pollution control. 6-8 Relevant agencies of pilot projects with JICA Experts develop an operational guideline for elaboration, implementation and evaluation of air pollution control measures based on pilot projects implementation.	Pre-conditions 1. Appropriate number of qualified staff of C/P and C/P-WG is assigned. 2. Adequate amount of budget related with the Project implementation is secured. 3. Necessary human resources mobilization related with pilot projects is secured by Mongolian side.
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*1 According to Mayoral Order A/1649 "Partial Measures Related to the Abolition of Inspection Agency of the Capital City" dated December 30, 2022, Audit Division was added to DAAEP.

*2 Since the Audit Division and the Air Quality Measurement and Operation Division of DAAEP do not perform simplified measurement, Activity 1-1-4 was terminated through December 30, 2022.

AQMS: Air Quality Monitoring Station
BAU: Business as Usual
CEMS: Continuous Emission Monitoring System
CFWH: Coal Fired Water Heater
C/P: Counterpart
C/P-WG: Counterpart Working Group
DAAEP: Department of Against Air and Environmental Pollution of Capital City
DPF: Diesel Particulate Filter
FRM: Federal Reference Method
HOB: Heat Only Boiler
IACC: Inspection Agency of the Capital City
MASM: Mongolian Agency for Standardization and Metrology
MET: Ministry of Environment and Tourism
MMHI: Ministry of Mining and Heavy Industry
MNS: Mongolian National Standard
MRPA: Mineral Resources and Petroleum Authority
MRTD: Ministry of Road and Transport Development

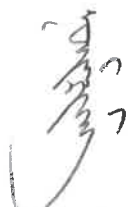
MINUTES OF MEETING OF
THE TENTH JOINT COORDINATING COMMITTEE MEETING
ON JAPANESE TECHNICAL COOPERATION FOR
CAPACITY DEVELOPMENT PROJECT FOR AIR POLLUTION CONTROL IN
ULAANBAATAR CITY PHASE 3 in MONGOLIA

The Japan International Cooperation Agency (hereinafter referred to as "JICA") Supervisory Team for "Capacity Development Project for Air Pollution Control in Ulaanbaatar City Phase 3 in Mongolia (hereinafter referred to as "the Project"), JICA Mongolia Office, and JICA Expert Team (hereinafter referred to as "JET") had a series of meetings with the Department of Against Air and Environmental Pollution of Capital City (hereinafter referred to as "DAAEP"), Ministry of Environment and Tourism (hereinafter referred to as "MET") and Joint Coordinating Committee (hereinafter referred to as "JCC") members from 29th November to 8th December 2023 to discuss the Monitoring Sheet 10, and the tenth JCC meeting of the Project was chaired by Mr. Batshagai, Director of DAAEP, as acting Chairperson on 8th December 2023. Participant list of the tenth JCC meeting is shown in Annex I.

As a result of discussions, both sides agreed on matters referred to the document attached hereto.

Ulaanbaatar, 8th December 2023


Mr. Shinichi TANAKA
Chief Representative
JICA Mongolia Office
Japan International Cooperation
Agency, Japan


Ms. Nominchimeg ODSUREN
Deputy Governor of Capital City
in Charge of Social Sector, Green
Development and Air and
Environmental Pollution


Mr. Toru TABATA
Leader, JICA Expert Team, Japan


Mr. Chimidsuren CHOIGUNSEN
Director General, Department of
Development Financing and Public
Investment of Ministry of Finance,
Mongolia

ATTACHED DOCUMENT

I. Project Monitoring Sheet 10

JET explained the progress of the Project, future plan, and issues that the Project is facing since its beginning. After active discussions, the JCC approved the Project Monitoring Sheet 10.

II. The Project Design Matrix

The Japanese side proposed the following revisions of the Project Design Matrix (hereinafter referred to as PDM).

1. Indicator of the Overall Goal

Mr. Sawaki, Vice Leader of the JET, asked for opinions regarding description on the indicator of the Overall Goal of PDM. Mr. Batshagai, Director of DAAEP, and Mr. Unurbat, Expert of National Agency for Meteorology and Environment Monitoring (hereinafter referred to as "NAMEM"), proposed to set December 2016 as the base year, since the National Program for Reducing Air and Environmental Pollution, 2017-2025 sets its target as 80% reduction of ambient air concentration by 2025 compared with 2016. They also proposed to use the amount of reduction of ambient air concentration as the indicator, not emission, since the NAMEM reports set the target using ambient air concentration.

Mr. Davaajargal, Head of Air Quality Management Division of DAAEP, proposed to add PM2.5 as a pollutant to be evaluated.

Mr. Maeshima, JICA Supervisory Team, mentioned that the Overall Goal should be achieved in several years (three years in JICA's evaluation system) after the completion of the project, through the own efforts of the Mongolian side. If the target goal could not be achieved, it would be considered that the project did not work well. Since the ambient air concentration is more uncontrollable than the emission, the target was initially set at an emissions amount, which could be estimated based on the effects of the pilot projects.

Understanding this point, the Japanese side would like the Mongolian side to carefully consider whether they want to set the target for either ambient air concentration or emission amount.

Mr. Batshagai, Director of DAAEP, concluded that he would like to ask everyone to consider whether to use ambient air concentration or emission amount, and then decide the description of the indicator of the Overall Goal at the next JCC meeting.

2. Objectively Verifiable Indicators of the Project Purpose

The Japanese side and Mongolian side discussed what constitutes the three indicators of the achievement of the project purposes.

Regarding the Objectively Verifiable Indicators 2, Mr. Yoshimura, Senior Representative of JICA Mongolia Office, suggested that the signal control and decrease in police intervention at crossroads should be quantitatively described, as requested in the previous meeting with Japanese consulting team repeatedly. He mentioned that it was hard to see positive effects of reduction of traffic congestion nor reduction of intervention by police officers at crossroads in his daily life in Ulaanbaatar City (hereinafter referred to as "UB City").

Mr. Namuu, Head of Traffic Control Division of Traffic Control Center, replied that they tested changing the signal lighting time at 11 out of the 17 major intersections in UB City, utilizing the knowledge and experience learned in the training program in Japan. The Center was able to confirm that simply changing the mode of the signal from 3 to 5 seconds was effective in the pilot project. Residents might hardly notice the effect of the change for the most part because the volume of cars is too large for the limited capacity of the roads in UB city. Even so, the Center has found that signal control actually works, confident to intervene in traffic flows by adjusting the signals. The Center is planning to issue a mayoral order regarding the update of efficient signal control.

III. Comments from the Mongolian side of the issues on the future project activities

Mr. Luvsantseren, Director General of the Department of Fuel Policy Implementation and Coordination, the Ministry of Energy, suggested that the project should publicize its outputs more actively to Ulaanbaatar citizens in cooperation with UB City and the MET. There was a recommendation from the project that desulfurizer should be added in the improved fuel, and then Tavan Tolgoi Tulsh LLC (hereinafter referred to as "TTT") introduced desulfurizer on a trial basis, which has been effective so far. However, there have been some complaints pointing out the desulfurizer used at UB City is not so effective. Publicizing the effects of the desulfurizer and the fuel conversion to Euro 5 based on scientific evidence and measurement results will help introducing the outputs of the project. It will also prove that the Mongolian side is taking measures based on the evidence. Publication of the outputs of the project will be important for the remainder of the project period.

IV. Comments from the Japanese side of the issues on the future project activities

Mr. Yoshimura, Senior Representative of JICA Mongolia Office, asked the Mongolian side to express their position at this meeting regarding the four issues pointed out in the presentation, and requested to follow up the issues thoroughly after this meeting. The four issues are;

1. Promotion of Euro 5 fuel
2. Transfer of Diesel Particulate Filter (hereinafter referred to as "DPF")

3. Continuity of organization on the Mongolian side
4. Continuity of Human resources of the counterparts

At the end of the meeting, Mr. Takiguchi, the Leader of JICA Supervisory Team, mentioned the following two points;

1. The project is scheduled to end in July 2024, which is about a half year left away. Efforts made during these six months will largely determine the success of the project. The final seminar in April 2024 will be very important in this sense. Therefore, presentations by the Mongolian side at the seminar will be highly appreciated.
2. Air pollution in Mongolia is still serious, with particularly high concentration of SOx and PM. Countries that have suffered from air pollution, including Japan, have followed the path of reducing SOx at first and then taking measures for other pollutants. Therefore, it is highly recommended to take measures against SOx at first.

END

ANNEX I Participants of Tenth Joint Coordination Committee

ANNEX II Presentation of Monitoring Sheet 10, Task outline and Important Issue

ANNEX I Participants of Tenth Joint Coordination Committee

	Name	Organization	Position
1	Ms. Bolorjargal (Substitute)	Ministry of Environment and Tourism Environment Resource Operation Department	Expert
2	Ms. Mongolmaa D.	Ministry of Mining and Heavy Industry, Fuel Policy Department	Head of Department
3	Ms. Gerelmaa	Ministry of Finance, Development Financing Investment Department	Adviser
4	Mr. Luvsansuren I.	Ministry of Energy, Department of Fuel Policy Implementation and Coordination	General Director
5	Mr. Javzansuren D.	Ministry of Energy, Department of Fuel Policy Implementation and Coordination	Expert
6	Mr. Perenlee Kh.	Ministry of Energy, Department of Fuel Policy Implementation and Coordination	Expert
7	Ms. Tergel Sh. (Substitute)	National Committee for Environmental Pollution Reduction	Expert
8	Ms. Enkhmaa	National Agency for Meteorology and Environment Monitoring	Expert
9	Mr. Unurbat	National Agency for Meteorology and Environment Monitoring	Expert
10	Mr. Gantulga B.	Mayor's Office, Investment Division	Head of Division
11	Mr. Baldandorj M.	Mayor's Office, Engineering Facility Division	Head of Division
12	Mr. Ulzii E.	Public Transport Department of the Capital City	Head of Division
13	Mr. Barkhasragchaa B.	Central Laboratory of Environment and Metrology	Head of Environmental monitoring laboratory
14	Mr. Batshagai B.	Department of Against Air and Environmental Pollution of the Capital City	Director
15	Mr. Davaajargal	Department of Against Air and Environmental Pollution of the Capital City, Air Quality Measurement and Operation Division	Head of Department
16	Mr. Enkhmend A.	Department of Against Air and Environmental Pollution of the Capital City, Air Quality Measurement and Operation Division	Expert
17	Mr. Adiyaochir	Department of Against Air and Environmental Pollution of the Capital City, Air Quality Measurement and Operation Division	Expert
18	Mr. Khuvizaya Ch.	Traffic Control Center of the Capital City	Director
19	Mr. Namuu N.	Traffic Control Center of the Capital City, Traffic Control Division	Head of Division
20	Mr. Tokuji YOSHIMURA	JICA Mongolia Office	Senior Representative
21	Ms. Hiroka WATARAI	JICA Mongolia Office	Project Formulation Officer
22	Ms. Oyuntsetseg CH	JICA Mongolia Office	National Staff
23	Mr. Hiroaki TAKIGUCHI	JICA Global Environment Department Environmental Management and Climate Change Group / JICA Supervisory Team	Senior Advisor
24	Mr. Koji MAESHIMA	JICA Global Environment Department Environmental Management and Climate Change Group / JICA Supervisory Team	Deputy Director
25	Mr. Toru TABATA	JICA Expert Team	Leader
26	Mr. Natsuji SAWAKI	JICA Expert Team	Vice Leader
27	Mr. Ei EDO	JICA Expert Team	Chief Sub Group Leader / PM10 and PM2.5 Apportionment Study / Ambient Air Quality Analysis
28	Mr. Atsushi SATO	JICA Expert Team	Group Leader of Auto-mobile Countermeasure
29	Mr. Sho FUKUCHI	JICA Expert Team	Public Awareness/Public Relation/Project Coordinator

ANNEX II Presentation of Monitoring Sheet 10, Task outline and Important Issue

Монгол улс Улаанбаатар хотын агаарын бохирдлын
хяналтын чадавхыг бэхжүүлэх төсөл
(3 дугаар үе шат)

ХЗХ-ны 10 дугаар хуралдаан

2023 оны 12 сар
ЖАЙКА төслийн баг

ХЗХ-ны 10 дугаар хуртын зорилго

- 1 Явцын тайлан (Гүйцэтгэлийн тайлан /Дугаар-10-г батлах (2023.05 ~2023.10)
- 2 Өнөөгийн байдал, тулгамдсан асуудал
- 3 ХЗХ-ны 10 дугаар хурлаар магадлах асуудал

ХЗХ-ны 10 дугаар хурлын зорилго

- 1 Явцын тайлан (Гүйцэтгэлийн тайлан /Дугаар-10-г батлах (2023.05 ~2023.10)

Тойм

- Төслийн хугацаа: 2018 оны 11 сарас 2024 оны 7 сар хүртэл.
- ХЗХ-ны 10-р хурлаар хяналтын агуулгын нэмрэх хугацаа: 2023 оны 5 сарас 2023 оны 11 сар хүртэл.

1.1 Үр дүн 2: Агаарын бохирдлын бүтцийн шинжилгээ, үнэлгээний чөлөөх сайжрах

Тогтвортой хөгжлийн зорилтын хүрээнд агаарын бохирдлын хяналтын чадавхыг бэхжүүлэх төсөл боловсруулж, хэрэгжүүлж байна.

2024 оны 12-р сард төслийн үндсэн зорилгыг гүйцэтгэх үр дүнгийг хяналтын чадавхыг бэхжүүлэх төсөл боловсруулж, хэрэгжүүлж байна.



Агаарын бохирдлын бүтцийн шинжилгээ, үнэлгээний чөлөөх сайжрах. Тогтвортой хөгжлийн зорилтын хүрээнд агаарын бохирдлын хяналтын чадавхыг бэхжүүлэх төсөл боловсруулж, хэрэгжүүлж байна. 2024 оны 12-р сард төслийн үндсэн зорилгыг гүйцэтгэх үр дүнгийг хяналтын чадавхыг бэхжүүлэх төсөл боловсруулж, хэрэгжүүлж байна.

1.1 Үр дүн 2: Агаарын бохирдлын бүтцийн шинжилгээ, үнэлгээний чөлөөх сайжрах

УБ хотын 2021 он боловсруулсан БАУ хувиартай тулгуурласан 2030 оны алгарлын индекс

УБ хотын 2021 он боловсруулсан БАУ хувиартай тулгуурласан 2030 оны алгарлын индекс



Агаарын бохирдлын бүтцийн шинжилгээ, үнэлгээний чөлөөх сайжрах. УБ хотын 2021 он боловсруулсан БАУ хувиартай тулгуурласан 2030 оны алгарлын индекс. Тогтвортой хөгжлийн зорилтын хүрээнд агаарын бохирдлын хяналтын чадавхыг бэхжүүлэх төсөл боловсруулж, хэрэгжүүлж байна.

1.3 Загвар төсөл (Үр лүн 3, 4, 5), шийдвэр гаргах түвшинг эхлэмж гаргах (Үр лүн 6)
Үйл ажиллагааны хэрэгжилт (2023.5-2023.11)

Footnote

- [illegible]

THE UNIVERSITY OF CHICAGO PRESS

- [illegible]

(1) Сайжруулсан шахмал түлш

(2013 оны 5 сараас 11 сард хэрэгжүүлсэн үзлэл)



(Yüzde olarak)

Биомассанын жалпы санын түшүн (БЖТ)-ний байгаль орчны жетөөл, биомассаны өлчөө, нийлүүлэлтийн болон, үйлдвэрлэлийн өртөг, ирэх төлөвний үзүүлэлтүүдийг газартайга, шалхна болгоор нийлүүлж болохыг суулан дүгн мэтлэг референт материалыг боловсруулна

(С. П. ПЕТРОВ)

- [illegible]

(1) Сайжруулсан шахмал түлш

ΣΥΝΤΑΚΤΙΚΟ

Удмурттан зүх

БҮТ нь нөхцөл (гэт авалуу) чатвар сайтай, олоогийн ТГТ компаний сайжруулсан тулхуас температурын өсөлт хүртэл Тоос, \$02, NO-ийн илэртэйг хүчлэх багатай

Хүснэгт 1. БЭТ-ийн үндэсний түүхэн инновацийн туршилтын зүйлс
2021 оны 4 сар хүртэл. НАСБЭТ-ийн өргөтгөл лаборатори

[illegible]

Хялгадаг утааны зайнаас хэмжигч
(Remote Sensing Device /RSD/)

- [illegible]



1961-1962 27X-5000 4000 2150

(3) Хүхэр багатай шатахууны хэрэглээг нэмэгдүүлэх

Знаменитый русский биолог и зоолог Н. С. Павлинов, автор
большого труда по истории зоологии в России, писал: «Величайшая
благословенная заслуга России — это то, что она была родиной

- Евро 5 харгалзан 100 евро дэвсгэр нь төсвийнхөө
→ Евро 5 хатуулаг нь нэгдсэн тухайнхыг хүргэж
агуулахыг багасгахгүй 1 жиливснийх дотор SO₂-ын
хатуулаг нь өргөдөг тухайнхыг хүргүүлэх багасгах
хатуулаг: IX-н өргөдөгөөс 20 эхний хатуулаг
хатуулаг IX-н 280 эхний багасгах

2. Хүргийн өндөр агуулсан автомашинд туулах нөлөө
- Бөхийн ихэнхэд форсуик, Ог мэргэж, А.Г мэргэж,
хүүрэн ил аялал компаниудын нийрэл
- Ягаль машини форсуик, жимэгийн хатагчидор, Д.
мөчөөг SCR, ил бүхийн мэргэжүүд мүүдэг



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Хүрэр иргэйд тулш ашигтай нь төрөөсийн тохиргооны эсрэг үйлчилгээнд галд эвдэрч, мүүхнээ сэвэг харагдснй сонин дээрхдэгтэй болжог үтрээс нээмнэгчхү нүүт хийн нэгдүйн агаард болжог.

(4) Гэртэн дохнон зохицуулалтыг сайжруулах
арга хэмжээний үнэлгээ

THESE RESULTS ARE IN ACCORD WITH THE FINDINGS OF OTHER STUDIES.



- [illegible]

1.3. Зорилгын биелэлтийн байдал

[illegible]

1.4. Үр дүнгийн биелэлтийн байдал

[illegible]

1.4. Үр дүнгийн биелэлтийн байдал

[illegible]

1.5 Цаашлын төлөвлөгөө

- 2023 оны 12 сард РМГ хамгаалалтын дунгийн тайлан семинарыг зохион байгуулах
- 2024 оны 4 сард иргэдийн семинар (монгол хэл нутгал тавих) зохион байгуулах
- 2024 оны 5 сард ХХХ-ны 11 дүгээр хуралчлан зохион байгуулах, төслийн эцсийн тайлан гаргах
- 2024 оны 6 сарын эхээр янзон нэрлэгдэлтийн мөөгөлд ажиллах сүүлийн төмөрлөг хийлгэх
- 2024 оны 7 сард ЖАЙКА Монгол хэл төлөөлөгчийн газраас төслийн эцсийн тайланг НАОБТ болон БОАЖ-ил гаргах
- 2024 оны 7 сарын 30-ны өдөрөө төсөл эцэслэн дүгнэх

Анхаарал тавьсанд баярлалаа

Монгол улс Улаанбаатар хотын агаарын бохирдлын
хяналтын чадавхыг бэхжүүлэх төсөл
(3 дугаар үе шат)

ХЗХ-ны 10 дугаар хуралдаан

Асуудал, санал

2023 оны 12 сар
ЖАЙКА төслийн баг

ХЗХ-ны 10 дугаар хурлын зорилго

1. Өнөөгийн байдал, тулгамдсан асуудал

2. Өнөөгийн тулгамдсан асуудал

2.1 Сайжруулсан шахмал түлшний хаяглал утааны хэмжээний стандарттай
холбоотой асуудал (Үр дүн 3 Уга 3-1)

[Өнөөгийн байдал]

Сайжруулсан түлшний шинж чанарыг МNS5679:2022 стандартаар тогтоосон.

[Асуудал]

НАОБТ-ын түлш, шатаагчийн туршилтын лабораторид сайжруулсан түлшний утааны хийн хэмжээт хийж, шатаагчийн үеийн утааны хийн агууламжийг үнэмлэх байгаа ч хэмжээний аргачлалын
стандарт байхгүй байна

[Авах арга хэмжээний санал]

Төсөл нь УБ хотын хамруулсан учраас хийн эвэлэнд нийслэлийн түвшинд сайжруулсан түлшний
хэмжээний аргачлалын стандартыг тодорхойлж, цаашин улсын хэмжээнд мөрдөх байдлаар
хэрэгжүүлэх нь зүйтэй гэж үзэж байна

Төслийн баг нь НАОБТ-ийн хамруулсан сайжруулсан түлшний утааны хийн хэмжээний аргачлалын
стандартын саналыг боловсруулж, Хотын стандарт, хяналтын газарт албан ёсоор хүргүүлэхэд
байна. Цаашид 2024 оны 4 сард багтаан тус стандартыг батлахад анхаарч, хэрэгжээний хангаж
ажиллахыг хүчтэй байна.

2.2 Хүхэр багатай түлш нэвтрүүлэхэд тулгамдаж буй асуудал

(1) Өнөөгийн байдал

Агаарын тухай хуульд "Евро-5" гэж доогуур зэрэглэлийн шатаагчийг хяналтгүйгээр борлуулхгүй" гэдэг төсвийн
боловч зэрэглэлийг хяналтгүй бүсэд ашигласныг шатаагчийг тухайн хэрэгтээ үр байна

2023 оны 1 сараас ЗТН-3-ын шара шинэчлэл Евро 5 (техникийн үзүүлэлтгүй гэсэн) стандартын 112 автобус
нийлүүлэгдсэн

Евро 5 автобусанд Евро 5 түлш хэрэглэх шаардлагатай (хүхрийн агууламж 10 ppm ба түүнээс бага)

2023 оны 4-р сарын 21-ний өдөр НТ-тай утасна тодруулалт Евро 2 (хүхрийн агууламж 1300 ppm) шатаагчийн
Евро 5 автобусанд хэрэглэж байсан.

2023 оны 6 сарын ХЗХ-ны эргэлтээр ЗТН-3-ын автобусанд Евро 5 түлшний ашиглах болсон ч ЗТН-2-ын
норм нийлэгдлийн үзүүлэлтээр Хятадын Алтан Луу ХХК-д хэрэглэхийн тэмцэл гарсныг тодруулалт
хүхрийн агууламжтай форсунк дахь эвэрлэгч байсан.

(2) Асуудал

Евро 2-оос Евро 5 шатаагчийн өндөр үнэстэй, Евро 5 түлшний ач холбогдолгүй бүрэн байгаагүй байна.

(3) Асуудлыг нийлэгжүүлэх санал

Алхам 1. Төсөл дотуур хүргэлт УУХУХ-тай хамтарч Евро 5 шатаагчийн хэрэглээг нэмэгдүүлэхэд чиглэсэн үйлчилгээний
танин мэдээг үйл ажиллагааг хэрэгжүүлж, цаашид монгол үйлдвэрлэлд хүлээж

Алхам 2. Монголын ЗТ-аас Евро-2 болон Евро 5 түлшний үнийн мэдээг авч

Алхам 3. Монголын ЗТ-аас нийлсэн Евро 5 шатаагчийн худалдан борлуулж бодлого баримтлах

2.3 Тогтвортой шүүлтүүр (DPF)-ийг шилжүүлэхтэй холбоотой асуудал

(1) Өнөөгийн байдал

ЖАЙКА өөр төслийн хүрээнд 2019 оны 3 сард НТ-т япон KOLOTEK компанийн DPF 24 мм бүрэлд, шүүлтүүр нөөц
сүргэл 15 тэдгээрийг бүсэд тоноглогчид хамт илгээсэн.

ХЗХ-ны 5-р хурал (2021 оны 6 сар) -аар НТ-аас DPF шилжүүлэх сурталчилгаа төсөв байхгүй төл ажилал үзүүлэхийг
хүссэн.

2019 оны DPF сурталчилгаа ЗТН-3-ын 3-р багын парк шинэчлэлд Евро 5 автобус (DPF-гүй), цаашид автобус (EV)
нэвтрүүлэх байгаа төл DPF-ийг шилжүүлэх сурталчилгаа автобусгүй болсон

НТ-аас DPF сурталчилгаа автобусыг хамруулах, түлшний хийн хийн 2-агийнх нь хүчин автобусанд шилжүүлэх болсон

2022 оны 6 сард 1 автобусанд DPF сурталчилгаа боловч хамруулж ажиллаж байгаагүйн улмаас зөвхөн хурт хэлд
догоолом гэдэг үзлийн оны 9 сард DPF-ийг салгаж үйл ажиллагааг нэгтгэсэн

2022 оны 12 сард 2 дахь компанийн 1 автобусанд DPF сурталчилгаа боловч түлшний форсунк идэвхт сөлхт сөлхт олоогүй
учраас тус автобус үйлдвэрлэлд яваагүй байна.

(2) Асуудал

Төслийн баг үгүйсгэж чарлуулалт DPF сурталчилгаа чиглэлд автобус байсан. Одоо Евро 5 автобусыг үлдээх ажиллагаа байна
Хүнийн хийн хийн автобусанд DPF ажиллаж ажиллах хүчин эрдэл, байгууламжийн хамар үйлдвэрлэлийн үзлийн
бүрдүүлэх зүйн засгийн боломж хяналтгүй (Нийслэлээс DPF ажиллаж байгаа байдлыг татаж олгох боломжгүй)

(3) Шийдвэрлэх санал

Одоогийн Евро 5 автобусны төсвийн (сөрөг) хэргийг бүрэлдэх үр ажил үйлдвэрлэлд байгаа, мөн DPF-ийн хийн ач
холбогдолгүйгээр сурталчилгаа татаж байгаа 2 автобусанд сурталчилгааг хэрэглэж байна

2.4 Холбогдох байгууллагын тогтвортой байдлын асуудал

Шалтгаар үзүүлэлт 6-2: Агаарын бохирдлыг бууруулах арга хэмжээний санхүүжилтийг
хувиарлах газар, хэлтэс нь төслөөс боловсруулсан техникийн үнэлгээний гарын авлагыг
ашигласан агаарын бохирдлыг бууруулах арга хэмжээ, технологийн холбоотой 3-аас
доошгүй ажилд санхүүжилтийг хувиарлах.

(1) Өнөөгийн байдал

2023 оны 11 сард ОББХХ-ны ажлын татаан бууруулах шийдвэр гарсан. Цаашид
агаарын бохирдлыг бууруулахад зориулсан "ЭХ-ний сайдын багцыг БОАЖ-ын
сайдын багцад шилжүүлж, бууруулах арга хэмжээг Нийслэл харилцаагаар болсон.
Холбогдох тодорхой шийдвэрүүд хараахан гараагүй байна.

Цаашид ХТ-ын байгууллага байхгүй болсон тул дээрх үйл ажиллагааг зогсож,
шалтгаар 6-2-ыг хангах боломжгүй болж байна.

(2) Санал

Байгууллагыг агаарын бохирдлыг бууруулах чиглэлээр тасралтгүй үйл ажиллагаа
явуулах боломжтой байдлыг хүчтэй байна

39 278 306

The diagram illustrates the three phases of the research process, each represented by a blue oval with a corresponding number and a brief description of the activities involved.

- Phase 1: Exploration** (Top oval): Focuses on identifying the research problem and exploring the literature. Activities include: "Identify the research problem", "Explore the literature", and "Formulate the research question".
- Phase 2: Development** (Middle oval): Focuses on developing the research design and methodology. Activities include: "Develop the research design", "Select the research methodology", and "Develop the research instrument".
- Phase 3: Validation** (Bottom oval): Focuses on validating the research findings and conclusions. Activities include: "Validate the research findings", "Draw conclusions", and "Present the research findings".

Arrows indicate a sequential flow from Phase 1 to Phase 2, and from Phase 2 to Phase 3.

N144417. CУЗДРАЖИ ГАСРАИТТЭ ИЛЭХ, БОДНОТ ОНХИЛЫ
 ТЭДЭХИЛЭХИЛЭХ. (9.70Н - 1400М). УӨНӨН. ОНХИЛЭХИЛЭХ. ЭХИЛЭХ
 ИЛЭХ. 1428283М. САНХААГЫН ТЭДЭХИЛЭХ. 1428283М. ЭХИЛЭХ
 ИЛЭХ.

ЦЭХИЛЭХ. N144417. САНХААГЫН ТЭДЭХИЛЭХ. ЭХИЛЭХ
 ИЛЭХ. 1428283М. САНХААГЫН ТЭДЭХИЛЭХ. 1428283М. ЭХИЛЭХ
 ИЛЭХ.

ХЗХ-ны 10 дугаар хурлаар магадлах асуудал

[illegible]

Анхаарал тавьсанд баярлалаа



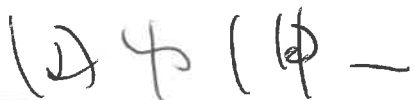
10

MINUTES OF MEETING OF
THE ELEVENTH JOINT COORDINATING COMMITTEE MEETING
ON JAPANESE TECHNICAL COOPERATION FOR
CAPACITY DEVELOPMENT PROJECT FOR AIR POLLUTION CONTROL IN
ULAANBAATAR CITY PHASE 3 in MONGOLIA

The Japan International Cooperation Agency (hereinafter referred to as "JICA") Supervisory Team for "Capacity Development Project for Air Pollution Control in Ulaanbaatar City Phase 3 in Mongolia (hereinafter referred to as "the Project"), JICA Mongolia Office, and JICA Expert Team (hereinafter referred to as "JET") had a series of meetings with the Department of Against Air and Environmental Pollution of Capital City (hereinafter referred to as "DAAEP"), the Ministry of Environment and Tourism (hereinafter referred to as "MET") and Joint Coordinating Committee (hereinafter referred to as "JCC") members from 7th May to 16th May 2024 to discuss the Project Completion Report, and the eleventh JCC meeting of the Project was chaired by Ms. Nominchimeg ODSUREN, Deputy Governor of Capital City in Charge of Social Sector, Green Development and Air and Environmental Pollution, on 16th May 2024. Participant list of the eleventh JCC meeting is shown in Annex I.

As a result of discussions, both sides agreed on matters referred to the document attached hereto.

Ulaanbaatar, 16th May 2024


Mr. Shinichi TANAKA
Chief Representative
JICA Mongolia Office
Japan International Cooperation
Agency, Japan


Ms. Nominchimeg ODSUREN
Deputy Governor of Capital City
in Charge of Social Sector, Green
Development and Air and
Environmental Pollution


Mr. Toru TABATA
Leader, JICA Expert Team, Japan


Ms. Delgerjargal JAMYANSHARAV
Director General
Department of Development
Financing and Public Investment
Ministry of Finance, Mongolia

ATTACHED DOCUMENT

I. Submission of the Draft Project Completion Report

JET submitted the Draft Project Completion Report to the Mongolian side, and requested each member's feedback and comments on the latest written form **by 24th May, 2024**, so that the comments will be reflected the Project Completion Report accordingly. The Mongolian side officially accepted the Draft Project Completion Report.

II. The Project Design Matrix

The Japanese side proposed the amendment of the Project Design Matrix (hereinafter referred to as PDM) to Mongolian side, and both sides approved on the amendment of the PDM. The approved amendment is as follows. (The revised PDM is attached as Annex III.)

1. PDM

Before (Ver.1.8)	Amended (Ver.1.9)
Objectively Verifiable Indicator 1 of the Overall Goal	
<u>XX%</u> of emissions from <u>major pollution sources</u> is reduced compared with the BAU baseline.	65% in SO _x and 43 % in PM ₁₀ emissions from <u>small stoves for household and automobiles</u> are reduced compared with the BAU baseline.
Objectively Verifiable Indicator 2 of the Overall Goal	
(newly added)	<u>The results of the Project are reflected in the policy and strategy, such as the next NPREP (National Program on Reducing Environment Pollution) and related laws and regulations.</u>
Mean of Verification 2 of the Overall Goal	
(newly added)	<u>The next NPREP (National Program on Reducing Environment Pollution) and its related documents</u>
Mean of Verification 3 of the Overall Goal	
(newly added)	<u>Interview survey to the relevant agencies</u>

III. Comments from the Mongolian side of the issues on the after the Project

Mr. Barkhasragchaa BALDORJ, Head of Environmental monitoring laboratory of Central Laboratory of Environment and Metrology asked what kind of system was desirable and which organization should take the lead in planning air pollution control measure, since it seemed Mongolia lacked such framework for policy planning, and responsible organization was not clear.

Mr. Toru TABATA, Leader of JET, explained Japanese system for making policies based on the Basic Environmental Plan and the roles of related ministries and local governments.

IV. Comments from the Japanese side of the issues on the after the Project

Ms. Watarai, Project Formulation Adviser of JICA Mongolia Office, mentioned the following points;

1. The Mongolian side is expected to continue the activities which have done in the Project, and to expand them to a full-scale project, since the Project will be completed in July.

2. Some issues in proceeding the necessary process to implement a full-scale project have been pointed out. Regarding the financial issue, for example, the Mongolian side will try to secure the budget by utilizing the Project outputs.

3. The Mongolian side and JET will keep communicating to examine some possibilities to reduce the cost until the end of the Project.

4. Although the government is responsible to develop the legal system in Japan, there are some cases that local governments take the initiatives to implement the measures ahead of the national government. I hope that everyone will try to find the best way to realize the Project effect as early as possible.

At the end of the meeting, Ms. Nominchimeg ODSUREN, Deputy Governor of Capital City in Charge of Social Sector, Green Development and Air and Environmental Pollution, mentioned that the responsibility of the Mongolian side for future air pollution control measures, including keeping up project outputs, is to consider the priority of the measures and the activities to implement in the full-scale project.

END

ANNEX I Participants of eleventh Joint Coordination Committee

ANNEX II Presentation of Project Summary and Important Issue

ANNEX III PDM (Ver.1.9)

ANNEX I Participants of Tenth Joint Coordination Committee

	Name	Organization	Position
1	Ms. Nominchimeg ODSUREN	Ulaanbaatar City	Deputy Governor of Capital City in Charge of Social Sector, Green Development and Air and Environmental Pollution
2	Mr. Enkhmunkh G.	Ministry of Environment and Tourism, Environmental Policy Coordination Department	Head of Department
3	Ms. Mongolmaa D.	Ministry of Mining and Heavy Industry, Fuel Policy Department	Head of Department
4	Ms. Gerelmaa	Ministry of Finance, Department of Development Financing and Public Investment	Adviser
5	Mr. Javzansuren D.	Ministry of Energy, Department of Fuel Policy Implementation and Coordination	Expert
6	Mr. Gereinyam B.	Ministry of Road and Transport Development, Policy and Planning Department, Standard and Normative Division	Head of Division
7	Mr. Unurbat. D	National Agency for Meteorology and Environment Monitoring	Expert
8	Mr. Barkhasragchaa B.	Central Laboratory of Environment and Metrology	Head of Environmental monitoring laboratory
9	Mr. Ulzii E.	Public Transport Department of the Capital City	Expert
10	Mr. Khuvizaya Ch.	Traffic Control Center of the Capital City	Director
11	Mr. Namuu N.	Traffic Control Center of the Capital City, Traffic Control Division	Head of Division
12	Mr. Batshagai B.	Department of Against Air and Environmental Pollution of the Capital City	Director
13	Mr. Adiyaochir	Department of Against Air and Environmental Pollution of the Capital City, Air Quality Measurement and Operation Division	Expert
14	Mr. Shinichi TANAKA	JICA Mongolia Office	Chief Representative
15	Ms. Hiroka WATARAI	JICA Mongolia Office	Project Formulation Adviser
16	Ms. Oyuntsetseg.CH	JICA Mongolia Office	National Staff
17	Mr. Toru TABATA	JICA Expert Team	Leader
18	Mr. Natsuji SAWAKI	JICA Expert Team	Vice Leader
19	Mr. Atsushi SATO	JICA Expert Team	Group Leader of Auto-mobile Countermeasure

Монгол улс Улаанбаатар хотын Агаарын бохирдлын
хяналтын чадавхыг бэхжүүлэх төсөл (3 дугаар үе шат)
Төслийн тойм

2024 оны 05 дугаар сар 16
ЛЖА төслийн баг

3-р үе шатны төслийн зорилго

- Агаарын бохирдлыг бууруулах үр дүнтэй арга хэмжээний хэрэгжилт, НАОБТГ, төрийн болон нийслэлийн холбогдох байгууллагын хамтын ажиллагааны тогтолцоог сайжруулахад голлон анхаарч, УБ хотын агаарын бохирдлыг бууруулах арга хэмжээг хэрэгжүүлэх чадавхыг сайжруулах

ХЗХ-ны хаалтын хурлын зорилго

1. Төслийн тойм
1.1 Төслийн тойм
1.2 Эрхэм зорилгын шалгуур үзүүлэлт
2. Төсөл дууссанаас хойших асуудал

Төслийн 3-р үе шатны үр дүн

1	Төслийн зорилгыг хэрэгжүүлэх арга хэмжээний хэрэгжилт, НАОБТГ, төрийн болон нийслэлийн холбогдох байгууллагын хамтын ажиллагааны тогтолцоог сайжруулахад голлон анхаарч, УБ хотын агаарын бохирдлыг бууруулах арга хэмжээг хэрэгжүүлэх чадавхыг сайжруулах
2	Улаанбаатар хотын агаарын бохирдлыг бууруулах арга хэмжээний хэрэгжилт, НАОБТГ, төрийн болон нийслэлийн холбогдох байгууллагын хамтын ажиллагааны тогтолцоог сайжруулахад голлон анхаарч, УБ хотын агаарын бохирдлыг бууруулах арга хэмжээг хэрэгжүүлэх чадавхыг сайжруулах
3	Агаарын бохирдлыг бууруулах арга хэмжээний хэрэгжилт, НАОБТГ, төрийн болон нийслэлийн холбогдох байгууллагын хамтын ажиллагааны тогтолцоог сайжруулахад голлон анхаарч, УБ хотын агаарын бохирдлыг бууруулах арга хэмжээг хэрэгжүүлэх чадавхыг сайжруулах
4	Агаарын бохирдлыг бууруулах арга хэмжээний хэрэгжилт, НАОБТГ, төрийн болон нийслэлийн холбогдох байгууллагын хамтын ажиллагааны тогтолцоог сайжруулахад голлон анхаарч, УБ хотын агаарын бохирдлыг бууруулах арга хэмжээг хэрэгжүүлэх чадавхыг сайжруулах
5	Агаарын бохирдлыг бууруулах арга хэмжээний хэрэгжилт, НАОБТГ, төрийн болон нийслэлийн холбогдох байгууллагын хамтын ажиллагааны тогтолцоог сайжруулахад голлон анхаарч, УБ хотын агаарын бохирдлыг бууруулах арга хэмжээг хэрэгжүүлэх чадавхыг сайжруулах
6	Ур дүн 1-4-ийн хэрэгжилт, НАОБТГ, төрийн болон нийслэлийн холбогдох байгууллагын хамтын ажиллагааны тогтолцоог сайжруулахад голлон анхаарч, УБ хотын агаарын бохирдлыг бууруулах арга хэмжээг хэрэгжүүлэх чадавхыг сайжруулах

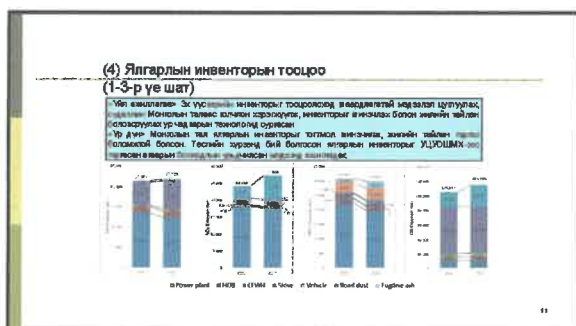
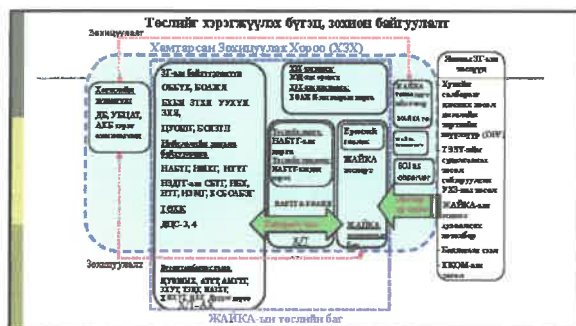
1.1 Төслийн тойм
Төсөл 1-3-р үе шатны үр дүн

Үе шат 1	2010-2013 (3 жил) - Төслийн зорилгыг хэрэгжүүлэх арга хэмжээний хэрэгжилт, НАОБТГ, төрийн болон нийслэлийн холбогдох байгууллагын хамтын ажиллагааны тогтолцоог сайжруулахад голлон анхаарч, УБ хотын агаарын бохирдлыг бууруулах арга хэмжээг хэрэгжүүлэх чадавхыг сайжруулах - Улаанбаатар хотын агаарын бохирдлыг бууруулах арга хэмжээний хэрэгжилт, НАОБТГ, төрийн болон нийслэлийн холбогдох байгууллагын хамтын ажиллагааны тогтолцоог сайжруулахад голлон анхаарч, УБ хотын агаарын бохирдлыг бууруулах арга хэмжээг хэрэгжүүлэх чадавхыг сайжруулах
Үе шат 2	2014-2017 (4 жил) - Төслийн зорилгыг хэрэгжүүлэх арга хэмжээний хэрэгжилт, НАОБТГ, төрийн болон нийслэлийн холбогдох байгууллагын хамтын ажиллагааны тогтолцоог сайжруулахад голлон анхаарч, УБ хотын агаарын бохирдлыг бууруулах арга хэмжээг хэрэгжүүлэх чадавхыг сайжруулах - Улаанбаатар хотын агаарын бохирдлыг бууруулах арга хэмжээний хэрэгжилт, НАОБТГ, төрийн болон нийслэлийн холбогдох байгууллагын хамтын ажиллагааны тогтолцоог сайжруулахад голлон анхаарч, УБ хотын агаарын бохирдлыг бууруулах арга хэмжээг хэрэгжүүлэх чадавхыг сайжруулах
Үе шат 3	2018-2021 (4 жил) - Төслийн зорилгыг хэрэгжүүлэх арга хэмжээний хэрэгжилт, НАОБТГ, төрийн болон нийслэлийн холбогдох байгууллагын хамтын ажиллагааны тогтолцоог сайжруулахад голлон анхаарч, УБ хотын агаарын бохирдлыг бууруулах арга хэмжээг хэрэгжүүлэх чадавхыг сайжруулах - Улаанбаатар хотын агаарын бохирдлыг бууруулах арга хэмжээний хэрэгжилт, НАОБТГ, төрийн болон нийслэлийн холбогдох байгууллагын хамтын ажиллагааны тогтолцоог сайжруулахад голлон анхаарч, УБ хотын агаарын бохирдлыг бууруулах арга хэмжээг хэрэгжүүлэх чадавхыг сайжруулах

Агаар орчны хяналтын цикл

```

graph TD
    A[Үр дүн-4  
АБ-ын стратеги,  
чингэл, шийдвэр] --> B[Үр дүн-3  
АБ-ын арга  
хэмжээний үнэлгээ]
    B --> C[Үр дүн-5  
АБ-ын арга  
хэмжээний  
хэрэгжүүлэлт]
    C --> D[Үр дүн-6  
АБ-ын арга  
хэмжээний  
хэрэгжүүлэлт]
    D --> E[Үр дүн-1,2  
АБ-ын арга  
хэмжээний  
хэрэгжүүлэлт]
    E --> A
  
```



- (1) Ахуйн хэрэгтээний сайжруулсан шахмил түлш
- (2) Гэрлэн дохноны асалтын горимын өөрчлөлт
- (3) Автотээврийн хэрэгслийн хүсэр багатай шатахуун болон ялгарал багатай тээврийн хэрэгслийн хэрэгтээг нэмэгдүүлэх
- (4) Эко жолоодлогыг нэвтрүүлэх
- (5) Remote Sensing Device (RSD) ашиглан авто зам дээрх хаягдал утааны судалгаа
- (6) Дизель хөдөлгүүртэй тээврийн хэрэгслийн РМ-ыг бууруулах тоногдол (Diesel Particulate Filter: DPF гэх мэт)

[illegible]Бүтээгдэхүүн
буцаахуур[illegible]

Шаталтын үеийн хягдал хийний агууламж,
температурын өөрчлөлт (Raw Data)

Төрөл	Сайжруулсан зүүх	Уламжлалт зүүх
DUST	Ялгарлын стандартыг хангасан	Ялгарлын стандартыг хангасан ч сайжруулсан DUST-ээс 50% багттай
CO	Ялгарлын стандартыг хангасан	Ялгарлын стандартыг хангаагүй, өндөр агуулгатай CO-г бууруулах үзүүлэлт хангасан
Шаталтын	Дундажаар 243°C	Дундажаар 208°C

(2) Гэрлэн дохионы гормын зохицуулалт

“Гэрлэн дохио”

Гэрлэн дохионы зохицуулалтын үүрэг нь ЗХУТ-өөс 2022 оны 12-р сард Хэлмэгч суурингийн нутаг дэвсгэрийн дотоон тохируулсан зохицуулалтын системийг, 2023 оны 1-р сард нь (Нийт суурин нь нийт 17 урсгал) 10 урсгал бүр гэрлэн дохионы системийг хийж, бүтээх, тохируулж байсан. 2023 оны 2-р сард гэрлэн дохионы системийг тохируулж байсан гэрлэн дохионы системийг бүтээх, тохируулж байсан.

“Гэрлэн”

Гэрлэн дохионы зохицуулалтын үүрэг нь Хэлмэгч суурингийн нутаг дэвсгэрийн дотоон тохируулсан зохицуулалтын системийг, 2022 оны 12-р сард Хэлмэгч суурингийн нутаг дэвсгэрийн дотоон тохируулсан зохицуулалтын системийг, 2023 оны 1-р сард нь (Нийт суурин нь нийт 17 урсгал) 10 урсгал бүр гэрлэн дохионы системийг хийж, бүтээх, тохируулж байсан. 2023 оны 2-р сард гэрлэн дохионы системийг тохируулж байсан гэрлэн дохионы системийг бүтээх, тохируулж байсан.



ГЭРЛЭН ДОХИОНЫ СИСТЕМ

Ялгарал багатай тээврийн хэрэгслийг нэвтрүүлэх

Автобус (2009 онд үйлдвэрлэгдсэн) Euro6-аас NOx 8 дэхийн их, PM-ын хувьд 400 дэхийн их ялгаруулдаг.

MNS 5014-2009 стандартыг хялалсан

Япон улсын 2010 оны стандарттай (Euro-6-тай дүйцэх) харьцуулжээ

Нэгж: 20км/ч-ийн хурдтай үеийн NOx-ийн нийлэл

MNS 5014-2009 стандартыг хялалсан

Япон улсын 2010 оны стандарттай (Euro-6-тай дүйцэх) харьцуулжээ

Нэгж: 20км/ч-ийн хурдтай үеийн PM-ийн нийлэл

УБ хотын 17 уулзварт гэрлэн дохионы асгалтын гормын тохируулгын үр дүн

УБ хотын 17 уулзварт гэрлэн дохионы асгалтын хугацааг замын хөдөлгөөний зориулалт, судалгааны үр дүнд үндэслэн өөрчлөх, уулзвар бүр дээр тохируулсан байна. Бүтээх, тохируулж байсан гэрлэн дохионы системийг, 2023 оны 1-р сард нь (Нийт суурин нь нийт 17 урсгал) 10 урсгал бүр гэрлэн дохионы системийг хийж, бүтээх, тохируулж байсан. 2023 оны 2-р сард гэрлэн дохионы системийг тохируулж байсан гэрлэн дохионы системийг бүтээх, тохируулж байсан.

Уулзвар	Өмнө	Одоо
Замын Холбоо (10 уулзвар)	574,270 сек	593,787 сек
Түгшрэн үрт	8,280м	732м
Зорнох туйд (нэгж: 800м)	9.5 км	11.2 км
Лэглэн дөрвөт (16 уулзварын нийлэл)	340 удаа	315 удаа
Барилгын хугацааг хувиар	3 минут 14 секунд	3 минут 13 секунд



Ялгарал багатай тээврийн хэрэгслийг нэвтрүүлэх

Автомашиныас үүдэлтэй өгөөр бохирдуулагчийг бууруулахын тулд утга бага ялгаруулдаг (Euro V, Евро VI гэх мэт) тээврийн хэрэгслийг нэвтрүүлэх шаардлагатай байна.

Монгол Улсад импортоор ирж буй автомашинууд нь хамгийн сүүлийн үеийн ялгарлын стандартыг (Euro V, VI гэх мэт) хангасан байх ёстой. Гэхдээ автомашины ялгарлын стандартын мөн дээдэлтэй системийг (урвалттай катализатор, исэлдлийн катализатор, DPF) аюуллагаг хангасан тулд үүсэх багатай түлээтэй хангах шаардлагатай (УУХУЯ-аас Евро VI-аас Euro V-аас ялгаруулж байгаа) тул тогтоомжийг баталж, хэрэгтэй нэмэгдүүлж байгаа.

2024 оны 1 сараас Euro V Автобусыг нэвтрүүлж эхэлсэн. Нийт 600 автобус нийлүүлэхээр төлөвлөж байна.

(3) Авто тээврийн хэрэгслийн хүсэр багатай шатхуун (Евро 5) болон ялгарал багатай тээврийн хэрэгслийн хэрэгсэл нэмэгдүүлэх

“УБ хотын”

ЖАЙА хотын УУХУЯ-аас гэрлэн дохионы системийг тохируулж байсан гэрлэн дохионы системийг бүтээх, тохируулж байсан. 2023 оны 1-р сард нь (Нийт суурин нь нийт 17 урсгал) 10 урсгал бүр гэрлэн дохионы системийг хийж, бүтээх, тохируулж байсан. 2023 оны 2-р сард гэрлэн дохионы системийг тохируулж байсан гэрлэн дохионы системийг бүтээх, тохируулж байсан.

ЖАЙА хотын УУХУЯ-аас гэрлэн дохионы системийг тохируулж байсан гэрлэн дохионы системийг бүтээх, тохируулж байсан. 2023 оны 1-р сард нь (Нийт суурин нь нийт 17 урсгал) 10 урсгал бүр гэрлэн дохионы системийг хийж, бүтээх, тохируулж байсан. 2023 оны 2-р сард гэрлэн дохионы системийг тохируулж байсан гэрлэн дохионы системийг бүтээх, тохируулж байсан.



Шатхуун хувиар

Ялгарал багатай тээврийн хэрэгслийг нэвтрүүлэх

Euro V Автобус

Модель	ZK6116H6
Үйлдвэрлэгч	Yutong
Үйлдвэрлэсэн он	2024
Х/Замлалын (cc)	8400
Ялгарлын стандарт	Euro V
Зориулалтын тоо	76-80
Ойрын хэмжээ (мм)	10800*2550*2950
Утга бууруулах технологийн	Исэлдлийн катализатор, мөөгөн SCR



(4) Эко жолоодлогыг нэвтрүүлэх

<Үйл ажиллагаа>

- ЖАЙКА-тай төстөр ЗТХЯ-а эко жолоодлогыг дэмжих 20 тикетермисийг нэвтрүүлж, суурьшуулсан автомашинд иргэд эко жолоодлогын багцарал олгож, эко жолоодлогын даам суурьшар болсон байна.
- Эсгийг жолоодогчид болон эко жолоодлогыг үнэмлэх автомашинд АСХУХ ажилтан урьдчилан хийгээд алгавал хэмээх зэвж, УБ хэсэг эко жолоодлогыг зоригжуулсан өгчөөр байрдуулсан алгавал бууруулж үр жолоог байгаа хэвээрээ.
- Эко жолоодлогыг өгчөөр байрдуулсан алгавал бууруулж эко жолоодлогыг олон нийтэд сурталчилж байна.



Эко жолоодлогын зоригжуулсан төхөөрөмж

(6) Дизель хөдөлгүүртэй тээврийн хэрэгсэлийн РМ-ыг бууруулах тоноглол (Diesel Particulate Filter :DPF)

<Үйл ажиллагаа>

- РМ бууруулах төхөөрөмж(DPF) зориулсан албан ёсоор зардалтай болгохуудтай.
- "Монгол Улсад дизель хөдөлгүүртэй шувууныг анх удаа DPF ашиглан тогтоожилж бууруулах төхөөрөмж байгуулахууд төсөл"-ийн хүрээнд DPF тохируулсан автобус ажиллахаар гарсан. Ойроор тээврийн хэрэгсэлд суурилуулсан DPF-ийг өмчлүүлсэн суурьшуулж ажиллах хүсэлтэй НТГ-аас гарсан, 2 автобусанд DPF-ыг өмчлүүлж суурилуулж байна.



DPF/Дизельн хөдөлгүүр суурьшуулсан байдал

(5) Remote Sensing Device(RSD) ашиглан авто зам дээрх хаягдал утааны судалгаа

<Үйл ажиллагаа>

- НАОБТГ, АТУТ, ТЦГ-тай хамтран УБ хотын авто замын төлбөр явах цэгүүдэд утааны хийн хэмжээний судалгааг RSD ашиглан хийж, RSD болон тогтоожилж хэмжээний утгаас утаа нхтэй тээврийн хэрэгсэлийн журмыг RSD-ийн утга ялгууриалтын стандарт утгыг тодорхойлсон.
- Авто замын хяналт үзлэгт зориулсан ажлын журам, судалгааны бүрэлдэхүүн, шалгалтын ажлааг утга өргө ажиллаж зохнон байгуулах техниксийн удирдамжыг боловсруулсан.

4. Агаарын бохирдлыг бууруулах чиглэлээр олон нийтэд мэдээлэх үйл ажиллагаа (Монгол, Япон)



АНСХ-ын талаар Монголын төлөөллийн сурталчлага



Япон ТБС-ын нэвтрүүлэг (2024/02/14)



Хүхэр багатай шатаахуйн нэвтрүүлэг талаар ТБС-ын ажиллагаа



Хүхэр багатай шатаахуйн нэвтрүүлэг тухай телевизийн сурталчлага (2024/04/23)

RSD-ын стандарт утгыг ашиглан авто зам дээрх хяналтын журмыг нэвтрүүлэх зорилготой журмын агуулга, торгууль, албан шаардлага зэргийг судалж, захирамж болон шаардлагатай хууль тогтоомжийг ЗТХЯ-тай хамтран судалсан. ЗТХЯ, НТГ нь RSD-ыг худалдан авах, авто замын хяналтын хяналтыг хэрэглэх тогтолцоог бий болгох шаардлагатай байна.



5. Төслийн зорилтын үр дүнгийн биелэлтийн явц

Төслийн зорилтын үйлдвэр	2024 оны 6-р сарын байдал
Шалгуур 1. Загвар төсвийн нэг хэсэг болон эргэ хэлбэр болон нэрлэлтийн системийг байгуулах.	Шалгуур 1-ийн үр дүн: 2024 оны 6-р сарын 1-д "Монгол Улсад дизель хөдөлгүүртэй шувууныг анх удаа DPF ашиглан тогтоожилж бууруулах төхөөрөмж байгуулахууд төсөл"-ийн хүрээнд DPF тохируулсан автобус ажиллахаар гарсан. Ойроор тээврийн хэрэгсэлд суурилуулсан DPF-ийг өмчлүүлсэн суурьшуулж ажиллах хүсэлтэй НТГ-аас гарсан, 2 автобусанд DPF-ыг өмчлүүлж суурилуулж байна.
Шалгуур 2. Загвар төсвийн нэг хэсэг болон эргэ хэлбэр болон нэрлэлтийн системийг байгуулах.	Шалгуур 2-ийн үр дүн: 2024 оны 6-р сарын 1-д "Монгол Улсад дизель хөдөлгүүртэй шувууныг анх удаа DPF ашиглан тогтоожилж бууруулах төхөөрөмж байгуулахууд төсөл"-ийн хүрээнд DPF тохируулсан автобус ажиллахаар гарсан. Ойроор тээврийн хэрэгсэлд суурилуулсан DPF-ийг өмчлүүлсэн суурьшуулж ажиллах хүсэлтэй НТГ-аас гарсан, 2 автобусанд DPF-ыг өмчлүүлж суурилуулж байна.
Шалгуур 3. 75 жилийн ойгоор "Монголын үнэмлэхүй" гэрээг байгуулах.	Шалгуур 3-ийн үр дүн: 2024 оны 6-р сарын 1-д "Монгол Улсад дизель хөдөлгүүртэй шувууныг анх удаа DPF ашиглан тогтоожилж бууруулах төхөөрөмж байгуулахууд төсөл"-ийн хүрээнд DPF тохируулсан автобус ажиллахаар гарсан. Ойроор тээврийн хэрэгсэлд суурилуулсан DPF-ийг өмчлүүлсэн суурьшуулж ажиллах хүсэлтэй НТГ-аас гарсан, 2 автобусанд DPF-ыг өмчлүүлж суурилуулж байна.

Дүгнэлт

- [illegible]

Анхаарал хандуулсанд баярлалаа



6. Дүгнэлт

- [illegible]

Эрхэм зорилгын шалгуурыг тодорхойлох тухай

2024/5/16
Мэргэжилтний баг

1. Зорилго

1. Тус төслийн эрхэм зорилго болон шалгуур үзүүлэлт нь:

Эрхэм зорилго: Улаанбаатар хотын агаарын чанарыг сайжруулж, голлж эх үүсвэрүүдээс ялгарах боксирдуулах бодисын ялгарал бууруу.

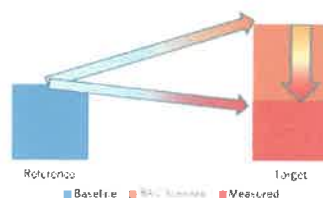
Шалгуур үзүүлэлт: Голлох эх үүсвэрүүдээс ялгарах боксирдуулах бодисын ялгарал BAU хувилбар (бууруулах төсөл, арга хэмжээ хэрэгжээгүй) -тай харьцуулахад XX%-иар буурах.

2. Эрхэм зорилгын шалгуурт боксирдуулах бодисын ялгарлыг бууруулах тоон хэмжээг тодорхойлохдоо BAU хувилбарын ялгарал болон загвар төслийн цаашид бодит арга хэмжээ болгож хэрэгжүүлсэн тохиолдлын ялгарлыг тус тус тооцоолсны үндсэн дээр бууруулах ялгарлын тоон хэмжээг тогтооно.

2.1. Суурь түвшин (он) болон ирээдүйн зорилтот оныг тодорхойлох

1. Суурь оныг сайжруулсан шахмал түвшний хэрэглээнд бүрэн шилжсэн 2020 оноор тогтоосон.
2. Ирээдүйн оныг Төсөл төлөвлөлтийн матрицд заасан эрхэм зорилгыг хангах үе буюу төсөл дууссанаас хойш 3 жилийн дараа 2027 оноор тогтоосон.
3. 2027 онд загвар төсөл хэрэгжээгүй байх тохиолдол буюу ямар ч арга хэмжээ хэрэгжүүлээгүй байх (Business as Usual /BAU/) хувилбарыг эх үүсвэрүүдийн ялгарлыг тооцсон.
4. Загвар төслийн үр дүнд тулгуурлан 2027 онд бодит арга хэмжээ болж хэрэгжсэн тохиолдолд ялгарлыг бууруулах үр дүнг тооцсон.
5. BAU хувилбарын ялгарал болон бууруулах арга хэмжээ хэрэгжүүлсэний дараах ялгарлын зөрүүгээс ялгарлын хэмжээний бууралт, хувийг тооцоолсон.

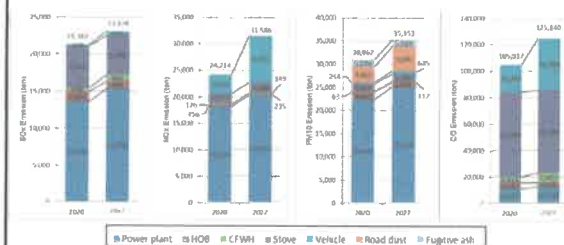
2.2. BAU хувилбар ба арга хэмжээний хувилбар



2.3. BAU хувилбарын тохиргоо

Эх үүсвэр	Орхигдсан хувийн өөрчлөлт үзүүлэх	Сүүлийн жил	Ирээдүйн жил	Өөрчлөлт хэмжээ (%)
BAU	2015-2020 оны түвшний хэмжээний өөрчлөлт хуви	2020	2027	0.6-5.8%
BAU	2016-2020 оны түвшний хэмжээний өөрчлөлт хуви			-5.8%
BAU	2015-2020 оны түвшний хэмжээний өөрчлөлт хуви			8.3%
Агаарын чанарын өөрчлөлт	2015-2020 оны гэр хорооллын хүн амын өсөлтийн хуви (дүүрэг тус бүрээр)			Гэр -2.7% Байшин 0.4%
Тухайн үеийн агаарын чанарын өөрчлөлт	2019-2022 оны ажиглалтын үзэм, оноллогоод татсан ТХ-ийн тооны өөрчлөлт хуви			Оуушны 6.4% Алтбус 8.8% Ажлын машин 3.7%

2.4. Ирээдүйн BAU хувилбарын ялгарал



3.1. Сонгосон загвар төсөл

1. Дараах загвар төслийг туршилтгаар хэрэгжүүлсэн.
 1. Сайжруулсан шахмал түлш (Биомассын хольцтой шахмал /BCB/)
 2. Гэрлэн дохионы зохицуулалт
 3. Хүхэр багатай шатахуун, ялгарал багатай ТХ (бүх ТХ, зөвхөн автобус)
 4. Эко жолоодлого
 5. Тортогийн шүүлтүүр /DPF/(зөвхөн автобус)
 6. Хаягдал утааны зайнаас хэмжигч /RSD/
2. Эдгээрээс төслийн баг нь цаашид монголд 2027 он хүртэл бодит арга хэмжээ болж хэрэгжих магадлалтай төсөл нь биомассын хольцтой шахмал түлш (BCB), хүхэр багатай шатахуун, ялгарал багатай ТХ (зөвхөн автобус), RSD гэж үзэж, эрхэм зорилгын шалгуурт тус 3 төслийн ялгарлын бууралтын хувийг үнэлсэн.

3.2 Загвар төслийн үр дүнд тулгуурлан ялгарлын бууралтыг тооцох нөхцөл (1)

Алгуур	Хэрэгжүүлсэн загвар					
	Гэрийн зуухны алгармаг бууруулах арга хэмжээг ТТТ-ийг сайжруулсан шахмал түлшний оролд тус таснаас савал болгох биомассын хольцтой шахмал түлш (BCB) ний хэрэглээг нэмэгдэх төлөвтэй.					
Биомассын хольцтой шахмал түлш (BCB)	Бүх төрлийн гэрийн зууханд BCB хэрэглэх нөхцөл үүсэх, зуухны ажлын орчинг шалгалын туршилтаар тодорхойлсон алгармаг коэффициентийн дүндээ утгаг нэмэгдэснэ. SO ₂ нь түлшний өгүүлэгдэх хурдтай пропорциональ хэмжээгээр тун түлшний утгаг хийн шалгалын туршилтаар хэмжигч багц утгаг SO ₂ -ийг JK 6 болгох ашигласан. Туршилын зардалааг ТТТ-ийг сайжруулсан шахмал түлшний зардалааг хэмжээтэй харьцуулж үнэлсэн.					
Түлш	Гэрлийн түлшний төлөв	SO ₂	NO _x	PM ₁₀	PM _{2.5}	CO
Уламжлалт зуух (2022 оны хэмжээ)		11.88	4.79	2.82	2.53	153.23
Сайжруулсан зуух (2020 оны хэмжээ)		12.02	3.04	1.77	1.59	106.51
BCB	Уламжлалт зуух	3.51	2.92	1.41	1.27	145.00
	Сайжруулсан зуух	3.51	2.09	0.94	0.85	29.54

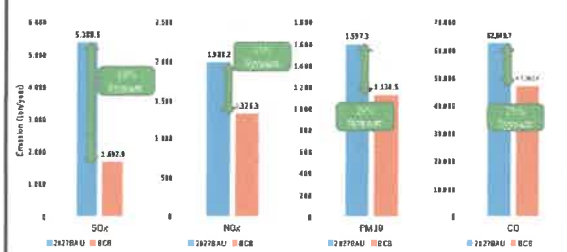
Нэм: гэрлийн түлш

Нэмж: гэрлийн түлш

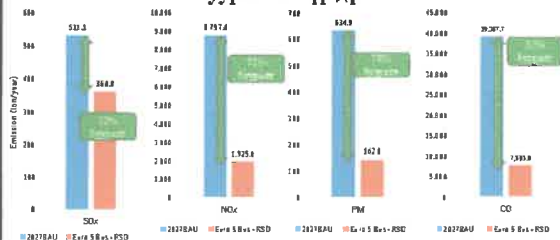
3.2 Загвар төслийн үр дүнд тулгуурлан ялгарлын бууралтыг тооцох нөхцөл (2)

Алгуур	Хэрэгжүүлсэн загвар
Одот, түлш, биомассын хольцтой ТХ (зөвхөн автобус)	Евро IV-ээс хүртээх бүх автобус Евро V стандартын автобусар солигдож, мөн Евро 5 стандартын түлш хэрэглэнэ. (Сүүдэр нэгдэл түлшээс үүсгэгч ашигласнаар биомассын хольцтой шахмал түлш ашигласнаар)
	Бүх автобусанд жилд 2005 оны алгарлын стандартыг коэффициенттэй ашигласна.
	Хүхэр багатай 10 рөл гэж үзэх.
ТХ-ийн утгаг хийн шалгалын туршилтаар RSD	RSD ашигласнаар ялгарал утгаг хийн шалгалын стандартыг хэрэглэн ТХ-ийг жуурилах, УБ хийн шалгалын хийгчид оролцуулжгүй байх, ТХ-ийн төлөвийн тасаргаа, ямар үйлчилгээг төгсөм хийснээр ТХ-ийн дотоодыг багасгах төлөвтэй.
	Ялгарлын стандартын загвар утгаг хийн шалгалын туршилтаар 40%-иас хэтрүүлж (жишээ 1998 оны алгарлын стандартыг өмнө) ТХ-ийг өндөр оролцуулж болох.
	Төмөр замын бүрэн бүтээгдэхүүн хэрэглэхгүй.

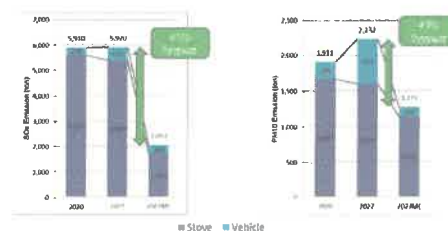
3.3 Биомассын хольцтой шахмал түлшний загвар төсөл: Гэрийн зуухны алгарлын бууралтын үр дүн



3.4 ТХ-ийн загвар төслийн хаягдал утааны ялгарлын бууралтын үр дүн



3.5 Биомассын хольцтой шахмал түлш болон ТХ-ийн загвар төслийн ялгарлын бууралтын үр дүн



4. Дүгнэлт

1. 2027 он хүртэл бодит арга хэмжээ болж хэрэгжих магадлалтай загвар төслийн ялгарлын бууралтын үр дүнг баримжаалж тооцоолсон.
2. Биомассын хольцтой шахмал түлшний загвар төслөөр гэрийн зуухны ялгарал SOx 69%-иар, PM₁₀ 29%-иар буурна гэж тооцоолсон.
3. ТХ-ийн загвар төслөөр хягдал утаны ялгарал SOx 32%, PM₁₀ 78%-иар буурна гэж тооцсон.
4. Загвар төслийг хэрэгжүүлсэнээр ахуйн хэрэглээний зуух болон ТХ-ийн ялгарал SOx 65%, PM₁₀ 43%-иар буурна гэж тооцсон.

5. Эрхэм зорилгын тоон шалгуурыг тодорхойлох санал

1. Загвар төслийн үр дүнд тулгуурласан арга хэмжээний саналын ялгарлын бууралтын үр дүнгээс эрхэм зорилгыг хангах тоон шалгуурыг дараах байдлаар тодорхойлох санал гаргаж байна.

Ахуйн хэрэглээний зуух болон тээврийн хэрэгслийн бохирдуулах бодисын ялгарлын хэмжээ нь BAU хувилбартай харьцуулахад SOx 65%, PM₁₀ 43% буурах.

Эрхэм зорилгод “Шалгуур 2”-ыг нэмэх тухай

2024/5/16
Мэргэжилтний баг

1. Эрхэм зорилгын шалгуурыг нэмэх санал

ЖАЙКА байгууллага нь тус төсөл дуусвал 3 жилийн дараа (2027 он) экс-пост үнэлгээ хийнэ. Тус үнэлгээ нь төслийн зорилго, үр дүнгийн тогтвортой байдал, үйл ажиллагааны нөхцөл байдлыг баталгаажуулж, эрхэм зорилгын биелэлтийн байдлыг магадладаг.

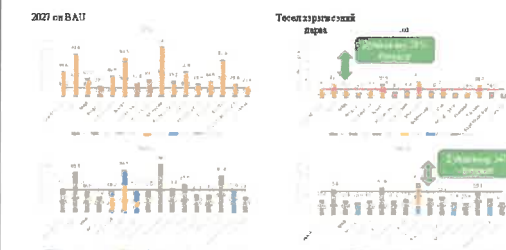
Төсөл дууссаны дараах монгол талын агаарын бохирдлыг бууруулж арга хэмжээний хэрэгжлэлийг эхистэй үнэлэхийн тулд шалгуур (Шалгуур 2)-ыг нэмэх санал гаргаж байна.

Эрхэм зорилго : Улаанбаатар хотын шаарын чанарыг сайжруулж, голцек их үүсвэрүүдээс ял арах бохирдуулах бодисын ялгарал буурна.

Шалгуур 1: Ахуйн хэрэглээний зуух болон тээврийн хэрэгслийн бохирдуулах бодисын ялгарлын хэмжээ нь BAU хувилбартай харьцуулахад SOx 65%, PM₁₀ 43% буурах.

Шалгуур 2: Төслийн үр дүнд нь “Агаар, орчны бохирдлыг бууруулах үндэсний хөтөлбөр” зэрэг төрөөс баримтлах бодлого, стратегийн болов хөгжсөн хууль, журамд тусгалаа.
(Жишээ 1) Загвар төсөл нь Үндэсний хөтөлбөрт сонгогдон орж, бодит арга хэмжээ болж хэрэгжиж.
(Жишээ 2) Сайжруулсан шахмал түлшний утааны хийн хэмжээний аргачлал нь стандарт (MNS) болж биелдэг.

(Reference) Биомассын хольцтой шахмал түлш болон ТХ-ийн загвар төслийн агууламжийн бууралтын үр дүн



Монгол улс Улаанбаатар хотын агаарын
бохирдлын хяналтын чадавхыг бэхжүүлэх төсөл
(3 дугаар үе шат)
ХЗХ-ны хаалтын хурал

2024 оны 5-р сарын 16
ЖАЙКА төслийн баг

1

1. Төслөөс хойших агаарын бохирдлыг бууруулах арга хэмжээ

- 2010 оноос эхэлж, 1, 2, 3-р үе шат хүртэл хэрэгжсэн тус төсөл нь 2024 оны 7 сард дуусна.
- Цаашид агаарын бохирдлыг бууруулах арга хэмжээг оновчтой сонгож, хэрэгжилтийг эрчимжүүлэх шаардлагатай байна.

4

ХЗХ-ны хаалтын хурлын зорилго

1. Төслийн тойм
 - 1.1 Төслийн тойм
 - 1.2 Эрхэм зорилгын шалгуур үзүүлэлт
2. Төсөл дууссанаас хойших асуудал

2

1. Төслөөс хойших агаарын бохирдлыг бууруулах арга хэмжээ (2)



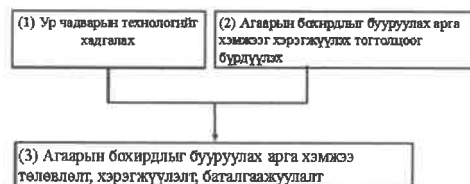
Агаар орчны хяналтын циспым дагуу циспым дагуу ажлаагаагид оруулах гэж нийдаж байна.

2. Төсөл дууссанаас хойших асуудал

3

1. Төслөөс хойших агаарын бохирдлыг бууруулах арга хэмжээ (3)

Агаарын бохирдлыг бууруулах арга хэмжээг цаашид хэрэгжүүлэх 3 гол чиглэл



6

7

18

Улсын төсөв, хандивлагчдын хөрөнгө оруулалт, санхүүжилтийн дэмжлэг

9

(3) Тээврийн хэрэгсэлд явах өргө хэмжээ

- 1) ДДС-ын арга хэмжээ
 - Нийт эрчим хүчний үйлдвэрлэл, халуун усны хангамжийг нэмэгдүүлэх арга хэмжээ
 - Одоо ажиллаж байгаа дулааны цахилгаан станцуудад агаарын бохирдлын эсрэг авах арга хэмжээг сайжруулах
 - Дулааны цахилгаан станц шинээр барихдаа агаарын бохирдлоос урьдчилан сэргийлэх арга хэмжээг сайтар хийх
 - Эрчим хүчний сүлжээг бэхжүүлж, дамжуулах, гүтээх үр ашгийг дээшлүүлэх
- 2) УХЗ-ын арга хэмжээ
 - УХЗ-ыг халж, төвлөрсөн хангамжид холбох
 - Цэцлэг, скруббер суурилуулах
 - Шинээр том хэмээсийн дулаан хангамжийн байгууламж барьж, УХЗ-ыг татан буулгах

- ТХ-ээс үүдэлтэй агаарын бохирдол, түгжрэлд цаг алдснаас гарах эдийн засгийн алдагдал нэмэгдэхээс урьдчилан сэргийлэх
- Евро 5 ангиллын шатахуун, ялгарал бүхий ТХ-ийн хэрэглээг нэмэгдүүлэх
- RSD-ыг ашигласан хаягдал утааны хяналт, шалгалт хэрэгжүүлэх
- УБ хотын бүх гэрлэн дохиотой уулзварын горимыг нийгэмлэх
- Автозамлын арга хэмжээ

- Шигэ үсийн тээврийн системийг нэвтрүүлэх

Метро, монорейл, BRT зэрэг шинэ үеийн тээврийн системийг нэвтрүүлэх

- 1) Ахуйн хэрэгслэний сайжруулсан шахмал түлш
 - НАОБТ-ын зуухны лабораторид нэг түлшинд багцая 3-аас дээш удаа утааны хийн шатгалтын туршилт хийж, чанарыг үнэлэх баталгаатай тоон өгөгдлийг цуглуулах
 - PM, SO₂ алгварын коэффициент багцгүйг сонгох
 - Асалт, шатгалтгүй холбоотой дутагдлагийг талмыг тодорхойлох
- 2) Ахуйн хэрэгслэний зуух
 - Утаарын хийн (CO) эрсдэлгүйг, MNS5216:2016 стандарт хангаагүй уламжлагт зуулыг худалдан борлуулах, ашиглахыг хориглох

- 2027 онд эрхэм зорилгыг хангахад чиглэсэн арга хэмжээний хувьд биомассын хольцтой шахмал түлш, хүхэр багатай шатахуун, ялгарал багатай автомашин, RSD-ийг ашигласан авто замын хяналт зэрэг загвар төслүүдийг эрэмбэлэн жагсаалаа. Шаалнд Монгол талаас бодлогын арга хэмжээ бошгон өргөжүүлэн хэрэгжүүлэх шавардлагатай.
- Эдгээр загвар төслийг бодлогын арга хэмжээ болгоход Монгол талаас хэрэгжүүлэх шавардлагатай үйл ажиллагаанууд.

- 3) Ахуйн хэрэгтэнд орлох гүйшгийг нэвтрүүлэх
 - Биеэс хэсэг хольцтой шахмал гүйшгийг нэвтрүүлэх
 - Хотын хийг дамжуулах
 - УБ хотын хийг дамжуулах сүтгэм хольцой, хийн аюулгүйн ажиллагааны заавар, хэрэгтэнд зориулсан хийн хэрэгтэний сүтгэл
 - Цэцэглээвэр шийдвэрлэх
 - Байгалийн хий боловч DME цэвэр гүйшгийг хэрэглэхийн шийдэх



4. 1 (БСВ) биомассын хольцтой шахмал түлш
Биомассын хольцтой бүтцийг сайжруулсан зүүхэнд шатааж ялгарлын стандарт (MNS 5216:2016)-ыг хангах байгааг баталжүүлсэн. Таван Төлгөй Түлш ХХК-ын түлшийг биомассын хольцтой болгосноор 2027 оны ВАУ хувийн бартааг харцуулахад хувиан хэрэглээний зухнаас ялгахад хоёрхорлог хой 50х-ийг 69%, РМ10-ыг 29% бууруулна. Тиймээс биомассын хольцтой шахмал түлшийг Монгол төл дэмжинг амжилла чадардагтай байна.

Бүтээгдэхүүн ба үйлчилгээний ангилал	Төлөвлөгөөний үндэслэл	Хяналтын үндэслэл
(БСВ) биомассын хялццтой шээлэл	• УБ хөдөөдний газар боломжтой БСВ үйлдвэрлэлийн зардалд нийцдэгээр хайлгах (үйлдвэрлэлийн нэмэлт зардал: Тусгай ойроонь өртөөс 32%); • БСВ-ийг биодүүлэхийг шугам, шалдартгай тоног төхөөрөмжийг шинэчлэх зардалд төсөвт оруулгах.	• Үйлдвэрлэлийг: ЭХЯ, үйлдвэрлэл-борлуулалт, НАОСТ ургалчлалын зардал; • Биомассыг нийлвэрлэлт ийн урлах газарыг олж тээвэрлэлт зохицуулалт; • Үйлдвэрлэлийн өргөтгө бууруулх систем нийлвэрлэх үйлдвэрлэлд нийцүүлж барьцалдуулах, үйлдвэрлэлд өртөөс

4. 2 Хүхэр багатай шатахуун, ялгарал багатай автомашин

	Шардлагатай төсвийн зардал	Шардлуулж буй өөр зардал
хүхэр багатай шатахуун, ялгарал багатай автомашин хэрэглээг нэмэгдүүлэх	* EURO V эсвэл VI автобусанд бүрэн шилжихэд шаардагдах худалдан авах зардлыг баталгаажуулах * EURO V эсвэл VI автобусанд шаардлагатай EBP0 5 шатахууны төсвийг баталгаажуулах (энгийн түлшний үнийн зөрүү)	* Евро 5 шатахууны импортын хэмжээг нэмэгдүүлэх тогтолцоог бий болгох (импортогч улсыг нэмэгдүүлэх, боловсруулах үйлдвэр барих гэж мэт) * Ялгарал багатай тээврийн хэрэгслийг нэмэгдүүлэхэд шаардлагатай хууль тогтоомж * Импортыг УУХҮЯ, дотоодын борлуулалтыг ЭХЯ

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4. 3 RSD-ыг ашигласан авто замын хяналт

	Шардлагатай төсвийн зардал	Шардлуулж буй өөр зардал
RSD-ыг ашигласан авто замын хяналт	* RSD иж бүрдэл худалдан авах зардлыг төсөвт суулгах (ойролцоогоор 200,000 евро) * RSD-ын хэмжилтэд шаардлагатай стандарт хийний нийлүүлэлтийн зардал	* RSD болон опасиметрыг ашиглан утаа ихтэй т/х-ыг журамлах эрх зүйн тогтолцоог нэвтрүүлэх. * ЗТХЯ-аас RSD болон опасиметр ашигласан авто замын байнгын хяналт бий болгох

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Анхаарал тавьсанд баярлалаа!

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Project Design Matrix (PDM)

Ver.1.9
Dated: May 16, 2024

Project Title: Capacity Development Project for Air Pollution Control in Ulaanbaatar City Phase 3
Implementing Agency: Department of Against Air and Environmental Pollution (DAAEP) of Ulaanbaatar (UB) City, Ministry of Environment and Tourism (MET) and Counterpart Working Group (C/P-WG)
Target Group: DAAEP, MET, C/P-WG and Relevant Agencies
Duration of the Project: November 2018 – July 2024 (5 years and 9 months)
Project Site: UB City

Narrative Summary		Objectively Verifiable Indicators	Means of Verification	Important Assumptions
Overall Goal Emission reduction at major emission sources is enhanced towards air quality improvement in Ulaanbaatar City.	65% in SO_x and 43 % in PM₁₀ emissions from small stoves for household and automobiles are reduced compared with the BAU baseline. - The results of the Project are reflected in the policy and strategy, such as the next NPREP (National Program on Reducing Environment Pollution) and related laws and regulations.			
Project Purpose Capacity for air pollution control in Ulaanbaatar City is strengthened, paying special attentions to implementation of effective pollution control measures and to the necessary coordinating mechanism of DAAEP and the relevant agencies.	- One of pilot projects are adopted as full scale implementation by relevant authorities. - At least one case of lessons learned from the pilot projects are utilized by the decision makers. - Relevant laws, regulations and standards on air pollution control measures are implemented in UB City. (At least establishment of one MNS, and/or 70% of compliance in the dust emission standards of existing MNS; MNS5043:2016 (General technical requirement of heat water boiler under 4.2MW) and MNS5919:2008 (Emission limit value and measurement method of power plant, steam boiler))			
Outputs				
Output 1: Capabilities of emission monitoring for the major pollution sources and of air quality monitoring are strengthened.	- During the Project duration, at least 50% of inspections for boiler registration based on emission measurements (including standard and simplified methodologies) are implemented by DAAEP and IACC. - The emission measurement reports are submitted to Project Leader of UB city in charge of air and environmental pollution at least 3 times during the Project duration. - Emission monitoring for the major pollution sources and air quality monitoring information are shared regularly among the relevant agencies through coordination between DAAEP and NAMEM. - The CEMS measurement is compared with the standard measurement once in a year. - Distribution of emission measurements from vehicles in UB City is prepared based on the study with RSD at least once a year.			
Output 2: Capabilities to analyze and evaluate pollution structure of PM, SO ₂ , and NO _x throughout the year are strengthened.	- The results of PM apportionment study are reported at least three times during the Project. - Pollution structures are assessed at least 3 times during the Project duration including emission inventory, simulation model, PM specification, receptor model, air quality monitoring and population exposure throughout the year.			
Output 3: Capabilities of technical evaluation and preparation of air pollution control measures for implementation are strengthened.	- Drafts of emission measurement methods and quality standards of improved fuel for households in Ger area are submitted to MAASM. - At least three of implementation plans of the pilot projects are prepared.			
			- Emission measurement reports by DAAEP / IACC - The Project reports - Boiler registration database - Air quality monitoring monthly reports and annual reports - CEMS data	- Legal and political framework for air quality management is maintained, which defines decision making mechanism such as NCEPR and professional agencies like DAAEP and NAMEM. - The COVID-19 pandemic situation will be improved and JICA will be able to send JICA Experts to Mongolia toward April 2021 until the end of the Project.
			The Project reports	
			The Project reports	

Output 4: Decision making process for air pollution control is improved by utilizing the Professional agencies including DAAEP, NAMEM and the relevant agencies.	4-1. Analysis of air pollution status, short-, medium- and long-term air pollution control strategies (including BAU analysis) and evaluation of air pollution control measures (including implemented and planned) are presented to decision makers at least 2 times. 4-2. Results of pilot project implementation and other Project results are utilized for the revision of NCEPR and for decision making on implementation/non-implementation of pollution control measures at least once.	1. The Project reports 2. Reports on NPREP
Output 5: Air pollution control measures are enhanced for PM, SO ₂ and NO _x emission reduction at major sources.	5-1. At least three pilot projects selected by C/P-WG are implemented 5-2. The results of each pilot project (emission reduction, improvement of ambient air quality and population exposure for PM, SO ₂ and NO _x) are presented to the relevant agencies.	1. The Project reports
Output 6: Legal framework, resource allocation and coordinating mechanism as a Platform for the Air Quality Management Cycle are strengthened for the Outputs 1 to 5.	6-1. At least three of drafts on laws and regulations, such as fuel regulations, MNS emission standards and ordinances of UB City, are submitted. 6-2. More than 3 air pollution control measures and technologies are funded by the sections of the relevant agencies in charge of allocating funds for air pollution control by utilizing technical appraisal guideline provided by the Project. 6-3. At least three agreements are made on demarcation of roles of the relevant agencies for air pollution control measures in the Project. 6-4. The operational guideline is distributed to relevant agencies.	1. Laws and regulations, fuel regulations, MNS emission standards and ordinances of UB City 2. Minutes of Meeting of NCEPR 3. Official documents including UB city Governor's orders 4. Operational guideline

Activities		Inputs	
1-1 1-1 DAAEP and IACC ¹⁾ reinforce HOB inspections based on on-site stack gas measurements. 1-1-1 DAAEP and JICA Experts assess the technical transfer on-site stack gas measurement. 1-1-2 DAAEP with JICA Experts re-constructs 2 teams of stack gas measurement. 1-1-3 IACC and the relevant agencies with JICA Experts implement HOB inspection based on on-site stack gas measurement. 1-1-4 IACC with JICA Experts introduces simplified measurement method by using IACC's portable gas measurement equipment including parallel measurement with JIS method, elaboration of manuals and manufacturer's calibration. ²⁾ 1-1-5 DAAEP and IACC with JICA Experts elaborate emission measurement reports. 1-1 1-2 TPP3 and TPP4 with JICA Experts enhance emission gas control by utilizing CEMS. 1-2-1 TPP3 and TPP4 with JICA Experts elaborate and implement CEMS operation and maintenance plan. 1-2-2 TPP3 and TPP4 with JICA Experts perform quality control of emission gas data of CEMS. 1-2-3 TPP3 with MET and the relevant agencies elaborates online emission data reporting system for the CEMS. 1-2-4 NAMEM and the relevant agencies share and evaluate CEMS emission data. 1-2-5 NAMEM compiles monitoring data of emissions from TPP2, TPP3, TPP4 and new large heat supply facilities and share them with relevant agencies.	Japanese side 1. JICA Experts (necessary fields) (1) Chief Advisor (2) Air Pollution Control Planning and Policy (3) Emission Measurement for Stationary Sources (4) Ambient Air Quality Monitoring (5) Ambient Air Quality Analysis (6) PM10 and PM2.5 Sampling (7) PM10 and PM2.5 Apportionment Study (8) Emission Inventory (Stationary, Mobile and Others) (9) Air Quality Simulation Modeling / Air Pollution Control Measures Evaluation (10) Auto-mobile Emission Control 1 (Traffic Signal Control) (11) Auto-mobile Emission Control 2 (RSD and others) / Emission	Mongolian side 1. C/P and C/P-WG (1) JCC Chairperson (2) JCC Vice-Chairperson (3) Project Director (4) Project Manager (5) Necessary C/P and C/P-WG staff according to the fields of JICA Experts 2. Facility (1) Provision of necessary office space in DAAEP and MET (including internet access) (2) CLEM Laboratory Equipment (3) Storage Space for Equipment 3. Local cost (1) Counterpart expenses such as salary, allowance, travel cost and accommodation (2) Project administrative expenses	1. There are no frequent leaves, transfers or resignations of C/P and C/P-WG members. 2. Necessary coordination among UB city, districts, khoroos and communities in Ger area is secured by Mongolian side for implementation of pilot projects.
1-3 MRTD and PTD introduce relevant regulations of vehicles based on emission measurement. 1-3-1 MRTD and PTD with JICA Experts implement vehicle emission measurements by RSD, assess distribution of vehicles emission intensity and define target vehicles to be regulated. 1-3-2 MRPA and IACC with JICA Experts implement automobile fuel surveys. 1-3-3 JICA Experts conduct training to NRTC, in addition to DAAEP, on vehicle emission measurement using on-board emission measurement system, and DAAEP and NRTC implement vehicle emission measurement using on-board emission measurement system. 1-3-4 Public Transportation Department of the Capital City with JICA Expert transfer the DPF which were installed on 24 large buses by the project "Verification Survey with the Private Sector for Disseminating Japanese Technologies for Emission Reduction of Particulate Matter (PM) from Diesel Buses by DPF" to other buses.			

1-4 DAAEP and NAMEM with JICA Experts strengthen AQMS utilization. 1-4-1 CLEM and JICA Experts assess the current status of equipment in reference laboratory of CLEM and identify necessary actions if necessary. 1-4-2 DAAEP reinforces AQMS operation and maintenance based on the plan by Phase 2. 1-4-3 DAAEP with JICA Experts starts air quality monitoring at pilot project area for improved household fuels by utilizing mobile AQMS. 1-4-4 DAAEP with JICA Experts reinforces the AQMS at Bayankhoshuu station. 1-4-5 DAAEP and NAMEM with JICA Experts implement parallel measurement by FRM sampler for PM concentration, and implement quality control of PM measurements of AQMS. 1-4-6 DAAEP and NAMEM with JICA Experts maintain the online information system of AQMS. 1-4-7 DAAEP and NAMEM share real-time monitoring data with the relevant agencies through the online information system. 1-4-8 DAAEP and CLEM with JICA Experts analyze air quality monitoring data and elaborate air quality monitoring reports. 1-4-9 The relevant agencies utilize air quality monitoring data. 1-4-10 DAAEP with JICA Experts establishes the data transfer system of air quality monitoring data of Dambadarjaa station to the online information system of AQMS. 2-1 NAMEM and JICA Experts conduct PM apportionment study based on PM speciation throughout the year. 2-1-1 CLEM and JICA Experts elaborate PM sampling plan throughout the year, and implement PM samplings. 2-1-2 JICA Experts perform PM speciation analysis in Japan. 2-1-3 NAMEM and CLEM with JICA Experts learn PM speciation technologies (ion analysis, element analysis and carbon analysis). 2-1-4 NAMEM and CLEM with JICA Experts formulate equipment and laboratory plan for PM speciation. 2-1-5 DAAEP and NAMEM with JICA Experts perform PM apportionment study based on receptor modeling. 2-2 DAAEP and NAMEM with JICA Experts evaluate air pollution structure and health impact based on air quality simulation model and receptor model. 2-2-1 DAAEP and NAMEM elaborate plans for updating emission inventory. 2-2-2 DAAEP, TCC and PTD implement studies for mobile sources including update of emission inventory, examination of traffic signal control, traffic volume and vehicle traveling speed. 2-2-3 DAAEP and JICA Experts select the pilot areas and assess Ger stoves usage pattern (type and model of stoves, seasonal pattern of usage, insulation of Ger housing and coal consumption). 2-2-4 DAAEP and NAMEM with JICA Experts implement studies for other emission sources as necessary. 2-2-5 DAAEP and NAMEM with JICA Experts elaborates BAU (Business as usual) scenario for the future year based on TPPs future development plans, projection of number of vehicle, population, economic growth, emission regulation, fuel quality regulation and so on. 2-2-6 DAAEP and NAMEM update emission inventory for the present year and the future year for the BAU scenario. 2-2-7 DAAEP and NAMEM update the air quality simulation model for PM10, SO₂ and NO_x. 2-2-8 DAAEP and NAMEM evaluate the air pollution structure of UB city. 2-2-9 DAAEP and NAMEM evaluate indicative population exposure of PM10 based on population weighted concentration and so on. 3-1 DAAEP and the relevant agencies elaborate a draft MNS on an emission measurement method of improved fuel and fuel quality, and propose it to MASM. 3-2 JICA Experts collect information about fuel gas usage in Mongolia, elaborate safety standards for gas based on Japanese experiences, and then submit it to Ministry of Energy. 3-3 DAAEP and the relevant agencies elaborate implementation plans and terms of reference for pilot projects such as improved fuel, HOB, traffic signal control, eco-driving, RSD, smoke belching program based on portable emission device, DPF, low sulfur fuel and low emission vehicles. 4-1 DAAEP and NAMEM submit to the decision makers the analysis of air pollution status, short-, medium- and long- term air pollution control strategies (including BAU analysis) and evaluation of air pollution control measures (including implemented and planned). 4-2 Relevant agencies with pilot projects elaborate technical guidelines and utilizes them. 4-3 The relevant agencies discuss and endorse the selection of pilot projects. 4-4 NCEPR and the relevant agencies approve large scale investments based on pilot projects implementation and assessment. 4-5 NCEPR, or the sections of the relevant agencies in charge of allocating funds for air pollution control in the Mongolian government such as the Environment and Climate Fund utilizes the Outputs of the Projects and pilot projects implementation and assessment.	Measurement 2 (12) Clean Coal Technology for Air Pollution Control Measures (13) CEMS Data Analysis (14) Stationary Source Emission Control Measures (15) Air Quality Administration (16) Public Awareness and Public Relations 2. Training (1) Local seminars and workshops (2) Training course in Japan 3. Provision of necessary equipment 4. Local cost Necessary expenses for activity of JICA Experts
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5-1 DAAEP with Health Department of Capital City and the relevant agencies implements public awareness and advisory activities for citizens including school students and parents. 5-2 MET and DAAEP publish progress of the Project by newsletter, newspaper articles, web-site and other medias. 5-3 DAAEP and JICA Experts provide technical guidance to manufacturers for improved fuel production. 5-4 The relevant agencies with JICA Experts implement pilot projects according to the implementation plan by Activity 3-3. 5-5 The relevant agencies with JICA Experts evaluate pilot projects results in terms of emission reduction, air quality improvement and exposure to citizens, and extract lessons learned. 5-6 The relevant agencies with JICA Experts report the pilot projects results to NCEPR. 5-7 TPP3 and TPP4 analyze CEMS data, and examine viable air pollution control measures. 5-8 TPP3 and TPP4 with JICA Experts elaborate emission reduction plans. 6-1 The relevant agencies discuss and elaborate written agreements on demarcation of roles in air quality management related with each Output and Activity of the Project. 6-2 DAAEP with JICA Experts submits technical documents to NCEPR for improved fuel standard, emission standard on stationary sources, mobile sources and other emission sources, and revision of ordinance. 6-3 NCEPR and the relevant agencies elaborate fuel standard and emission standard, and submit them to MASM. 6-4 Relevant ministries / relevant agencies of UB city elaborate laws, regulations and ordinances on air pollution control measures, and submit them to national parliament / city council. 6-5 JICA Experts provide training on air pollution control measures and technical appraisal guidelines for staff of the sections of the relevant agencies in charge of allocating funds for air pollution control. 6-6 Staff of the sections of the relevant agencies in charge of allocating funds for air pollution control with JICA Experts improve relevant operations with allocating funds for air pollution control measures, if necessary. 6-7 Mongolian side enhances donor coordination in air pollution control. 6-8 Relevant agencies of pilot projects with JICA Experts develop an operational guideline for elaboration, implementation and evaluation of air pollution control measures based on pilot projects implementation.	Pre-conditions 1. Appropriate number of qualified staff of C/P and C/P-WG is assigned. 2. Adequate amount of budget related with the Project implementation is secured. 3. Necessary human resources mobilization related with pilot projects is secured by Mongolian side.
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*1 According to Mayoral Order A/1649 "Partial Measures Related to the Abolition of Inspection Agency of the Capital City" dated December 30, 2022, Audit Division was added to DAAEP.

*2 Since the Audit Division and the Air Quality Measurement and Operation Division of DAAEP do not perform simplified measurement, Activity 1-1-4 was terminated through December 30, 2022.

AQMS: Air Quality Monitoring Station
BAU: Business as Usual
CEMS: Continuous Emission Monitoring System
CFWH: Coal Fired Water Heater
C/P: Counterpart
C/P-WG: Counterpart Working Group
DAAEP: Department of Against Air and Environmental Pollution of Capital City
DPF: Diesel Particulate Filter
FRM: Federal Reference Method
HOB: Heat Only Boiler
IACC: Inspection Agency of the Capital City
MASM: Mongolian Agency for Standardization and Metrology
MET: Ministry of Environment and Tourism
MMHi: Ministry of Mining and Heavy Industry
MNS: Mongolian National Standard
MRPA: Mineral Resources and Petroleum Authority
MRTD: Ministry of Road and Transport Development
NAMEM: National Agency for Meteorology and Environment Monitoring
NCEPR: National Committee for Environment Pollution Reduction
NPREP: National Program on Reducing Environment Pollution
NRTC: National Road Transport Center
PTD: Public Transportation Department of the Capital City
PM: Particulate Matter
RSD: Remote Sensing Device
TCC: Traffic Control Center of the Capital City
TPP: Thermal Power Plant