JCM Project Design Document Form

A. Project description

A.1. Title of the JCM project

"Centralization of heat supply system by installation of high-efficiency Heat Only Boilers in Bornuur soum" Project

A.2. General description of project and applied technologies and/or measures

The Bornuur is located in the north of Tuv province, 105 km distant from Ulaanbaatar and 155 km from center of Tuv province.

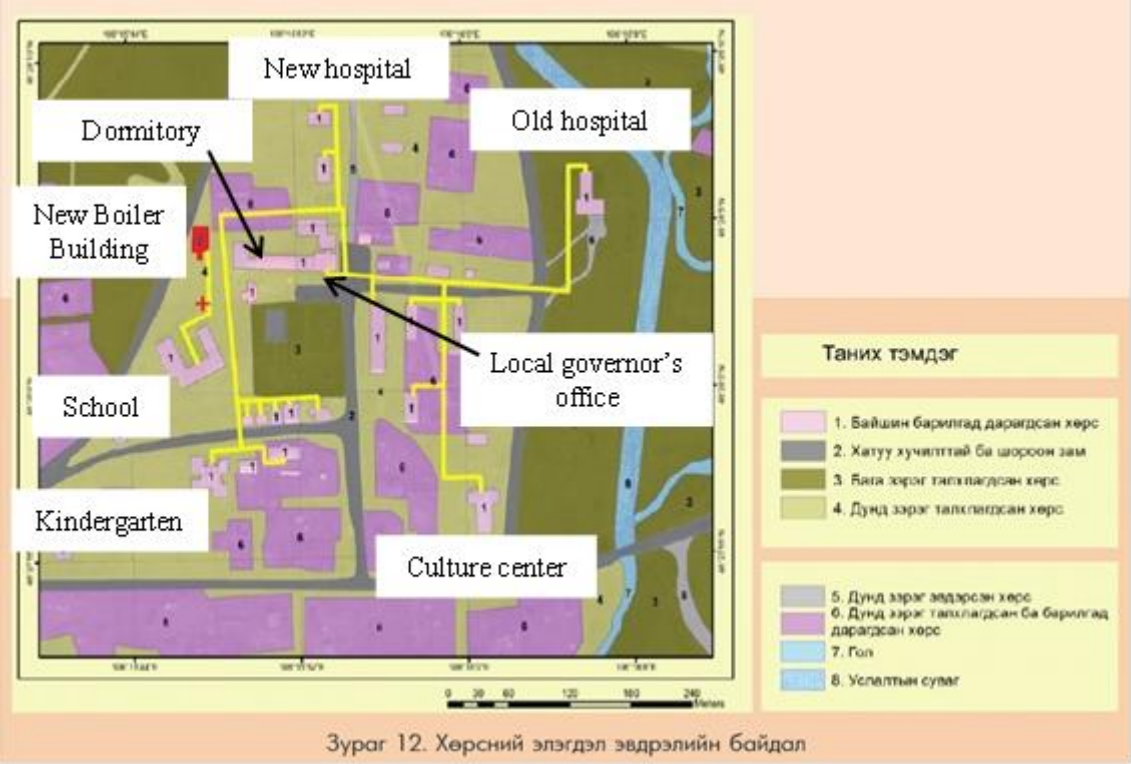

Figure 1 Location of New Boiler Building and Old HOB

The proposed JCM project aims the replacement of the heating infrastructure. The project was to infrastructure the building in Bornuur soum of Tuv aimag in Mongolia, composed of the installation of Heat Only Boilers (HOBs) as well as pipe laying work, electrical construction, and boiler building construction.

The project will alter the current heat supply system in Bornuur soum of individual building based heating, under which the low efficiency HOBs and stoves are used.

The Reference HOB is the vertical type in line with MN_AM002.

The key technology is applied in the boiler, "EKOEFEKT 600", with a rotary grate. The fuel

(coal) is automatically fed from the hopper to the rotary grate. The amount of fuel on the grate is optimized, burning only the minimum amount required to cover the heat demand of the building at the time. Therefore, the "EKOEFEKT 600" is more efficient than the Reference HOB.
Since the replacement of low efficiency HOBs with "EKOEFEKT 600" (650 kW, high efficiency HOB) leads to the reductions of coal consumption, this replacement leads to CO2 and other air pollutants emission reductions. (refer to "Ref.01")

A.3. Location of project, including coordinates

Country	Mongolia
Region/State/Province etc.:	Tuv aimag
City/Town/Community etc:	Bornuur soum
Latitude, longitude	Latitude: 48° 27' 53", Logitude: 106° 15' 26"

A.4. Name of project participants

Mongolia	ANU-SERVICE CO.,LTD.
Japan	SUURI-KEIKAKU CO.,LTD.

A.5. Duration

Starting date of project operation	27/09/2014
Expected operational lifetime of project	15 years

A.6. Contribution from developed countries

The proposed project was financially supported by the Ministry of the Environment, Japan through the financing programme for JCM model projects which seeks to acquire JCM credits.
Japanese experts of "SUURI-KEIKAKU CO., LTD." will support the development of telemeter system such as the remote control and automatic record of the monitoring data, as the core of MRV activities of JCM.
The Capacity Development was applied to the boiler managers by the Japanese engineers using a technical guidance. The aim of the technical guidance is to optimize the boiler operation based on the results from the measurements of the Japanese engineers. In addition, the person in charge of "SUURI-KEIKAKU CO.,LTD." made some manuals from these activities for staffs of "ANU-SERVICE CO.,LTD.". (refer to "Ref.02 and Ref.03")
Since "ANU-SERVICE CO., LTD." is the host country's (Mongolian) operation and monitoring entity, the person in charge of "SUURI-KEIKAKU CO., LTD." implements the capacity development of the monitoring activity to the "ANU-SERVICE CO., LTD. staffs".

B. Application of an approved methodology(ies)

B.1. Selection of methodology(ies)

Selected approved methodology No.	MN_AM002
Version number	Ver. 1.0
Selected approved methodology No.	---
Version number	---
Selected approved methodology No.	---
Version number	---
Selected approved methodology No.	---
Version number	---
Selected approved methodology No.	---
Version number	---

B.2. Explanation of how the project meets eligibility criteria of the approved methodology

Eligibility criteria	Descriptions specified in the methodology	Project information
Criterion 1	Technology to be employed in this methodology is coal-fired heat only boiler(HOB) for hot water supply system.	The purpose of the boilers is to heat school, hospital, kindergarten and cultural center and local governor's office and etc.. The boilers are hot water low pressure automatic boilers and designed for brown coal (5-25 mm) burning only. (refer to "Ref.01")
Criterion 2	Capacity of the project HOB ranges from 0.10 MW to 1.00MW.	Three high efficient coal fired boilers "EKOEFEKT 600" with capacity of 650 kW each, installed at project site. (refer to "Ref.01" and "Ref.06")
Criterion 3	The project activity involves the installation of new HOB and/or the replacement of the existing coal-fired HOB.	The three new high efficient HOBs "EKOEFEKT 600" of capacity 650 kW each will replace 7 old small inefficient boilers. The old small inefficient boilers in Bornuur soum are as follows; School: D-27 (Brick Boiler), Dormitory: НР25Ж (Vertical Type

		Boiler), Kindergarten: D-27 (Brick Boiler), Cultural center: CLSG (Vertical Type Boiler), Local governor's office: POP-90 (Small Size Boiler), Old hospital: HP15Ж (Vertical Type Boiler), New hospital: LSH (Vertical Type Boiler). (refer to "Ref.01", "Ref.05" and "Ref.06")
Criterion 4	The project HOB is equipped with an operation and maintenance manual.	The manual of boiler operation is prepared in Mongolian language. The maintenance manual of "EKOEFEKT 600" is prepared in Mongolian language. (refer to "Ref.02", "Ref.03" and "Ref.04")
Criterion 5	The catalog value of the boiler efficiency for the project HOB is 80% or higher.	The boiler efficiency of "EKOEFEKT 600" is over 80%, according to the catalog value. (refer to "Ref.06")
Criterion 6	The project HOB has the function to feed coal on the stoker uniformly and is equipped with a dust collector.	The "EKOEFEKT 600" is designed to burn the fuel well and with maximum efficiency. The principle of the boiler's function is to burn, on the cylindrical rotary grate, a controlled supply of fuel under controlled combustion air input. The "EKOEFEKT 600" are designed with separate dust collector. (refer to "Ref.01" and "Ref.06")

C. Calculation of emission reductions

C.1. All emission sources and their associated greenhouse gases relevant to the JCM project

Reference emissions	
Emission sources	GHG type
Coal Consumption of reference HOB	CO2

Project emissions	
Emission sources	GHG type
Coal Consumption of project HOB	CO2
Electricity Consumption of project HOB	CO2

C.2. Figure of all emission sources and monitoring points relevant to the JCM project

The emission sources are coal consumptions and electrical consumptions in HOB.

The monitoring equipment is the heatmeter which measures the quantity of net heat supply of HOB. "Monitoring point 1" is the "Heat Quantity" ("PHp") of the heatmeter. The "Heat Quantity" is calculated by the flow rate of outgoing heat water/ returning heat water ("V1"), the temperature of outgoing heating water ("T1") and the temperature of returning heating water ("T2").

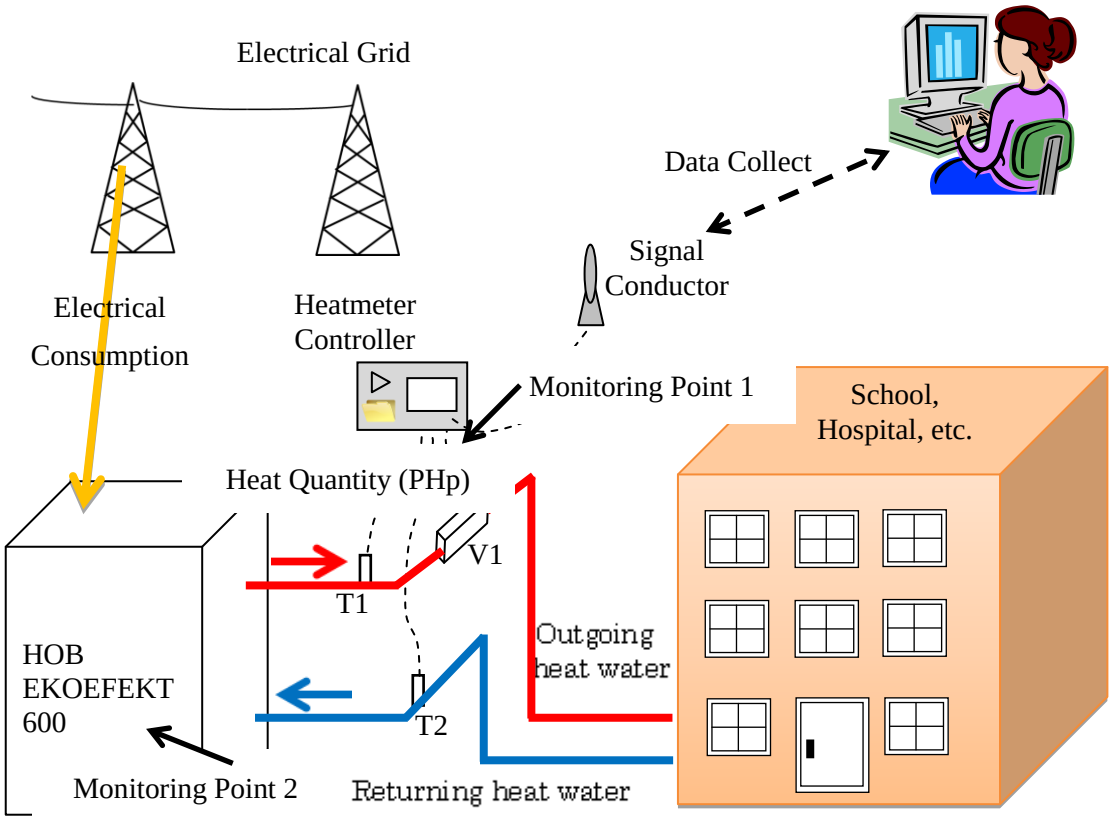

Figure 2 Monitoring Point of "EKOEFEKT 600"

The persons in charge of the monitoring activity are able to get the information of heatmeter by using the telemeter system. The telemeter system consists of the data logger of the heatmeter and the signal conductor. The monitoring data will be recorded hourly in the data logger, and the data are collected daily by using the telemeter system.

The "Monitoring point 2" is the HOB itself. This item of the "Monitoring Point 2" is the total hours of the project HOB operation. Total hours are the period from the starting to the ending time regarding the monitoring activity.

C.3. Estimated emissions reductions in each year

Year	Estimated Reference emissions (tCO_{2e})	Estimated Project Emissions (tCO_{2e})	Estimated Emission Reductions (tCO_{2e})
2013	0	0	0
2014	0	0	0
2015	1746	1540	206
2016	1746	1540	206
2017	1746	1540	206
2018	1746	1540	206
2019	1746	1540	206
2020	1746	1540	206
Total (tCO_{2e})	10476	9240	1236

D. Environmental impact assessment	
Legal requirement of environmental impact assessment for the proposed project	YES

E. Local stakeholder consultation

E.1. Solicitation of comments from local stakeholders

Date: from 13:30 to 15:00, 26th September 2013 Place: Culture Center in Bornuur soum Participants: 67 people of living and/or working in Bornuur soum, and 57 people of questionnaire response. Handout: Questionnaire (Mongolian language), Outline of JCM (Mongolian language) Agenda:

1) Outline of JCM (Mr. Kuwahara),

2) Background and progress situation of JCM Project (Mr. Kuwahara),

3) Technical review of "Centralization of heat supply system by installation of high efficiency HOB" in Bornuur soum (Mr. Injinaash),

4) Q&A,

5) closing remark

ANU-SERVICE CO.,LTD. announced the local stakeholders consultation in newspaper on 13th September 2013. In addition, the announcements were published at some notice boards in Bornuur Soum. The announcements of newspaper and web site are as follows;

УРИЛГА

ХАМТАРСАН КРЕДИТ ОЛГОХ МЕХАНИЗМЫН ХҮРЭЭНД ЯПОН УЛСЫН БАЙГАЛЬ ОРЧИНЫ ЯАМНЫ САНХҮҮГИЙН ДЭМЖЛЭГЭЭР ТӨВ АЙМГИЙН БОРНУУР СУМАНД ХЭРЭГЖИХ "ДУЛААН ХАНГАМЖИЙН СИСТЕМИЙН ЗҮҮХНЫ БАЙГУУЛАМЖИЙН ШИНЭЧЛЭЛИЙН ТӨСӨЛ"-ИЙН АЖИЛТАЙ ХОЛБОГДУУЛАН СОНИРХОЛЫН БҮЛГИЙН УУЛЗАЛТЫГ БОРНУУР СУМЫН СОЁЛЫН ТӨВӨД 2013 ОНЫ 9-Р САРЫН 26-НЫ ӨДРИЙН 13.00-15.00 ЦАГИЙН ХООРОНД ЗОХИОН БАЙГУУЛАГДАХААР БОЛСОН ТУЛ ИРГЭД ХӨДӨЛМӨРЧИД БОЛОН ХОЛБОГДОХ БАЙГУУЛЛАГЫН АЖИЛТАН АЛБАН ХААГЧИД ТА БҮХНИЙГ ӨРГӨНӨӨР ОРОЛЦОЖ САНАЛ БОДЛОО ИЛЭРХИЙЛЭХИЙГ ХҮСЭЖ БАЙНА.

Жич: Сонирхсон иргэд Веб сайт:www.anuservice.mn -ээр орж санал асуулгын маягтыг бөглөж болно.

ТӨСӨЛ ХЭРЭГЖҮҮЛЭГЧ : ЯПОН УЛСЫН СУУРИЙ-КЭЙКАКУ ХХК

МОНГОЛ УЛСЫН АНУ СЕРВИС ХХК

2013年9月13日 (金) Udrin soom (Daily newspaper)

Уйл явдал

Нэвтрэх хэсэг

The circumstances of stakeholder consultation were as follows;

Though this local stakeholder consultation, the local stakeholders understood the JCM project deeply and results of the questionnaire were positive. In addition, local stakeholders had large expectation for the project. The local stakeholder showed the expectation about supplying the hot water to their homes. In addition, they showed the expectation about other infrastructure of water and sewerage. As a result, since they had a favorable impression of the project promotion, the particularly additional correspondence was unnecessary.

E.2. Summary of comments received and their consideration

Stakeholders	Comments received	Consideration of comments received
Male "A"	Is there the possibility to use the other fuel other than the coal?	Since coal is abundant in Mongolia, we do not worry the supply of coal, and the price of coal is very low. As a result, the fuel choice is only coal. The stakeholder understood the answer. The additional action was not necessary.
Male "B"	Is this infrastructure of HOB system enough for heat supply in whole of Bornuur soum?	Three "EKOEFEKT 600" boilers, which have 650 kW capacities, are enough for heat supply. Since the boiler house has enough space, the expansion of HOBs is possible in the future. The stakeholder understood the answer. The additional action was not necessary.
Male "C"	Does this infrastructure include the water supply and sewerage systems?	This JCM project is only the infrastructure of HOB system, which is only the heat supply system. In the future, we will consider the other infrastructure such as water supply and sewerage systems, etc.. The stakeholder understood the answer. The additional action was not necessary.
Female "D"	Can we receive the service of the heat supply, if we are living in Bornuur soum and we prepare at own	If you prepare your own money, then we can do the heat supply for your home.

	expense?	The stakeholder understood the answer. The additional action was not necessary.
Female "D"	Will the HOB be operated enough stably?	We will fulfill the stable operation of HOB in the future. The stakeholder understood the answer. The additional action was not necessary.
N/A	N/A	N/A
N/A	N/A	N/A

F. References
Ref.01; Results of Bornuur Environment Impact Assessment.pdf
Ref.02; [confidential] Maintenance Manual_EKOEFECT.pdf
Ref.03; [confidential] Improvement Manual of HOB from SUR_MN.pdf
Ref.04; [confidential] HOB Operation and Maintenance Manual.pdf
Ref.05; Bornuur Soum Old Boiler.pdf
Ref.06; Specifications of HOBs.pdf
Ref.07; 2012FS_Monitoring Results of 79th school HOB.pdf

Reference lists to support descriptions in the PDD, if any.

Annex

Revision history of PDD		
Version	Date	Contents revised
Ver 1.0	18/05/2015	First Edition
Ver 2.0	19/06/2015	Second Edition PDD was revised because of the document review and follow-up actions of TPE. The Contents revised are “A.2.”,

		“A.5.”, “A.6.”, “B.2.”, “C.2.”, “E.1.”, “E.2.” and “F. Reference”.
Ver 3.0	27/06/2015	Third Edition