

Feasibility Studies with the Aim of Developing
a Joint Crediting Mechanism FY2013

Studies for Project Exploration and Planning

**GHG emission reduction by introducing
an energy-efficient complex
in Ger area of Ulan Bator**

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“GHG emission reduction by introducing an energy-efficient complex in Ger area of Ulan Bator”

(Study for Project Exploration and Planning)

Proposed by : MUMSS, Takagumi

The City of Ulan Bator (UB) is one of the coldest capitals in the world, and smoke from burning indigenous coal and waste woods for heating and cooking has been causing serious air pollution in the city. By introducing and disseminating technology of “Northern Housing” developed by the Hokkaido region to UB city, the proposed project will significantly reduce GHG emission while contributing to the improvement of living environment as well as the surrounding environment of the city.

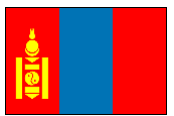
Study Summary

Achieving CO2 emission reductions by introducing and disseminating the highly-insulated and air-tight “Northern Housing” technology which fulfils various specifications and performance standards for energy efficiency.

Study Items

1. Study on insulation performance of existing housing
2. Detailed study for constructing a highly energy-efficient complex
3. Development of a MRV methodology
4. Organization of a workshop

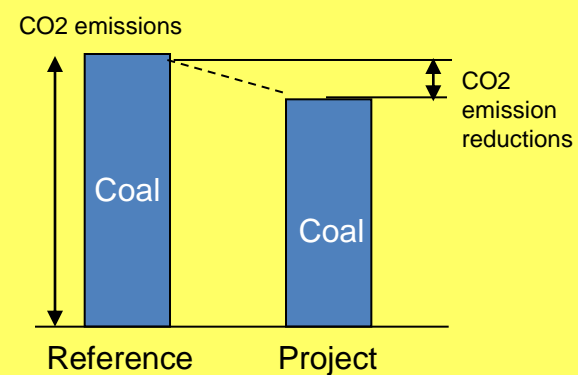
Local Partners/Site Location

- MIBACE LLP 
 -City of Ulan Bator, Ger District

Expected Reduction amount

Reduction amount: 500 ton-CO2/year/complex (approx. 28% of reduction)

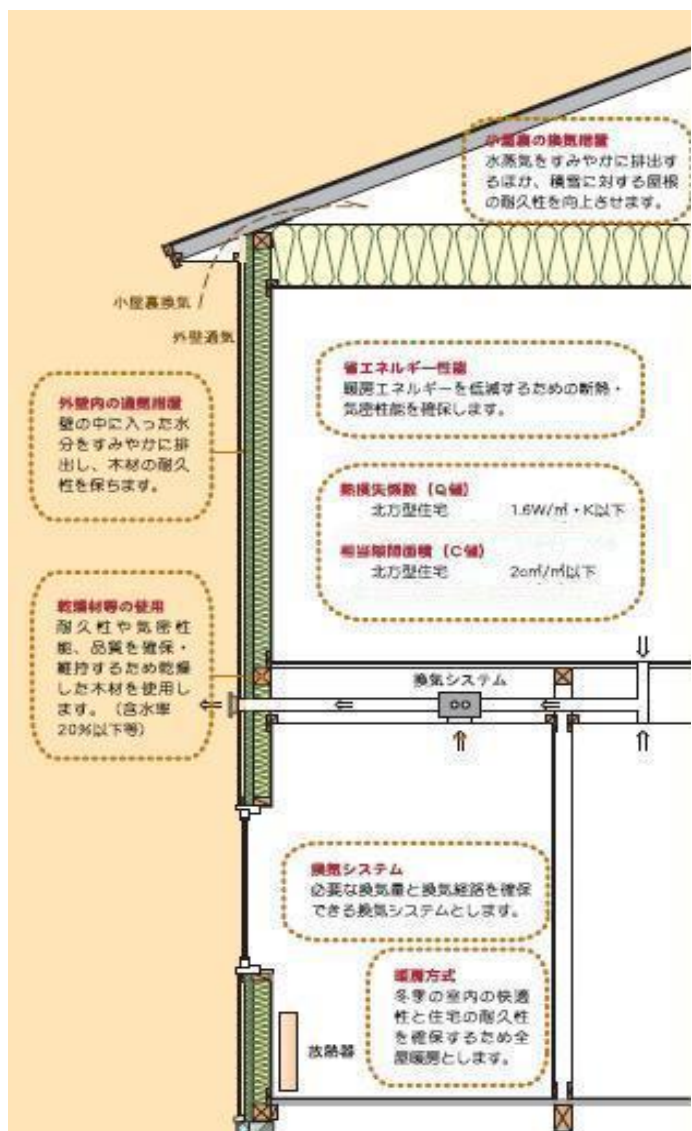
GHG emissions from coal combustion for heat generation at a district heating system which supplies the heat to a housing complex under a reference scenario.
 = Annual heating load of a reference housing (building) / heating efficiency of district heating system / calorific value of coal consumed x CO2 emission factor of coal
Reference Case



GHG emissions from coal combustion for heat generation at a district heating system which supplies the heat to a housing complex under a project scenario.
 = Annual heating load of a project housing (building) / heating efficiency of district heating system / calorific value of coal consumed x CO2 emission factor of coal
Project Case

Summary of Technology to be Introduced

Northern Housing



The proposed technology is highly-insulated and airtight “Northern Housing”.

“Northern Housing” is a house/complex that fulfills various specifications and performance standards recommended by the Hokkaido Prefectural Government. In addition, certified personnel is required to be involved in its designing and construction process, in order to ensure its performance level. The Northern Housing is designed to be energy efficient in the cold region and is suitable for UB city situated on approximately the same latitude of Wakkanai City of Hokkaido.

By implementing the proposed project, coal consumption for heat generation will be significantly reduced, and CO2 emission reductions will be expected to occur.

Energy Saving level	- Energy Saving Measurement Rank 4	Performance standard for energy efficiency adopted by the “Northern Housing”
	- Heat loss coefficient (Q value): Under 1.6W/m ² ·K	
	Equivalent leakage area (C value): Under 2.0cm ²	

Summary of Technology to be Introduced

Northern Housing Example

Easy-Band Method

A method which comes with a solution to overcome constraints in construction--one of the demerits of outside insulation. Welding-free, boltless, no heat bridge. One touch construction and easy to maneuver at construction sites, and user-friendly for local constructors.



Light-Gauge Steel (Used in the Easy-Band Method)

Made by Nisshin Steel Co.. High corrosion-proof plated steel sheet (ZAM[®]). In a long-term exposure condition, protect steel products from corrosion and coating on surfaces that activate to maintain durability of the material.



Glass wool (Used in the Easy-Band Method)

85% of the material is made of recycled products, produced in Hokkaido. Good airflow and higher energy performance than the energy saving standard of 1999. Nitto Boseki Co., Ltd.

