

SUCCESS STORIES

MONGOLIA TAKES STEPS TO INCREASE ENERGY EFFICIENCY IN RESIDENTIAL BUILDINGS



- In 2019, Mongolia made significant progress to secure EUR 18 million for an ambitious project designed to help dramatically increase energy efficiency in residential buildings in the capital Ulaanbaatar.

Many residential buildings in Ulaanbaatar, the coldest capital city in the world, are old and made of pre-cast panels. As a result, insulation is poor and heating – almost entirely coal produced – is often turned up high to keep room temperatures warm.

Below-cost tariff levels with bills based on square-meters of space for heating means people lack an incentive to adopt better heat-conservation practices.

Residential buildings account for 40% of energy consumption in the country, more than industry and the transport sectors combined.

Moreover, a rising population and migration from the countryside to the capital mean that demand for heating is rapidly increasing, while Ulaanbaatar has some of the worst

air pollution of any city in the world. This makes clean, reliable heating services even more important.

Municipal authorities recognized residential renovation will not only save heat and improve thermal comfort and safety for residents, but also achieve reduction in greenhouse gas (GHG). General Manager of Ulaanbaatar, Mr. Gantumur Togmid, highlights *“Thermo-technical retrofitting of pre-cast buildings will reduce the energy consumption by more than 30% and additional over 9,400 households can be connected to heating supply without building a new plant.”*

In 2013, local authorities began seeking investments to help retrofit residential tower blocks. Having found little initial success, they are now hoping to move forward with their plans with assistance from the GGGI.

Realizing green growth goals

Batzaya Bayasgalan, GGGI's Green Investment Officer based in Mongolia, explains how the organization has been helping the city's authorities realize their green growth goals.

"It has been challenging for the government to progress the project and raise funding as investors saw this project as non-bankable due to low, space-based tariff," says Bayasgalan. *"So, we stepped in to support."*

In 2017, GGGI began working with the Municipality of Ulaanbaatar using its experience and expertise to help attract financing.

GGGI carried out energy audits for three residential, multi-family buildings to determine the level and areas of heat loss and designed a project that took into account feedback to alter the financing mechanism, the involvement of energy companies and issues with household contributions.

In 2019, it won initial funding of EUR 380,000 for project preparation from the Nationally Appropriate Mitigation Action (NAMA) Facility, which focuses on financing projects designed to reduce GHGs.

The Municipality of Ulaanbaatar in cooperation with GGGI is aiming to mobilize an EUR 18 million EUR grant to retrofit 375 residential building blocks. Once funds are officially in place in 2021, retrofitting should get under way fully with physical implementation likely as soon as 2022.

Transforming lives

The retrofitting is expected to transform the lives of over 136,000 residents living in these 375 residential buildings. Despite plentiful, cheap access to heating, temperatures drop down to -40 Celsius during winter in Ulaanbaatar and apartments are typically 4-6 Celsius colder than recommended room temperatures.

"In most of these buildings, it gets very cold and residents wear layers of clothing to stay warm. Some residents retrofit the external walls of their own apartments only, but partial retrofitting is of little real effect and the work has sometimes not always been done that well and there have been reported cases of problems, including fires," says Bayasgalan.

She adds that while the retrofitting will not reduce any household bills because at present heating costs are not based on consumption and heavily subsidized by the state – around USD 9 per month for a two-room apartment – *"it would mean that people would have a warmer apartment and their property value would also increase considerably."*

It may also ensure that residents in these old buildings have a more secure future living there.

"Retrofitting extends the lifespan of the buildings," explains Bayasgalan. *"Some of these buildings date back to the 1960s and are rundown and have had minimal or no renovations. Renovating the buildings and improving their structure extends their lifespan by over 30 to 50 years."*

Crucially, the project will also have an estimated direct cumulative GHG mitigation potential of 96,891 tCO₂e, as well as helping to create potentially over 1,000 new jobs through the engagement of local construction companies and manufacturers.

In 2016, Mongolia ratified its Intended Nationally Determined Contributions (INDCs) to the Paris Agreement on Climate Change and is committed to a reduction of 14% of GHG by 2030.

One of the main drivers to achieve this goal is to improve energy efficiency in production, distribution, transmission and usage and, with this in mind, the government has set a target of reducing building heat loss by 30% by 2025, and 40% by 2030.

According to findings conducted by GGGI's [Impact & Evaluation Unit](#), GGGI is well placed to potentially contribute to [GHG reductions equivalent](#) to 20% of the annual emission reductions that Mongolia aims to achieve in 2030 under its NDC.

"GGGI's inaugural [Impact Pathway Review \(IPR\)](#) for its Mongolia country program found that the organization is on a clear pathway to make an impact in Mongolia, particularly due to policy and investment work in energy efficiency between 2015 and 2019," says Warin Nitipaisalkul, IEU Manager.

Bayasgalan hopes that treating energy saving as energy generation will drive utility companies to take an alternative perspective to their operation and open the way for wider discussions about investment deferral into coal fired heat generation versus into energy efficiency.

She explains that part of the project involves introducing metering of heating use in buildings, which will demonstrate a significant impact on energy loss reduction. GGGI hopes the project will have catalytic effect on the energy market and lead to tariff reform to encourage residents to regulate their heat use. *"Metering will provide a picture of the heating supply and consumption at the building level,"* she says.

This will incentivize residents as well as authorities with policy decisions going forward. *"It's a project with lots of positives, which is why we here at GGGI are so passionate about it,"* says Bayasgalan.