JCM Verification Report Form

A. Summary of verification

A.1. General Information

Title of the project	"Installation of High-efficiency Heat only Boilers in 118th School of Ulaanbaatar City" Project
Reference number	MN001
Monitoring period	20/09/2016 - 26/12/2016
Date of completion of the monitoring report	12/06/2018
Third-party entity (TPE)	Low Carbon Technology Center, Mongolia
Project participant contracting the TPE	Suuri-Keikaku Co.,Ltd, Japan
Date of completion of this report	28/06/2018

A.2 Conclusion of verification and level of assurance

Overall verification opinion	☒ Positive ☐ Negative
☐ Unqualified opinion	Based on the process and procedure conducted, *Low Carbon Technology Center, Mongolia* (TPE's name) provides reasonable assurance that the emission reductions for *the project "Installation of High-efficiency Heat only Boilers in 118th School of Ulaanbaatar City"*, (project name) ✓ Are free of material errors and are a fair representation of the GHG data and information, and ✓ Are prepared in line with the related JCM rules, procedure, guidelines, forms and other relevant documents
(If overall verification opinion is negative, please check below and state its reasons.) ☐ Qualified Opinion ☐ Adverse opinion ☐ Disclaimer	<State the reasons> N/A

A.3. Overview of the verification results

Item	Verification requirements	No CAR or CL remaining
The project implementation with the eligibility criteria of the applied methodology	The TPE determines the conformity of the actual project and its operation with the eligibility criteria of the applied methodology.	☒
The project implementation against the registered PDD or any approved revised PDD	The TPE assesses the status of the actual project and its operation with the registered/validated PDD or any approved revised PDD.	☒
Calibration frequency and correction of measured values with related requirements	If monitoring Option C is selected, the TPE determines whether the measuring equipments have been properly calibrated in line with the monitoring plan and whether measured values are properly corrected, where necessary, to calculate emission reductions in line with the PDD and Monitoring Guidelines.	☒
Data and calculation of GHG emission reductions	The TPE assesses the data and calculations of GHG emission reductions achieved by/resulting from the project by the application of the selected approved methodology.	☒
Avoidance of double registration	The TPE determines whether the project is not registered under other international climate mitigation mechanisms.	☒
Post registration changes	The TPE determines whether there are post registration changes from the registered PDD and/or methodology which prevent the use of the applied methodology.	☒

Authorised signatory:		Mr. ☐ Ms. ☒
Last name: Myatraaz		First name: Natsagbadam
Title: Director	[redacted]	
Specimen signature:		Date: 28/06/2018

B. Verification team and other experts

	Name	Company	Function*	Scheme competence*	Technical competence*	On-site visit
Mr. ☐ Ms. ☒	M.Natsag-badam	LCTC	Team leader	☒	Sectoral scopes for verification: 1, 2, 3, 4, 6, 8, 13, 14	☒
Mr. ☒ Ms. ☐	P.Byamba-tsogt	LCTC	Team member	☒	Sectoral scopes for verification: 1, 2, 3	☒
Mr. ☒ Ms. ☐	S.Taivan	LCTC	Internal reviewer	☒	Sectoral scopes for verification: 1, 2, 3, 4, 6, 8, 13, 14	☐
Mr. ☐ Ms. ☐	N/A	N/A	N/A	☐	N/A	☐

Please specify the following for each item.

* *Function: Indicate the role of the personnel in the validation activity such as team leader, team member, technical expert, or internal reviewer.*

* *Scheme competence: Check the boxes if the personnel have sufficient knowledge on the JCM.*

* *Technical competence: Indicate if the personnel have sufficient technical competence related to the project under validation.*

C. Means of verification, findings and conclusions based on reporting requirements

C.1. Compliance of the project implementation and operation with the eligibility criteria of the applied methodology

<Means of verification>

The project has been registered as a JCM project on 30 June, 2015, with applying the approved methodology MN_AM002 “Replacement and Installation of High-Efficient Heat only Boilers for Hot Water Supply Systems” under the scheme of Joint Crediting Mechanism between Mongolia and Japan.

Project was implemented by Suuri Keikaku Co.,Ltd as the Japanese side and Anu Service Co.,Ltd as the Mongolian side. New high-efficiency Heat only Boilers of "CARBOROBOT" type were installed and commissioned as result of Project implementation and the project operation has started in 1st October 2014.

The Verification team has verfied whether the project implementation and operation after the starting date of project operation is complying with the eligibility criteria of the applied

methodology during the monitoring period, through the Document review and Follow up actions (on site visit assessment) with Evidences: Ref.#01, Ref.#02, Ref.09. The document review was conducted on 19 June 2018, the on-site assessment conducted on 20 June 2018.

The eligibility criterions specified in approved methodology are as below:

Criterion 1; Technology to be emp loyed in this methodology is coal-fired heat only boiler(HOB) for hot water supply system.

Criterion 2; Capacity of the project HOB ranges from 0.10 MW to 1.00MW.

Criterion 3; The project activity involves the installation of new HOB and/or the replacement of the existing coal-fired HOB.

Criterion 4; The project HOB is equipped with an operation and maintenance manual.

Criterion 5; The catalog value of the boiler efficiency for the project HOB is 80% or higher.

Criterion 6; The project HOB has the function to feed coal on the stoker uniformly and is equipped with a dust collector

The assessment results regarding the eligibility criteria are summarized as below:

1. The HOB CARBOROBOT C300, which installed and operated at the project site, are coal-fired heat only boilers for hot water supply system, it complied with Criterion #1 of the Applied methodology,

2. Capacity of the HOB is 300kW, it complied with Criterion #2,

3. As a result of project implementation, two new HOB's were installed, it complied with Criterion #3,

4. The operation and maintenance manual in Mongolian has provided by Suuri - Keikaku Co.,Ltd, it complied with Criterion #4,

5. Catalog value of Boiler Efficiency of the project HOB is 85-90%, which complied with Criterion # 5,

6. The project HOB has the function to feed coal on the stoker uniformly and is equipped with dust collector, which complied with Criterion # 6 of the Applied methodology.

Verification team determined that the project HOBs with above mentioned features are in place and are operating for heating supply up to date, through the On-site assessment.

<Findings>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.

No outstanding issues was raised to the requirement

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The Verification team confirmed fully compliance of the project impllementation and operation with the Eligibility criteria of the applied methodology - "Replacement and Installation of High-Efficient Heat only Boiler for Hot Water Supply Systems (MN_AM002)", approved in 28 Jan 2015, under the scheme of JCM between Mongolia and Japan.

C.2. Assessment of the project implementation against the registered PDD or any approved revised PDD

<Means of verification>

Verification team assessed whether the project implementation was complied with the registered PDD or any approved, revised PDD through Document review on registered PDD and Follow-up actions (on-site visit and interviews) with the Evidences: Ref.02, Ref.03, Ref.07, Ref.08, Ref.09, Ref.14, Ref.15, Ref.20, Ref.21, Ref.23, Ref.24

1. Physical features of the project was checked through the on-site visit on 20 June 2018 and two HOBs of CARBOROBOT C300 type, with serial number of 2014/580 and 2014/585 were in place as per registered PDD. The School #118 and Kindergarten # 209 have been supplied with a heat energy produced by the project HOBs, continuously, since October 2014.

2. The monitoring was based on the actual measurement using measuring equipment (Monitoring Option C), was performed, according to the registered PDD.

3. Measuring equipment of the parameter to be monitored, is the Heatmeter, The Heatmeter consists from 1 flow sensor, 2 temperature sensors, calculation unit with display and datalogger according to the registered PDD. Verification team confirmed the existence of two Heat meters Multical- 602C type, with serial numbers of 69710720 and 69710721, which were installed at the monitoring points as per the registered PDD and the Monitoring plan sheet.

4. Parameters monitored ex-post are the net heat quantity supplied by the project HOB during the monitoring period - PHp and total hours of project HOB operation during the monitoring period-HMPp. Verification team determined that the measuring of the heat quantity was continuously done by the heatmeter, recording of measured values (data) were 4 times per hour in the datalogger. The data input in the computer's database was daily. Total hours of project HOB operation was identified by the monitoring period. Thus the measurement's method and procedure were performed appropriately in line with the registered PDD.

4. Monitoring Structure of Project participants was identified through the interview with the Project Manager, with officers of Anu Service Co.,Ltd and review on MoC submitted to the TPE by the Project participant on 20 June 2018. The monitoring structure is as below:

1) Mr. Tabata Toru - Project Manager
2) Mr. Kuwahara Fumihiko - Project Manager
3) Mr. T.Narankhuu - Senior engineer
4) Mrs. D.Gantsetseg - Civil engineer and QA/QC team officer

<Findings>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.

No outstanding issues was raised to the registered PDD

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.
Verification team confirmed that, the Project implementation was in accordance with the registered PDD during the monitoring period, and no change was found from the registered PDD.

C.3. Compliance of calibration frequency and correction of measured values with related requirements

<Means of verification>

The Verifiers assessed whether the calibration frequency and correction of measured values comply with the related requirements through Document review and Follow-up actions (on-site visit and interviews) with Evidences: Ref.05, Ref.11, Ref.12, Ref.13, Ref.17, Ref.18 and Ref.19.

1. The parameters were measured by the Heatmeter, Multical-602 C. Verification team determined that the Heat meters were calibrated on 24 February 2015 by the Kamstrup A/S laboratory of Denmark. The validity period of this verification is the February of 2019 according to the "List of measuring instruments subject compulsory metrological control" (Order #A/384 of Chairman of the Mongolian Agency for Standardization and Metrology, 2014), and "Letter of the MASM for recognition of producer's initial calibration of the heat meter Multical 602C". The Heatmeter's installation has verified and sealed by the Ulaanbaatar District Heating Network Company's inspector, as required by the related standard of Mongolia,
2. The verification team assessed the measured values in the database of the Project participant (Anu Service Co., Ltd) and determined that the set of measured data were within acceptable range including Heat energy, flow rate, hot water temperatures in the pipes and comfirmed absense of missed data values during the monitoring period, thus the correction of measured values was not required.

<Findings>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.
No issues was raised.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.
The verification team confirms compliance of the calibration frequency of the monitoring equipment with related requirements of Law and Standards of Mongolia. The Verifier confirms no additional requirement for the correction of measured values.

C.4. Assessment of data and calculation of GHG emission reductions

<Means of verification>

The verification team assessed data and calculation of GHG emission reductions through

Document review and Follow-up actions (on-site visit and interviews) with Evidences: Ref.01, Ref.04, Ref.05, Ref.14, Ref.15, Ref.18, Ref.20, Ref.21, Ref.22, Ref.23

1. Monitoring period

The verification team determined the monitoring period of the second half of 2016 heating season was from 20 September 2016 till the 03 January 2017.

2. Data assessment

The total heat quantity produced by project HOB is measured in every 15 minutes and recorded in the data logger built in the heat meter. Actually this value is the sum of value of current measurement and the values of previous measurements, thus the Data logger calculates and records the total heat quantity produced by the HOB from the start of monitoring to the moment of particular measurement. Then the data is transferred to the database of the computer of the Project Participant.

The data was checked through review of the database of the PP (Anu Service Co.,Ltd), Log book (Journal) of HOB. Measured and recorded parameters in the datalogger of Heat meter are: Meter Number, Readout date & time, Heat energy quantity (GJ),Volume of water, Hour counter (hrs), Current flow temperature, Current return temperature, Comsumed power (MW), Current flow rate (m3/h). The Datalogger's display shows measured values, which can be observed by the Fireman and other responsible officers. Direct transmission of data from data logger of the Heat meter to the office of Anu Service Co., Ltd., through the internet was available during whole monitoring period. The received data were exported into Excel sheet in the database of PP (Anu Service Co.,Ltd were stored, set of 24 hrs data has been transferred to the office of Suuri Keikaku Co.,Ltd in Tokyo, daily.

The verification team determined that the measuring and data recording of the monitored parameters was continuous, without interrupt due to the heat meter's data logger with a battery and no data missing and no abnormal values was found,

3. Calculation of GHG Emission Reductions

The verification team verified the corresponding Monitoring Report sheet and calculation formulas of the GHG emission reductions of the applied methodology and determined that, they were used without modification and alteration for the calculation of GHG ER. The ex-ante parameters used in the calculation were correct, without any errors, omissions and misrepresentations.

Ex-ante parameters used for calculation are:

RPC p=1.2 kW-Rated power consumption of the project HOB,

EF CO2, grid =1.1030 tCO2/MWh (CO2 emission factor of the Grid electricity consumed by project HOB)

Default values used for calculation are:

EF CO2, coal = 0.0909 tCO/GJ (CO2 Emission factor of coal used in HOB),

η = 0.533 - (Boiler-efficiency of Reference HOB)

η = 0.610 - (Boiler-efficiency of Project HOB)

4. Verified amount of ER

The verified amount of Emission reductions achieved during the monitoring period is:

23 tons of CO2 for the period from 20 September 2016 till 26 December 2016, it is the ERs for the Second half of 2016,

5. Monitored values provided in the Monitoring report has been checked as listed below:

Parameters	Monitored values	Method to check values in the monitoring report with sources
PHp	1.426 GJ	1. Assessment of the measured values in the database of Project Participants, 2. Comparison the value in the display of Heat meter's installed in the main outgoing hot water pipe with the sum of values indicated in the Heat meter's displays of two separate HOBs, 3. Assessment of information of the "Logbook of HOB" and interview with the related persons and consumers.
HMPp	4.672 hrs	1. Assessment of the measured values in the database of the Project Participants , 2. Assessment of information of the Heating supply contracts, "Logbook of HOB" and interview with the related persons and consumer's representative about HOB operation.
N/A	N/A	N/A

<Findings>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.

No issues were raised.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The Verification team confirmed the fair representation of reported values and calculation of GHG emission reductions in the monitoring report and has no material errors.

C.5. Assessment of avoidance of double registration

<Means of verification>

The verification team checked whether the JCM project has not been registered under other international climate mitigation mechanisms through document review and website review, with Evidence: Ref.16,

Project participant was submitted the declaration letter for avoidance of double registration of the project in other international climate mitigation mechanisms in the Modalities of Communication Statement, to the Join Committee at the validation stage and another written confirmation to the TPE at verification stage. Verification team cross-checked it through the review on websites of Clean Development Mechanism (CDM), Verified Carbon Standard Association (VCSA) and Gold Standard Foundation (GSF) and determined that no project with similar technology had registered in an international climate mitigation mechanisms, from Mongolia.

<Findings>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.

No issues were raised.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

Verification team confirmed that the project had not registered under other international climate mitigation mechanisms.

C.6. Post registration changes

<Means of verification>

Verifiers assessed whether the Project has been changed from the registered PDD through Document review and Follow-up action (on-site visit and interviews) with Evidence: Ref.02 and Ref.17 and Ref.24,

Verification team idenfied that the Project has not changed after it's registration through the review on PDD, written confirmation of the PP and on site assessment

<Findings>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.

No issues were raised.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

Verification team confirmed that the project has not changed from the registered PDD and Methodology.

D. Assessment of response to remaining issues

An assessment of response to the remaining issues including FARs from the validation and/or

previous verification period, if appropriate

No FAR was raised during the previous verification of the project.

E. Verified amount of emission reductions achieved

Year	Verified Reference Emissions (tCO_2e)	Verified Project Emissions (tCO_2e)	Verified Emission Reductions (tCO_2e)
2013			
2014			
2015			
2016	243	220	23
2017			
2018			
2019			
2020			
2021			
2022			
2023			
2024			
2025			
2026			
2027			
2028			
2029			
2030			
Total (tCO_2e)			23

F. List of interviewees and documents received

F.1. List of interviewees

1. Kuwahara Fumihiko, Project Manager , Suuri Keikaku Co.,Ltd , Japan, interviewed on 19 June 2018,
2. Ts. Munkhtor, Director of School #118, Ulaanbaatar city, Interviewed in 20 June 2018,
3. D.Bideriya, HOB"s Guard, Anu Service Co.,Ltd, interviewed in 20 June 2018,
4. D.Gantsetseg, Civil Engineer, Anu Service Co., Ltd, interviewed in 19 June 2018,

F.2. List of documents received

Reference documents:

1. JCM Approved Methodology MN_AM002 "Replacement and Installation of High-Efficiency Heat only Boilers for Hot Water Supply Systems"
2. PDD version 02.0, 19/06/2015"Installation of High-efficiency Heat only Boilers in 118th School of Ulaanbaatar City
3. JCM Validation Report, dated 29th June, 2015
4. Monitoring Report Sheet "JCM_MN_AM002_ver01.0_MN001_118th school YR2016 First Half
5. Monitoring Report Sheet "JCM_MN_AM002_ver01.0_MN001_YR2016 Second Half
6. HOB- Operation and Maintenance Manual [Confidential]
7. Heating supply contract,118th School of Ulaanbaatar city, 2016_2017 and 2017_2018
8. Heating supply contract, 209th Kindergarten of Khan Uul District, Ulaanbaatar city, for the YR 2016_2017 and YR2017_2018
9. Technical specification of HOB CARBOROBOT 300C
10. JCM_MN_F_MoC_SUR_118th School, 20/06/2018
11. Calibration Certificate of Heat meter -Multical 602C, 24/02/2015
12. Measuring instruments subject compulsory metrological control, Order # A/384, by Chairman of MASM
13. Letter of the MASM for recognition of producer's initial calibration of the Heat meter Multical 602C
14. Logbook of Consumer's opinion
15. Logbook of HOB
16. Confirmation letter for avoidance of double registration of the project, 2018
17. Confirmation letter for non post registration changes of the project, 2018
18. Monthly data sheet of YR 2016-2018
19. Report for inspection of the Heat meter's installation

Minutes of interviews,

20. Minute of interview with F.Kuwahara, Project Manager, Suuri-Keikaku Co.,Ltd
21. Minute of interview with Ts. Munkhtor, Director of 118th school, Ulaanbaatar
22. Minute of interview with D. Bideriya, Fireman of 118th HOB, Anu Service Co.,Ltd
23. Minute of interview with D.Gantsetseg, Civil Engineer of Anu Service Co., Ltd
24. Report of On-site assessment at the HOB, 20180620
25. Report of Desk review, 20180619

Annex Certificates or curricula vitae of TPE's verification team members, technical experts and internal technical reviewers

Please attach certificates or curricula vitae of TPE's validation team members, technical experts and internal technical reviewers.

Certificate of Appointment and CVs of Verification team members are attached to this report.

CERTIFICATE OF APPOINTMENT

Title of Project: Installation of High Efficiency Heat only Boilers in 118th School of Ulaanbaatar City

We hereby certify that the following personnel have engaged in the verification process that has fully satisfied the competence requirements of the verification of the JCM project.

Name of person:	**Assigned Roles:**
Ms. Natsagbadam Myatraaz	Team Leader
Mr. Byambatsogt Pashka	Team Member
Mr. Taivan Sukhee	Technical Reviewer

Date: June 19, 2018, Ulaanbaatar, Mongolia

[redacted]

NATSAGBADAM Myatraaz,
Director, Low Carbon Technology Center

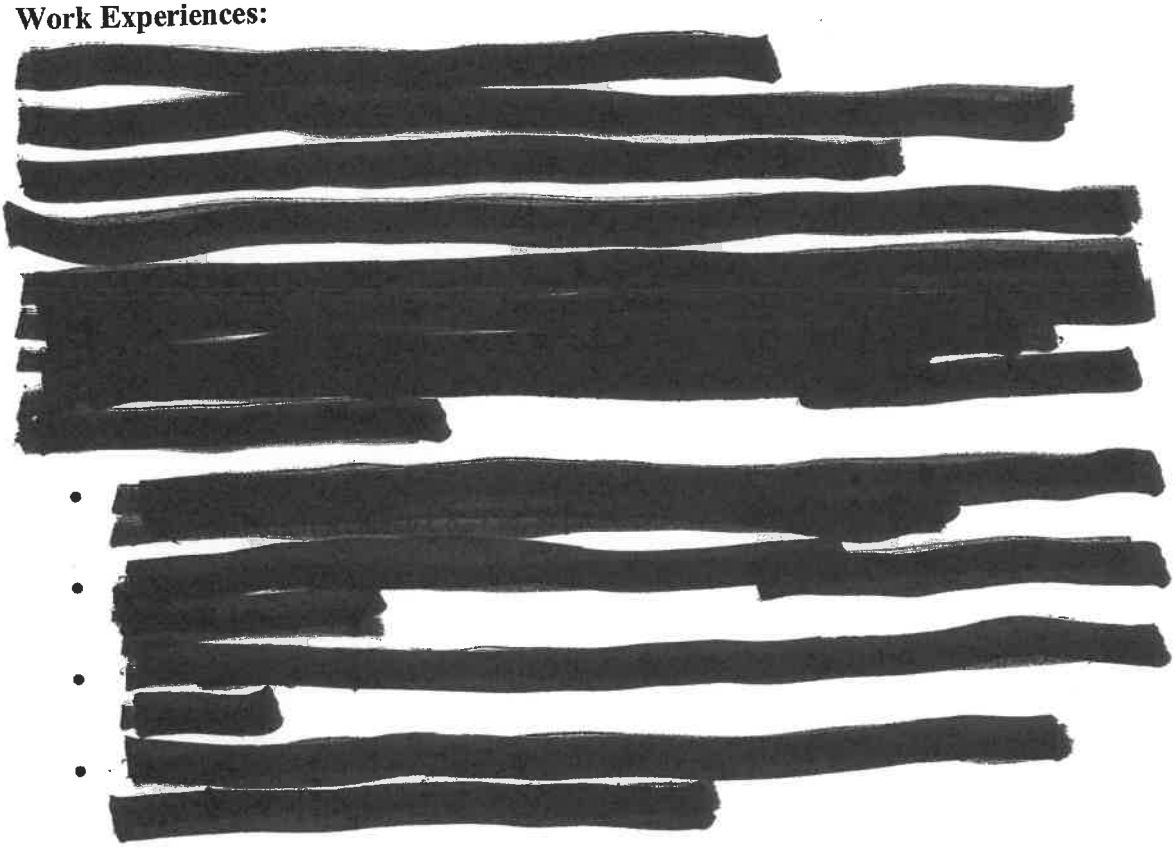
CURRICULA VITAE OF THE VERIFICATION TEAM MEMBERS

"Confidential".

1. Myatraaz NATSAGBADAM

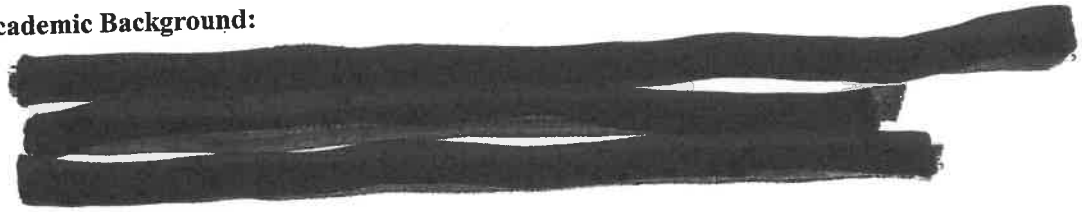
Academic Background:

Work Experiences:

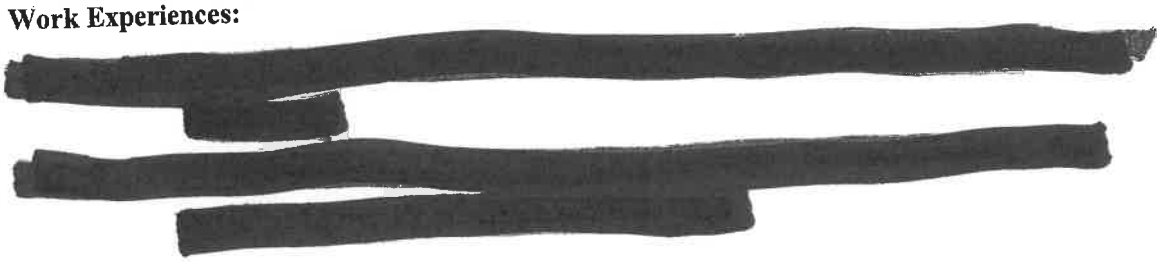


2. Byambatsogt PASHKA

Academic Background:



Work Experiences:



[redacted]

Project experience

[redacted]

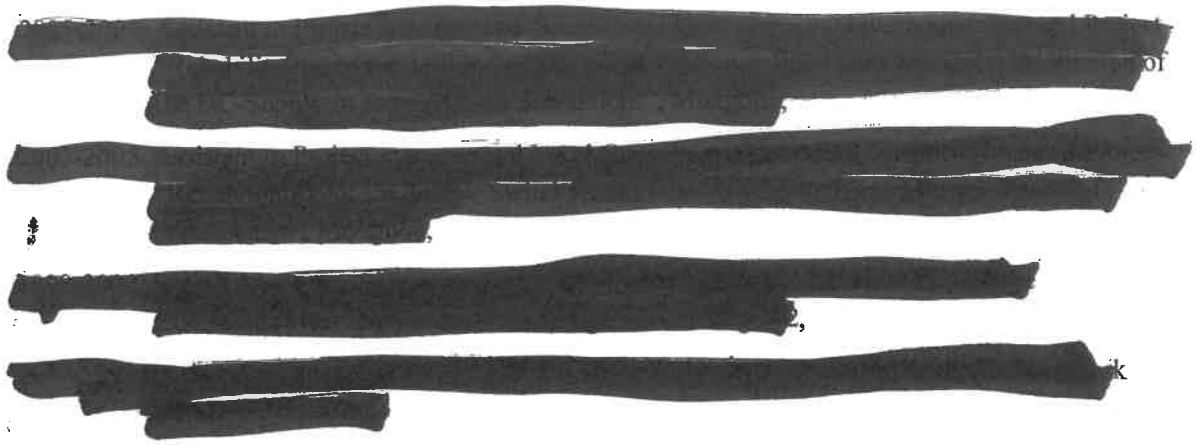
3. Sukhee TAIVAN

Academic Background:

[redacted]

Work Experiences:

[redacted]



JCM Verification Report Form

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Reference number	MN001
Monitoring period	03/01/2017 - 30/12/2017
Date of completion of the monitoring report	12/06/2018
Third-party entity (TPE)	Low Carbon Technology Center, Mongolia
Project participant contracting the TPE	Suuri-Keikaku Co.,Ltd, Japan
Date of completion of this report	28/06/2018

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Overall verification opinion	☒ Positive ☐ Negative
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Authorised signatory:	Mr. ☐ Ms. ☒
Last name: Myatraaz	First name: Natsagbadam
Title: Director	
Specimen signature: [redacted]	Date: 28/06/2018

B. Verification team and other experts

	Name	Company	Function*	Scheme competence*	Technical competence*	On-site visit
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Mr. ☒ Ms. ☐	S.Taivan	LCTC	Internal reviewer	☒	Sectoral scopes for verification: 1, 2, 3, 4, 6, 8, 13, 14	☐
Mr. ☐ Ms. ☐	N/A	N/A	N/A	☐	N/A	☐

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C.1. Compliance of the project implementation and operation with the eligibility criteria of the applied methodology

<Means of verification>

The project has been registered as a JCM project on 30 June, 2015, with applying the approved methodology MN_AM002 “Replacement and Installation of High-Efficient Heat Only Boilers for Hot Water Supply Systems” under the scheme of Joint Crediting Mechanism between Mongolia and Japan.

Project was implemented by Suuri Keikaku Co.,Ltd as the Japanese side and Anu Service Co.,Ltd as the Mongolian side. New high-efficiency Heat Only Boilers CARBOROBOTs were installed and commissioned as result of Project implementation and the project operation has started in 1st October 2014.

The Verification team has verfied whether the project implementation and operation after the starting date of project operation is complying with the eligibility criteria of the applied

methodology during the monitoring period, through the Document review and Follow up actions (on-site visit assessment) with Evidences: Ref.01, Ref.02, Ref.09, Ref.24. The document review was conducted on 19 June 2018, the on-site assessment conducted on 20 June 2018.

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Criterion 4; The project HOB is equipped with an operation and maintenance manual.

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3. As a result of project implementation, two new HOB's were installed, it complied with Criterion #3,

4. The operation and maintenance manual in Mongolian has provided by Suuri- Keikaku Co.,Ltd, it complied with Criterion #4,

5. Catalog value of Boiler Efficiency of the project HOB is 85-90%, which complied with Criterion # 5,

6. The project HOB has the function to feed coal on the stoker uniformly and is equipped with dust collector, which complied with Criterion # 6 of the Applied methodology.

Verification team determined that the project HOBs with above mentioned features are in place and are operating for heating supply, up to date, through the on-site assessment.

<Findings>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.

No outstanding issues was raised to the requirement

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The Verification team confirmed fully compliance of the project impllementation and operation with the Eligibility criteria of the Applied methodology - "Replacement and Installation of High-efficiency Heat only Boiler for Hot Water Supply Systems" (MN_AM002),

approved in 28 Jan 2015, under the scheme of JCM between Mongolia and Japan

C.2. Assessment of the project implementation against the registered PDD or any approved revised PDD

<Means of verification>

Verification team assessed whether the project implementation was complied with the registered PDD or any approved, revised PDD through Document review on registered PDD and Follow-up actions (on-site visit and interviews) with the Evidences: Ref.02, Ref.03, Ref.07, Ref.08, Ref.09, Ref.16, Ref.20, Ref.21, Ref.22, Ref.23 and Ref.24,

1. Physical features of the project was checked through the on-site visit on 20 June 2018 and two HOBs of CARBOROBOT C300 type, with serial number of 2014/580 and 2014/585 were in place as per registered PDD. The School #118 and Kindergarten # 209 have been supplied with a heat energy produced by the project HOBs, continuously, since October 2014.
2. The monitoring was based on the actual measurement using measuring equipment (Monitoring Option C), was performed, according to the registered PDD.
3. Measuring equipment of the parameter to be monitored, is the Heatmeter, The Heatmeter consists from 1 flow sensor, 2 temperature sensors, calculation unit with display and datalogger according to the registered PDD. Verification team confirmed the existence of two Heat meters Multical- 602C type, with serial numbers of 69710720 and 69710721, which were installed at the monitoring points as per the registered PDD and the Monitoring plan sheet.
4. Parameters monitored ex-post are the net heat quantity supplied by the project HOB during the monitoring period - PHp and total hours of project HOB operation during the monitoring period-HMPp. Verification team determined that the measuring of the heat quantity was continuously done by the heatmeter, recording of measured values (data) were 4 times per hour in the datalogger. The data input in the computer's database was daily.Total hours of project HOB operation was identified by the monitoring period. Thus the measurement's method and procedure were performed appropriately in line with the registered PDD.
4. Monitoring Structure of Project participants was identified through an interview with the Project Manager, with officers of Anu Service Co.Ltd and review on MoC submitted to the TPE on 20 June 2018. The monitoring structure is as below:

1) Mr. Tabata Toru- Project Manager
2) Mr. Kuwahara Fumihiko - Project Manager
3) Mr. T.Narankhuu- Senior engineer
4) Mrs. D.Gantsetseg-Civil engineer and QA/QC team officer

<Findings>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.

No outstanding issues was raised to the registered PDD

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

Verification team confirmed that, the Project implementation was in accordance with the registered PDD during the monitoring period, and no change was found from the registered PDD.

C.3. Compliance of calibration frequency and correction of measured values with related requirements

<Means of verification>

The Verifiers assessed whether the calibration frequency and correction of measured values comply with the related requirements through Document review and Follow-up actions (on-site visit and interviews) with Evidences: Ref.05, Ref.11, Ref.12, Ref.13, Ref.17, Ref.18 and Ref.19.

1. The parameters were measured by the Heatmeter, Multical-602 C. Verification team determined that the Heat meters were calibrated on 24 February 2015 by the Kamstrup A/S laboratory of Denmark. The validity period of this verification is the February of 2019 according to the "List of measuring instruments subject compulsory metrological control" (Order #A/384 of Chairman of the Mongolian Agency for Standardization and Metrology, 2014), and "Letter of the MASM about recognition of producer's initial calibration of the heat meter Multical 602C". The Heatmeter's installation has verified and sealed by the Ulaanbaatar Heating Network Company's inspector.

2. The verification team assessed the measured values in the database of the Project Participant (Anu Service Co., Ltd) and determined that the set of measured data were within acceptable range including Heat energy, flow rate, hot water temperatures in the pipes and comfirmed absense of missed data values during the monitoring period, thus the correction of measured values was not required.

<Findings>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.

No issues was raised.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The Verification team confirms compliance of the calibration frequency of the monitoring equipment with related requirements of Law and Standards of Mongolia. The Verifier confirms no additional requirement for the correction of measured values.

C.4. Assessment of data and calculation of GHG emission reductions

<Means of verification>

The verification team assessed data and calculation of GHG emission reductions through Document review and Follow-up actions (on-site visit and interviews) with Evidences: Ref.01, Ref.04, Ref.05, Ref.14.2, Ref.17, Ref.20, Ref.23 and Ref.25

1. Monitoring period

The Verification team determined the monitoring period of the 2017 was from 03 January 2017 till the 01 January 2018.

2. Data assessment

The total heat quantity produced by project HOB is measured in every 15 minutes and recorded in the data logger built in the heat meter. Actually this value is the sum of value of current measurement and the values of previous measurements, thus the Data logger calculates and records the total heat quantity produced by the HOB from the start of monitoring to the moment of particular measurement. Then the data is transferred to the database of the computer of Project Participant.

The data was checked through review of database of the PP (Anu Service Co.,Ltd), Journal of HOB. Measured and recorded parameters in the datalogger of Heat meter are: Meter Number, Readout date & time, Heat energy quantity (GJ),Volume of water, Hour counter (hrs), Current flow temperature, Current return temperature, Comsumed power (MW), Current flow rate (m3/h). Direct transmission of data from the data logger of the Heat meter to the office of PP through the internet was available during whole monitoring period. The received data were exported into Excel sheet in the database of PC of the Anu Service Co.,Ltd, were stored, set of 24 hrs data has been transferred to the office of Suuri Keikaku Co.,Ltd in Tokyo, daily.

The verification team determined that the measuring of parameters and data recording in the heat meter's datalogger was continuous, without interrupt and no data missing and no abnormal values was found.

3. Calculation of GHG Emission Reductions

The verification team verified the corresponding Monitoring Report sheet and calculation formulas of GHG emission reductions of the applied methodology and determined that, they were used without modification and alteration for the calculation of GHG ER. The ex-ante parameters used in the calculation were correct, without any errors, omissions and misrepresentations.

Ex-ante parameters used for calculation are:

RPC p=1.2 kW-Rated power consumption of the project HOB,

EF CO2, grid =1.1030 tCO2/MWh (CO2 emission factor of the Grid electricity consumed by project HOB)

Default values used for calculation are:

EF CO2, coal = 0.0909 tCO/GJ (CO2 Emission factor of coal used in HOB),

η = 0.533 (Boiler-efficiency of Reference HOB)

η = 0.610 (Boiler-efficiency of Project HOB)

4. Verified amount of ER

The verified amount of Emission reductions achieved during the monitoring period is:

59 tons of CO2 for the period from 03 January 2017 till 30 December 2017, it is the ERs for the 2017,

5. Monitored values provided in the Monitoring report has been checked as listed below:

Parameters	Monitored values	Method to check values in the monitoring report with sources
PHp	3.534 GJ	1. Assessment of the measured values in the database of Anu Service Co., Ltd and Monitoring Report sheet for the YR 2016 2. Assessment of information of the Logbook of HOB and interview with the related persons and consumers.
HMPp	11.410 hrs	1. Assessment of the measured values in the database of Anu Service Co., Ltd, 2. Assessment of information of the Heating supply contracts, Logbook of HOB and interview with the related persons and consumer's representative, about HOB operation.
N/A	N/A	N/A

<Findings>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.

No issues were raised.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The Verification team confirmed the fair representation of reported values of GHG emission reductions in the monitoring report and has no material errors.

C.5. Assessment of avoidance of double registration

<Means of verification>

The verification team checked whether the JCM project has not been registered under other international climate mitigation mechanisms through document review and website review, with Evidence: Ref.15,

Project participant was submitted the declaration letter for avoidance of double registration of the project in other international climate mitigation mechanisms in the Modalities of

Communication Statement, to the Join Committee at the validation stage and another written confirmation to the TPE at verification stage and Verification team cross-checked it through the review on websites of Clean Development Mechanism (CDM), Verified Carbon Standard Association (VCSA) and Gold Standard Foundation (GSF) and determined that no project with similar technology had registered in an international climate mitigation mechanisms, from Mongolia.

<Findings>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.

CAR 01- Project participant was requested to submit, up to date Written confirmation for avoidance of double registration of the project in other international climate mitigation mechanisms.

CAR 01 was closed up, bacause Anu Service Co.,Ltd has submitted the requested Confirmation Letter, with Ref.15.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

Verification team confirmed that the project had not registered under other international climate mitigation mechanisms.

C.6. Post registration changes

<Means of verification>

Verifiers assessed whether the Project has been changed from the registered PDD through Document review and Follow-up action (on-site visit and interviews) with Evidence: Ref.02, Ref.16 and Ref.24,

Verification team idenfied that the Project has not changed after it's registration through the review on PDD, written confirmation of the PP and on site assessment

<Findings>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.

CAR 02- Project participant was requested to submit, up to date Written confirmation for that the project has not changed from the registered PDD.

CAR 02 was closed up, bacause Anu Service Co.,Ltd has submitted the requested Confirmation Letter, with Ref.16.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

Verification team confirmed that the project has not changed from the registered PDD and Applied Methodology.

D. Assessment of response to remaining issues

An assessment of response to the remaining issues including FARs from the validation and/or previous verification period, if appropriate

No FAR was raised during the previous verification of the project.

E. Verified amount of emission reductions achieved

Year	Verified Reference Emissions (tCO_2e)	Verified Project Emissions (tCO_2e)	Verified Emission Reductions (tCO_2e)
2013			
2014			
2015			
2016			
2017	602	543	59
2018			
2019			
2020			
2021			
2022			
2023			
2024			
2025			
2026			
2027			
2028			
2029			
2030			
Total (tCO_2e)			59

F. List of interviewees and documents received

F.1. List of interviewees

1. Kuwahara Fumihiko, Job Manager of the Project, Suuri Keikaku Co.,Ltd , Japan, interviewed on 19 June 2018,
2. Ts. Munkhtor, Director of School #118, Ulaanbaatar city, Interviewed in June 20, 2018,
3. D.Bideriya, HOB"s Guard, Anu Service Co.,Ltd, interviewed in 20 June 2018,
4. D.Gantsetseg, Engineer, Anu Service Co., Ltd, interviewed in 19 June 2018,

F.2. List of documents received

Reference documents:

1. JCM Approved Methodology MN_AM002 "Replacement and Installation of High-Efficiency Heat only Boilers for Hot Water Supply Systems"
2. PDD version 02.0, MN001"Installation of High-efficiency Heat only Boilers in 118th School of Ulaanbaatar City,27/06/2015
3. JCM Validation Report, dated 29th June, 2015
4. Monitoring Report Sheet "JCM_MN_AM002_ver01.0_MN001_118th school YR2016 Second Half
5. Monitoring Report Sheet "JCM_MN_AM002_ver01.0_MN001_YR2017
6. HOB- Operation and Maintenance Manual [Confidential]
7. Heating supply contract,118th School of Ulaanbaatar city, 2016_2017 and 2017_2018
8. Heating supply contract, 209th Kindergarten of Khan Uul District,Ulaanbaatar city, for the YR 2016_2017 and YR2017_2018
9. Technical specification of HOB CARBOROBOT 300C
10. JCM_MN_F_MoC_SUR_118th School, 20/06/2018
11. Calibration Certificate of Heat meter -Multical 602C, 24/02/2015
12. List of measuring instruments subject compulsory metrological control, Order # A/384, by Chairman of MASM
13. Letter of the MASM for recognition of producer's initial calibration of the Heat meter Multical 602C

14.1 Logbook of Consumer's opinion.

14.2 Logbook of HOB

15. Confirmation letter for avoidance of double registration of the project,
16. Confirmation letter for no post registration changes of the project,
17. Monthly data sheet of YR 2016-2018
18. Report for installation of Heat meters
19. Report for inspection of the Heat meter's installation

Minutes of interviews,

20. Minute of interview with F.Kuwahara, Project Manager, Suuri-Keikaku Co.,Ltd
21. Minute of interview with Ts. Munkhtor, Director of 118th school, Ulaanbaatar
22. Minute of interview with D. Bideriya, Fireman of 118th HOB, Anu Service Co.,Ltd
23. Minute of interview with D.Gantsetseg, Civil engineer, Anu Service Co., Ltd
24. Report of On-site assessment at HOB, 20180620
25. Report of Desk review, 20180619

Annex Certificates or curricula vitae of TPE's verification team members, technical experts and internal technical reviewers

Please attach certificates or curricula vitae of TPE's validation team members, technical experts and internal technical reviewers.

Certificate of Appointment and CVs of Verification team members are attached to this report.

CERTIFICATE OF APPOINTMENT

Title of Project: Installation of High Efficiency Heat only Boilers in 118th School of Ulaanbaatar City

We hereby certify that the following personnel have engaged in the verification process that has fully satisfied the competence requirements of the verification of the JCM project.

Name of person:	**Assigned Roles:**
Ms. Natsagbadam Myatraaz	Team Leader
Mr. Byambatsogt Pashka	Team Member
Mr. Taivan Sukhee	Technical Reviewer

Date: June 19, 2018, Ulaanbaatar, Mongolia

[redacted]

NATSAGBADAM Myatraaz,
Director, Low Carbon Technology Center

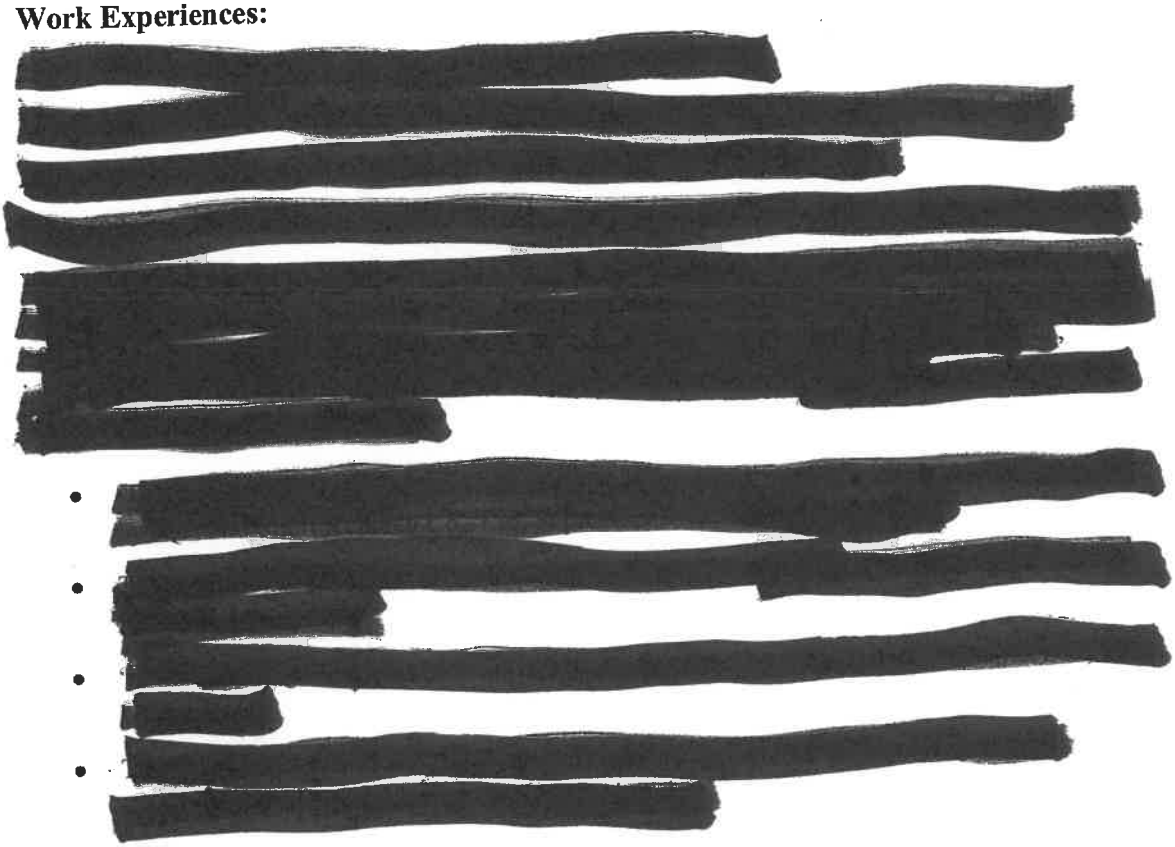
CURRICULA VITAE OF THE VERIFICATION TEAM MEMBERS

"Confidential".

1. Myatraaz NATSAGBADAM

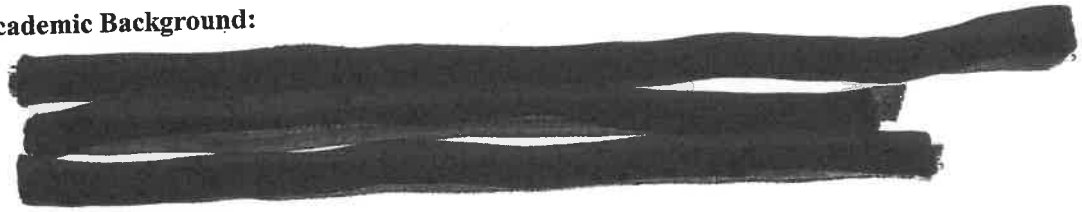
Academic Background:

Work Experiences:

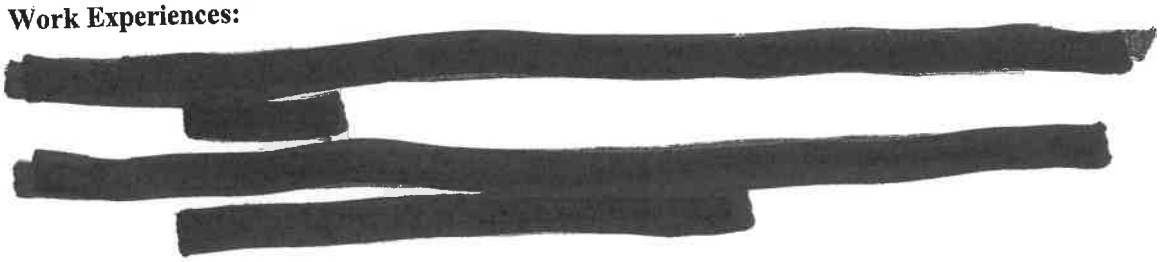


2. Byambatsogt PASHKA

Academic Background:



Work Experiences:



[redacted]

Project experience

[redacted]

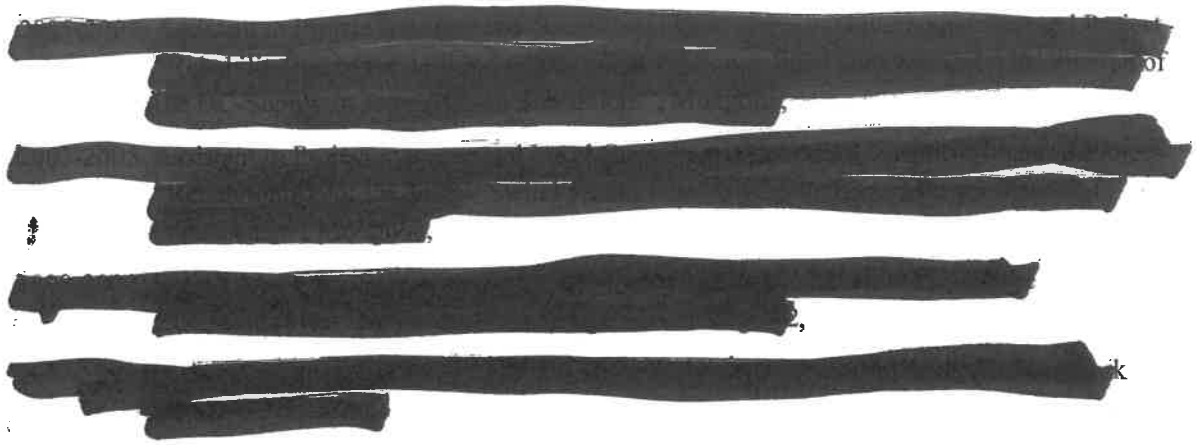
3. Sukhee TAIVAN

Academic Background:

[redacted]

Work Experiences:

[redacted]



JCM Verification Report Form

A. Summary of verification

A.1. General Information

Title of the project	Installation of High-efficiency Heat only Boilers in 118th School of Ulaanbaatar City Project
Reference number	MN001
Monitoring period	01/01/2018 - 15/05/2018
Date of completion of the monitoring report	12/06/2018
Third-party entity (TPE)	Low Carbon Technology Center, Mongolia
Project participant contracting the TPE	Suuri-Keikaku Co.,Ltd, Japan
Date of completion of this report	28/06/2018

A.2 Conclusion of verification and level of assurance

Overall verification opinion	☒ Positive ☐ Negative
☐ Unqualified opinion	Based on the process and procedure conducted, *Low Carbon Technology Center, Mongolia* (TPE's name) provides reasonable assurance that the emission reductions for *the project "Installation of High-efficiency Heat only Boilers in 118th School of Ulaanbaatar City"*, (project name) ✓ Are free of material errors and are a fair representation of the GHG data and information, and ✓ Are prepared in line with the related JCM rules, procedure, guidelines, forms and other relevant documents
(If overall verification opinion is negative, please check below and state its reasons.) ☐ Qualified Opinion ☐ Adverse opinion ☐ Disclaimer	<State the reasons> N/A

A.3. Overview of the verification results

Item	Verification requirements	No CAR or CL remaining
The project implementation with the eligibility criteria of the applied methodology	The TPE determines the conformity of the actual project and its operation with the eligibility criteria of the applied methodology.	☒
The project implementation against the registered PDD or any approved revised PDD	The TPE assesses the status of the actual project and its operation with the registered/validated PDD or any approved revised PDD.	☒
Calibration frequency and correction of measured values with related requirements	If monitoring Option C is selected, the TPE determines whether the measuring equipments have been properly calibrated in line with the monitoring plan and whether measured values are properly corrected, where necessary, to calculate emission reductions in line with the PDD and Monitoring Guidelines.	☒
Data and calculation of GHG emission reductions	The TPE assesses the data and calculations of GHG emission reductions achieved by/resulting from the project by the application of the selected approved methodology.	☒
Avoidance of double registration	The TPE determines whether the project is not registered under other international climate mitigation mechanisms.	☒
Post registration changes	The TPE determines whether there are post registration changes from the registered PDD and/or methodology which prevent the use of the applied methodology.	☒

Authorised signatory:	Mr. ☐ Ms. ☒
Last name: Myatraaz	First name: Natsagbadam
Title: Director	
Specimen signature: [redacted]	Date: 28/06/2018

B. Verification team and other experts

	Name	Company	Function*	Scheme competence*	Technical competence*	On-site visit
Mr. ☐ Ms. ☒	M.Natsag-badam	LCTC	Team leader	☒	Sectoral scopes for verification: 1, 2, 3, 4, 6, 8, 13, 14	☒
Mr. ☒ Ms. ☐	P.Byamba-tsogt	LCTC	Team member	☒	Sectoral scopes for verification: 1, 2, 3	☒
Mr. ☒ Ms. ☐	S.Taivan	LCTC	Internal reviewer	☒	Sectoral scopes for verification: 1, 2, 3, 4, 6, 8, 13, 14	☐
Mr. ☐ Ms. ☐	N/A	N/A	N/A	☐	N/A	☐

Please specify the following for each item.

* *Function: Indicate the role of the personnel in the validation activity such as team leader, team member, technical expert, or internal reviewer.*

* *Scheme competence: Check the boxes if the personnel have sufficient knowledge on the JCM.*

* *Technical competence: Indicate if the personnel have sufficient technical competence related to the project under validation.*

C. Means of verification, findings and conclusions based on reporting requirements

C.1. Compliance of the project implementation and operation with the eligibility criteria of the applied methodology

<Means of verification>

The project has been registered as a JCM project on 30 June, 2015, with applying the approved methodology MN_AM002 “Replacement and Installation of High-Efficiency Heat only Boilers for Hot Water Supply Systems” under the scheme of Joint Crediting Mechanism between Mongolia and Japan.

Project was implemented by Suuri Keikaku Co.,Ltd as the Japanese side and Anu Service Co.,Ltd as the Mongolian side. New High-efficiency Heat only Boilers CARBOROBOTs were installed and commissioned as result of Project implementation and the project operation has started in 1st October 2014.

The Verification team has verfied whether the project implementation and operation after the starting date of project operation is complying with the eligibility criteria of the applied

methodology during the monitoring period, through the Document review and Follow up actions (on site visit assessment) with Evidences: Ref.#01, Ref.#02, Ref.09. The document review was conducted on 19June 2018, the on-site assessment conducted on 20 June 2018.

The eligibility criterions specified in approved methodology are as below:

Criterion 1; Technology to be emp loyed in this methodology is coal-fired heat only boiler(HOB) for hot water supply system.

Criterion 2; Capacity of the project HOB ranges from 0.10 MW to 1.00MW.

Criterion 3; The project activity involves the installation of new HOB and/or the replacement of the existing coal-fired HOB.

Criterion 4; The project HOB is equipped with an operation and maintenance manual.

Criterion 5; The catalog value of the boiler efficiency for the project HOB is 80% or higher.

Criterion 6;The project HOB has the function to feed coal on the stoker uniformly and is equipped with a dust collector

The assessment results regarding the eligibility criteria are summarized as below:

1. The HOB CARBOROBOT C300, which installed and operated at the project site, are coal-fired heat only boilers for hot water supply system, it complied with Criterion #1 of the Applied methodology,

2. Capacity of the HOB is 300kW, it complied with Criterion #2,

3. As a result of project implementation, two new HOB's were installed, it complied with Criterion #3,

4. The operation and maintenance manual in Mongolian has provided by Suuri- Keikaku Co.,Ltd, it complied with Criterion #4,

5. Catalog value of Boiler Efficiency of the project HOB is 85-90%, which complied with Criterion # 5,

6. The project HOB has the function to feed coal on the stoker uniformly and is equipped with dust collector, which complied with Criterion # 6 of the Applied methodology.

Verification team determined that the project HOBs with above mentioned features are in place and are operating for heating supply, up to date, through the on-site assessment.

<Findings>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.

No outstanding issues were raised to the requirement.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The Verification team confirmed fully compliance of the project impllementation and operation with the Eligibility criteria of the Applied methodology - "Replacement and Installation of high-efficiency Heat only Boilers for Hot Water Supply Systems" (MN_AM002), approved in 28 Jan 2015, under the scheme of JCM between Mongolia and Japan

C.2. Assessment of the project implementation against the registered PDD or any approved revised PDD

<Means of verification>

Verification team assessed whether the project implementation was complied with the registered PDD or any approved, revised PDD through Document review on registered PDD and Follow-up actions (on-site visit and interviews) with the Evidences: Ref.02, Ref.03, Ref.07, Ref.08, Ref.09, Ref.15, Ref.17, Ref.20, Ref.21, Ref.22, Ref 23 and Ref.24,

1. Physical features of the project was checked through the on-site visit on 20 June 2018 and two HOBs of CARBOROBOT C300 type, with serial number of 2014/580 and 2014/585 were in place as per registered PDD. The School #118 and Kindergarten # 209 have been supplied with a heat energy produced by the project HOBs, continuously, since October 2014.
2. The monitoring was based on the actual measurement using measuring equipment (Monitoring Option C), was performed, according to the registered PDD.
3. Measuring equipment of the parameter to be monitored, is the Heatmeter, The Heatmeter consists from 1 flow sensor, 2 temperature sensors, calculation unit with display and datalogger according to the registered PDD. Verification team confirmed the existence of two Heat meters Multical- 602C type, with serial numbers of 69710720 and 69710721, which were installed at the monitoring points as per the registered PDD.
4. Parameters monitored ex-post are the net heat quantity supplied by the project HOB during the monitoring period - PHp and total hours of project HOB operation during the monitoring period-HMPp. Verification team determined that the measuring of the heat quantity was continuously done by the heatmeter, recording of measured values (data) were 4 times per hour in the datalogger. The data input in the computer's database was once per day. Total hours of project HOB operation was identified by the monitoring period. Thus the measurement's method and procedure were performed appropriately in line with the registered PDD.
4. Monitoring Structure of Project participants was identified through an interview with the Project Manager, with officers of Anu Service Co.Ltd and review on MoC submitted to the TPE by the Project participant on 20 June 2018. The monitoring structure is as below:

1) Mr. Tabata Toru- Project Manager
2) Mr. Kuwahara Fumihiko-Project Manager
3) Mr. T.Narankhuu- Senior engineer
4) Mrs. D.Gantsetseg-Civil engineer and QA/QC team officer

<Findings>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.

No outstanding issues were raised.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

Verification team confirmed that, the Project implementation was in accordance with the registered PDD during the monitoring period, and no change was found from the registered PDD.

C.3. Compliance of calibration frequency and correction of measured values with related requirements

<Means of verification>

The Verifiers assessed whether the calibration frequency and correction of measured values comply with the related requirements through Document review and Follow-up actions (on-site visit and interviews) with Evidences: Ref.05, Ref.11, Ref.12, Ref.13, Ref.17, Ref.18 and Ref.19.

1. The parameters were measured by the Heatmeter, Multical-602 C. Verification team determined that the Heat meters were calibrated on 24 February 2015 by the Kamstrup A/S laboratory of Denmark. The validity period of this verification is the February of 2019 according to the "List of measuring instruments subject compulsory metrological control" (Order #A/384 of Chairman of the Mongolian Agency for Standardization and Metrology, 2014), and "Letter of the MASM for recognition of producer's initial calibration of the heat meter Multical 602C". The Heatmeter's installation has verified and sealed by the Ulaanbaatar Heating Network Company's inspector, as required by the standard of Mongolia,

2. The verification team assessed the measured values in the database of the Project participant (Anu Service Co., Ltd) and determined that the set of measured data were within acceptable range including Heat energy, flow rate, hot water temperatures in the pipes and comfirmed absense of missed data during the monitoring period, thus the correction of measured values was not required.

<Findings>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.

No issues was raised.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

Please state conclusion based on reporting requirements.

The verification team confirms compliance of the calibration frequency of the monitoring equipment with related requirements of Law and Standards of Mongolia, also the team confirms no additional requirement for the correction of measured values.

C.4. Assessment of data and calculation of GHG emission reductions

<Means of verification>

The verification team assessed data and calculation of GHG emission reductions through Document review and Follow-up actions (on-site visit and interviews) with Evidences: Ref.01, Ref.04, Ref.05, Ref.14, Ref.15, Ref.18, Ref.20, Ref.21, Ref.22, Ref.23 and Ref.25

1. Monitoring period

The verification team determined the monitoring period of the First half of 2018 was from 01 January 2018 till the 15 May 2018.

2. Data assessment

The total heat quantity produced by project HOB is measured in every 15 minutes and recorded in the data logger built in the heat meter. Actually this value is the sum of value of current measurement and the values of previous measurements, thus the Data logger calculates and records the total heat quantity produced by the HOB from the start of monitoring to the moment of particular measurement. Then the data is transferred to the database of the computer of the Project Participant.

The data was checked through review of the database of the PP (Anu Service Co.,Ltd), Journal of HOB. Measured and recorded parameters in the datalogger of Heat meter are: Meter Number, Readout date & time, Heat energy quantity (GJ),Volume of water, Hour counter (hrs), Current flow temperature, Current return temperature, Comsumed power (MW), Current flow rate (m3/h). The Datalogger's display shows measured values, which can be observed by the Fireman and other responsible officers. Direct transmission of data from data logger of the Heat meter to the office of Anu Service Co.,Ltd through the internet was available during whole monitoring period. The received data were exported into Excel sheet in the database of the PC, were stored, set of 24 hrs data has been transferred to the office of Suuri Keikaku Co.,Ltd in Tokyo, daily.

The verification team determined that the measuring and data recording of the monitored parameters was continuous, without interrupt due to the heat meter's data logger with a battery and no data missing and no abnormal values was found,

3. Calculation of GHG Emission Reductions

The verification team verified the corresponding Monitoring Report sheet and calculation formulas of the GHG emission reductions of applied methodology and determined that, they were used without modification and alteration for the calculation of GHG ER. The ex-ante parameters used in the calculation were correct, without any errors, omissions and misrepresentations.

Ex-ante parameters used for calculation are:

RPC p=1.2 kW-Rated power consumption of the project HOB,

EF CO2, grid =1.1030 tCO2/MWh (CO2 emission factor of the Grid electricity consumed by project HOB)

Default values used for calculation are:

EF CO2, coal = 0.0909 tCO/GJ (CO2 Emission factor of coal used in HOB),

η = 0.533 - (Boiler-efficiency of Reference HOB)

η = 0.610 - (Boiler-efficiency of Project HOB)

4. Verified amount of ER

The verified amount of Emission reductions achieved during the monitoring period is:

36 tons of CO2 for the period from 01 January 2018 till 15 May 2018, it is the ERs for the First half of the 2018.

5. Monitored values provided in the Monitoring report has been checked as listed below:

Parameters	Monitored values	Method to check values in the monitoring report with sources
PHp	2.157 GJ	1. Assessment of the measured values in the database of PP, 2.Assessment of the measured values of the Monitoring Report Sheet for YR 2017, 2. Assessment of information of the "Logbook of HOB" and interview with the related persons and consumers,
HMPp	6.430 hrs	1. Assessment of the measured values in the database of the PP , 2. Assessment of information of the Heating supply contracts, "Logbook of HOB" and interview with the related persons and consumer's representative, about HOB operation

<Findings>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.

No issues were raised.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The Verification team confirmed the fair representation of reported values of GHG emission reductions in the monitoring report and has no material errors.

C.5. Assessment of avoidance of double registration

<Means of verification>

The verification team checked whether the JCM project has not been registered under other

international climate mitigation mechanisms through document review and website review, with Evidence: Ref.16,

Project participant was submitted the declaration letter for avoidance of double registration of the project in other international climate mitigation mechanisms in the Modalities of Communication Statement, to the Join Committee at the validation stage and another written confirmation to the TPE at verification stage and Verification team cross-checked it through the review on websites of Clean Development Mechanism (CDM), Verified Carbon Standard Association (VCSA) and Gold Standard Foundation (GSF) and determined that no project with similar technology had registered in an international climate mitigation mechanisms, from Mongolia.

<Findings>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.

CAR01- Project participant was requested to submit, up to date Written confirmation for avoidance of double registration of the project in other international climate mitigation mechanisms.

CAR 01 was closed up, bacause Anu Service Co.,Ltd has submitted the requested Confirmation Letter, with Ref.16.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

Verification team confirmed that the project had not registered under other international climate mitigation mechanisms.

C.6. Post registration changes

<Means of verification>

Verifier assessed whether the Project has been changed from the registered PDD through Document review and Follow-up action (on-site visit and interviews) with Evidences: Ref.02, Ref.17 and Ref.24,

Verification team idenfied that the Project has not changed after it's registration through the review on PDD, written confirmation of the PP and on site assessment

<Findings>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.

CAR 02- Project participant was requested to submit, up to date Written confirmation for that the project has not changed from the registered PDD.

CAR 02 was closed up, bacause Anu Service Co.,Ltd has submitted the requested Confirmation Letter, with Ref.17.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

Verification team confirmed that the project has not changed from the registered PDD and Methodology.

D. Assessment of response to remaining issues

An assessment of response to the remaining issues including FARs from the validation and/or previous verification period, if appropriate

No FAR was raised during the previous verification of the project.

E. Verified amount of emission reductions achieved

Year	Verified Reference Emissions (tCO_2e)	Verified Project Emissions (tCO_2e)	Verified Emission Reductions (tCO_2e)
2013			
2014			
2015			
2016			
2017			
2018	367	331	36
2019			
2020			
2021			
2022			
2023			
2024			
2025			
2026			
2027			
2028			
2029			
2030			
Total (tCO_2e)			36

F. List of interviewees and documents received

F.1. List of interviewees

1. Kuwahara Fumihiko, Job Manager of the Project, Suuri Keikaku Co.,Ltd , Japan, interviewed on 19 June, 2018,
2. Ts. Munkhtor, Director of School #118, Ulaanbaatar city, Interviewed in June 20, 2018,
3. D.Bideriya, HOB"s Guard, Anu Service Co.,Ltd, interviewed in 20 June 2018,
4. D.Gantsetseg, Engineer, Anu Service Co., Ltd, interviewed in 19 June 2018,

F.2. List of documents received

Reference documents:

1. JCM Approved Methodology MN_AM002 "Replacement and Installation of High-Efficient Heat Only Boilers for Hot Water Supply Systems"
2. PDD version 02.0, 19/06/2015"Installation of high-efficiency Heat Only Boilers in 118th School of Ulaanbaatar City
3. JCM Validation Report, dated 29th June, 2015
4. Monitoring Report Sheet "JCM_MN_AM002_ver01.0_MN001_118th school YR2017
5. Monitoring Report Sheet "JCM_MN_AM002_ver01.0_MN001_YR2018 First half
6. HOB- Operation and Maintenance Manual [Confidential]
7. Heating supply contract,118th School of Ulaanbaatar city, 2016_2017 and 2017_2018
8. Heating supply contract, 209th Kindergarten of KhUD,Ulaanbaatar city, for the YR 2016_2017 and YR2017_2018
9. Technical specification of HOB CARBOROBOT 300C
10. JCM_MN_F_MoC_SUR_118th School, 20/06/2018
11. Calibration Certificate of Heat meter -Multical 602C, 24/02/2015
12. List of measuring instruments subject compulsory metrological control, Order # A/384, by Chairman of MASM
13. Letter of the MASM for recognition of producer's initial calibration of the Heat meter Multical 602C
14. Logbook of Consumer's opinion .
15. Logbook of HOB
16. Confirmation letter for avoidance of double registration of the project, 2018
17. Confirmation letter for no post registration changes of the project, 2018
18. Monthly data sheet of YR 2017-2018

19.1 Report of installation of Heat meters

19.2 Report for inspection of the Heat meter's installation

Minutes of interviews,

20. Minute of interview with F.Kuwahara, Job Manager of the Project, Suuri-Keikaku Co.,Ltd
21. Minute of interview with Ts. Munkhtor, Director of 118th school, Ulaanbaatar
22. Minute of interview with D. Bideriya, Fireman of 118th HOB, Anu Service Co.,Ltd
23. Minute of interview with D.Gantsetseg, Engineer of Anu Service Co., Ltd
24. Report of On-site assessment at HOB,20180620
25. Report of Desk review note, 20180619

Annex Certificates or curricula vitae of TPE's verification team members, technical experts and internal technical reviewers

Please attach certificates or curricula vitae of TPE's validation team members, technical experts and internal technical reviewers.

Certificate of Appointment and CVs of Verification team members are attached to this report.

CERTIFICATE OF APPOINTMENT

Title of Project: Installation of High Efficiency Heat only Boilers in 118th School of Ulaanbaatar City

We hereby certify that the following personnel have engaged in the verification process that has fully satisfied the competence requirements of the verification of the JCM project.

Name of person:	**Assigned Roles:**
Ms. Natsagbadam Myatraaz	Team Leader
Mr. Byambatsogt Pashka	Team Member
Mr. Taivan Sukhee	Technical Reviewer

Date: June 19, 2018, Ulaanbaatar, Mongolia

[redacted]

NATSAGBADAM Myatraaz,
Director, Low Carbon Technology Center

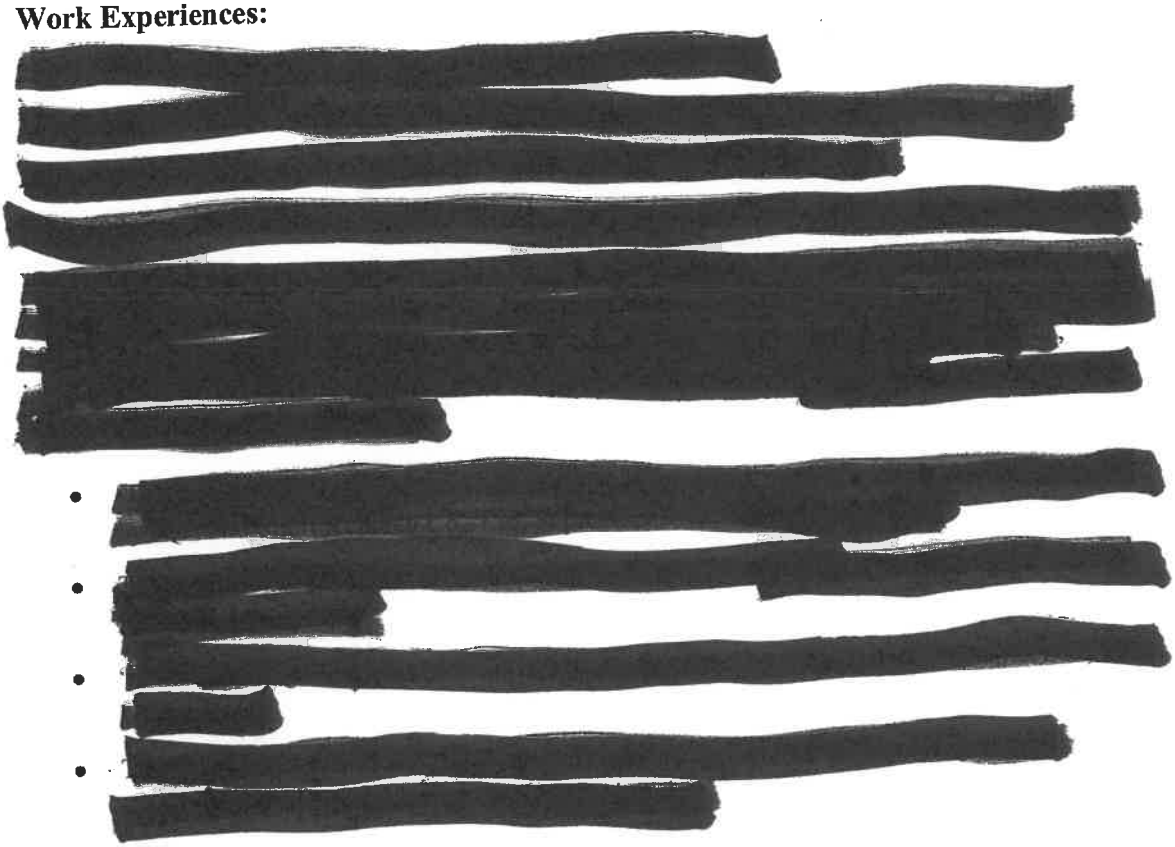
CURRICULA VITAE OF THE VERIFICATION TEAM MEMBERS

"Confidential".

1. Myatraaz NATSAGBADAM

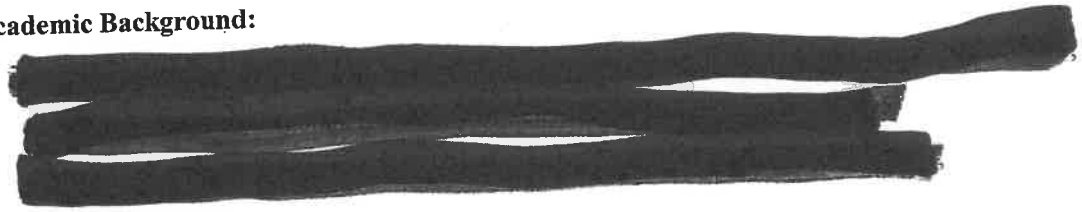
Academic Background:

Work Experiences:

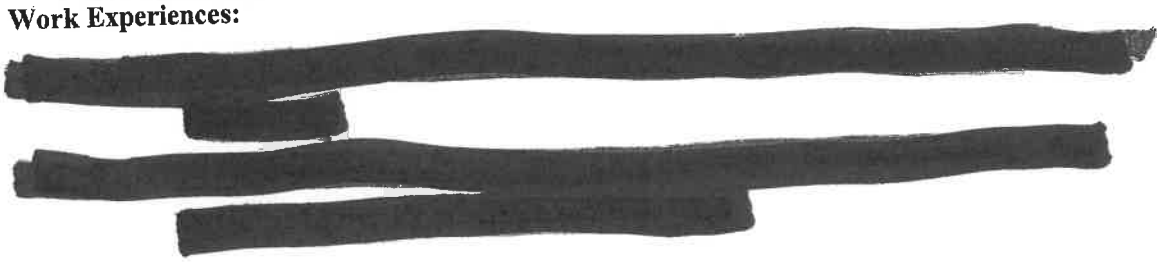


2. Byambatsogt PASHKA

Academic Background:



Work Experiences:



[redacted]

Project experience

[redacted]

3. Sukhee TAIVAN

Academic Background:

[redacted]

Work Experiences:

[redacted]