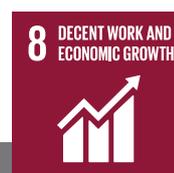


## IMPACT SHEET: Switch Off Air Pollution (SOAP)

### Energy efficiency advisory and financial intermediation for sustainable housing in unplanned areas of Ulaanbaatar



*Improving energy efficiency of housing in the ger areas to decrease the air pollution in Ulaanbaatar city, Mongolia*



## PROJECT BACKGROUND

Ulaanbaatar, the capital city of Mongolia is home to more than 50% of the country's population. Due to its geographical location and weather conditions, the city is considered as one of the coldest and most polluted capitals in the world. The residents living in the ger area (unplanned settlements that consist of traditional yurt and detached houses that use coal and improved fuel for heating) are increasing each year due to internal migration. Prospects of easier living conditions, increased economic and educational opportunities have attracted more people to migrate from rural to urban areas. The per-capita use of heating fuel is extremely high, the heating supply system is inadequate and the housing insulation levels are poor in the city. This situation generates heightened air pollution in the form of particulates. Burning fossil fuel also generates an important amount of CO<sub>2</sub> emissions, leading to severe impacts on the health conditions of people living in Ulaanbaatar, putting a heavy burden on the household economy and contributing to climate change. In January 2017, the Government of Mongolia has declared air pollution as a national emergency. The EU funded SWITCH-Asia Switch Off Air Pollution project started in 2018 with the aim to tackle air pollution in Ulaanbaatar city through developing a sustainable insulation market and improving energy efficiency of the detached houses together with educated customers, trained MSMEs, financial institutions, quality material suppliers and the general public.

## CHALLENGE

The ger area residents are not connected to the centralised heating system serving the apartment blocks and downtown buildings. Furthermore, they are also cut off from hot water and sewage networks, resulting in people's extensive reliance on raw or improved coal for their heating needs during the -40 degrees Celsius winter season. Energy efficiency or the insulation of detached houses is lacking, leading to large amounts of fuel spending, causing a major strain on households and public institution budgets and resulting in indoor and outdoor air pollution posing a great risk on human health and the environment. More than 80 percent of the detached houses in the ger area are self-built, or built by informal companies or individual workers with limited technical knowledge. The households lack information and awareness on energy efficiency and the importance of insulation. Moreover, there are not many financial solutions available for improving the energy efficiency of existing detached houses.

## PROJECT OBJECTIVES

The Switch Off Air Pollution (SOAP) was designed to scale-up inclusive, contextualised, affordable, and financially viable Energy Efficient (EE) solutions in the housing sector. Main project aims were to decrease intensity, cost, GHG emissions and maximise health, economic and social benefits for the population of Ulaanbaatar city.

Specific project objectives included:

- The reduction of emissions of CO<sub>2</sub> and particulate matter in Ulaanbaatar's ger areas through improved energy efficiency in housing, awareness-raising, technical training, and technical support provided to MSMEs and households;
- Promotion of sustainable consumption patterns and behaviours in the individual housing sector of Mongolia through energy efficiency advisory and financial intermediation.

## TARGET GROUPS

- Households in the ger district
- MSMEs in the construction sector
- Local authorities
- Construction material suppliers
- Financial institutions
- International development agencies

## PROJECT ACTIVITIES

### Market Delivery Model

To develop sustainable and energy efficient practices in the construction sector, it was crucial to set-up a market-based delivery model by intermediating the relevant stakeholders including customers, suppliers, financial institutions and MSMEs working in the construction sector. The proposed market-based delivery model was able to engage and build capacity of eight qualified insulation material suppliers, three financial institutions and more than 70 MSMEs working in the construction sector. Actors of the delivery model are coordinated through the back-end system of the [www.dulaalga.mn](http://www.dulaalga.mn). This platform serves also as a control mechanism to ensure the quality of the implemented insulation. This synergised scheme creates healthy market competition, catalysing stakeholders to leap towards investing in quality assured energy efficient solutions and enabling households to get access to green loans.

### Creating Green Employment

According to baseline studies conducted by SOAP, main MSME's working in the construction sector in the ger area are brigades/ individuals (unregistered individuals or group of workers). During the implementation period, construction sector brigades were trained with a comprehensive curriculum including technological, energy advisory, business and marketing, waste management, gender and occupational health and safety modules. A total of six enrolments were conducted between 2019-2021 and 73 MSMEs were recruited. The brigades conduct technical assessments and execute insulation work at detached houses of ger areas. The project supports their actions by promoting

the insulation technology and services through numerous media channels, helping them increase their customer portfolio and linking them with other initiatives. Moreover, project specialists constantly monitor the insulation brigades' capabilities and suggest improvements for constant growth and improvement.

### Simple Solutions Campaign

The Simple Solution Campaign was implemented in two phases and was able to mobilise more than 16,000 people through social media platforms, encouraging 1,500 households to insulate their homes starting from simple “Do It Yourself solutions” to market-based solutions (manuals, video tutorials, and training modules were shared with target groups). The Campaign aimed at disseminating information to the general public about the importance of insulation, empowering community members to improve their homes' energy efficiency more inclusively by involving vulnerable households. Low-cost insulation solutions were developed to reach the majority of the ger area inhabitants, above all, the target khoros, and promoting MSMEs in the community.

## PROJECT ACHIEVEMENTS

Through social media, events and trainings, the project was able to raise awareness among the general public, especially residents in the ger area, on the importance of insulation and energy efficiency. The market-based delivery model was set-up and fine-tuned, and capacity of actors were strengthened. The model is now ready to be scaled up.

- **Insulation solutions** suitable to the detached houses were developed and insulation products were made available to households with various options;
- **A market-based delivery model was set up** to connect the potential customers, qualified material suppliers, financial institutions and construction sector MSMEs.
- **The [www.dulaalga.mn](http://www.dulaalga.mn) website** was created to offer households with insulation-related information services and calculate the cost of their chosen insulations. “Дулаан шийдэл тусал” Facebook page, +976-75052000 Call Centre were created to serve as main promotional channels.
- **Tailor-made training modules** for MSMEs were developed on technical and practical insulation, energy advisory, sales and marketing, business, gender and protection and occupational health and safety.
- **New Branch was established** under MNCA NGO, dedicated to managing, coordinating, training and promoting the MSMEs in the energy efficient construction sector. Key performance indicator (KPI) was implemented to improve the service quality of the MSMEs involved in the project.
- **Simple Solutions Campaign** launched and reached over 16,000 people.
- **Community Response Feedback Mechanism (CRFM)** was implemented and a committee was established.

## LESSONS LEARNED

Starting from raising awareness among potential customers on the importance of insulation, to strengthening and building capacity of actors contributing to the delivery model, and working with financial institutions on concessional green loan products, we have learnt that developing a market-based sustainable system needs a long time to mature. Continuous improvements were made through the project's implementation period and stakeholders' feedback and analysis of implemented activities were taken into account to overcome project challenges. Moreover, negative impacts of COVID-19 greatly slowed the growth of the delivery model and decreased the investing capacity of individuals and households interested in retrofitting their houses. The pandemics has also negatively impacted the growth of the insulation market.

As the project focused on developing a market-based delivery model, extensive sales-oriented marketing campaigns needed to be organised. First, it was crucial to raise awareness on the importance of insulation among the general public and potential customers. Then, project staff had to continuously monitor and study the potential target market, customer demographics and collect feedback and complaints to improve the process and quality of products. Trained MSMEs also needed to master the sales and marketing skills to persuade customers to implement insulation. Not all MSMEs have the skills to work as sales people; hence, they were divided into insulation brigades – in charge of conducting insulation work, and energy advisors in charge of insulation sales.





The Switch Off Air Pollution project has greatly contributed to reducing heat loss, improving thermal comfort, tackling air pollution and reducing greenhouse gasses in Ulaanbaatar city. Engaging, training and building capacity of the actors involved in the established market system is key to ensure quality products and services. After 4 years, our insulation market delivery model has been standardized, fine-tuned and it is ready to be scaled-up to involve more actors in the coming years.

**Davaajargal Batdorj**

Deputy project manager, Geres Mongolia



## Long-term project sustainability

- Insulation market will sustain itself with already available products and services.
- Quality of the insulation work will be assured through quality check forms and acts coordinated through the online platform [www.dulaalga.mn](http://www.dulaalga.mn).
- Energy auditors will be trained in simplified energy audits of detached houses.
- The branch dedicated to managing MSMEs of the construction sector will continue to recruit, train and promote MSMEs working in the sector.
- Cooperation developed with local and national authorities will help scaling-up and continuing the actions in different cities and provinces.

## Project contributions to Climate Change Mitigation and SDGs

The project has contributed to climate change mitigation and SDGs, especially SDG12, by developing and implementing energy efficient solutions, encouraging stakeholders, and engaging communities to switch to more sustainable consumption and production practices and enabling households to access energy efficient products. As a result of the project's implementation, average energy consumption for heating of 1,546 individual houses was decreased, by saving a total of 5,394,743 kWh of energy consumption, avoiding 2,411 tons of lignite and 3,556 tons of CO<sub>2</sub> equivalent greenhouse gas emission.

The insulation solutions and various products developed under the Switch Off Air Pollution project were able to create up to 70% of energy efficiency in the ger area of Ulaanbaatar city, decreasing fossil fuel consumption and reducing air pollution. Linking the insulation solutions with green loans through financial institutions is enabling households to get access to energy efficient insulation products. It is also increasing the demand for environmentally friendly goods and products.

**SDG 1, SDG8:** The project has been identifying, recruiting, training and promoting the construction sector brigades, creating links to green employment. The latter were trained on energy efficient insulation solutions and contributed to increasing their annual turnover even during the COVID-19 pandemic. This has contributed to more skilled brigades, increased income, additional job opportunities and poverty reduction.

**SDG 3:** Households who implemented energy efficient insulation solutions experienced improved thermal comfort, decreased frequency of respiratory system diseases, which led to less expenditure on health and reduced stress in preparing fuel and firing stoves. This has resulted in better health and well-being of households living in the ger area.

**SDG 5:** A Gender and Protection Mainstreaming Study was conducted during the implementation of the project and was integrated into the plan of action. SOAP has promoted inclusivity and gender equality in the construction sector by encouraging female led MSMEs to join the project, as well as by developing training curricula on gender and protection delivered to various stakeholders.

**SDG 7:** Through setting up a market-based delivery model, enabled access to energy efficient insulation products and services and financing options for retrofitting detached houses. The insulation products and services developed are able to save energy consumption of detached houses up to 70%.

**SDG 13:** The project was able to reduce the average energy consumption for heating of 1,546 individual houses, by avoiding burning of 2,411 tons of lignite and emission of 3,556 tons of CO<sub>2</sub> equivalent greenhouse gas.

# Impacts at a Glance

<b>Economic Impact</b>	<ul style="list-style-type: none"> <li>• Market based delivery model is developed, creating job opportunities in the insulation sector such as insulation brigades, Energy Advisors, Suppliers and energy auditors, etc.</li> <li>• Trained MSMEs were able to earn 5,287 EUR/year and the turnover of project trained MSMEs amounted to 277,945 EUR. SOAP was able to provide additional job opportunities to engaged MSMEs during COVID-19, where they had no or little income.</li> </ul>
<b>Environmental Impact</b>	<ul style="list-style-type: none"> <li>• The project was able to reduce the average energy consumption for heating of 1,546 individual houses, by avoiding burning of 2,411 tons of lignite and emission of 3,556 tons of CO<sub>2</sub> equivalent greenhouse gas.</li> <li>• By decreasing coal consumption and improving the energy efficiency of houses, the project has contributed to reducing air pollution, CO<sub>2</sub> and particulate matter pollution.</li> </ul>
<b>Social Impact</b>	<ul style="list-style-type: none"> <li>• Occupational health and safety training was integrated into the part of the mandatory brigade training curriculum.</li> <li>• Local communities were also mobilised through the Simple Solutions Campaign, greatly contributing to raising the awareness of the benefits of insulation and DIY solutions. The Campaign reached 16,000 people online and offline.</li> <li>• 73 MSMEs, 30 energy auditors were trained</li> </ul>
<b>Climate Benefits</b>	<ul style="list-style-type: none"> <li>• 5,394,743kWh energy saved in four years</li> <li>• Avoided emission of 3,556 tons of CO<sub>2</sub> equivalent greenhouse gas.</li> </ul>
<b>Green Finance</b>	<ul style="list-style-type: none"> <li>• Networking events of MSMEs and construction sector companies were organised twice during the implementation period.</li> </ul>
<b>Target Group Engagement</b>	<ul style="list-style-type: none"> <li>• 1,546 households implemented energy efficient insulation solutions.</li> <li>• 55 MSMEs actively engaged with the project for insulation work</li> <li>• Simple Solutions Campaign was organised in Sukhbaatar and Songinokhairkhan districts engaging more than 16,000 people</li> <li>• 3 financial institutions - 2 banks, 1 NBFi signed MoUs</li> <li>• 8 construction material suppliers signed MoUs</li> <li>• Cooperation with AFUBCAP project led by WB and Alliance Française and MoU signed</li> <li>• MoU signed with the Ministry of Construction, UB municipality, Sukhbaatar and Songinokhairkhan district.</li> <li>• 5 awareness campaigns deployed/ 1 portable size model home/ 10,852,021 impressions over the line media campaign /13,487(51% women, 49% men) UB residents reached by below-the line media campaign.</li> <li>• 5 PEAC meetings organised(165 women, 157 men)</li> <li>• 5 meetings of technical committee were organised (28 men, 22 women).</li> </ul>
<b>Policy Development</b>	<ul style="list-style-type: none"> <li>• MoU signed with Ministry of Construction and Urban development</li> <li>• Field visits with Ministers of Construction, Environment and donors</li> <li>• PEAC meeting with sectoral stakeholders</li> <li>• Simplified energy audit for detached house calculation</li> </ul>
<b>Europe-Asia Cooperation</b>	<ul style="list-style-type: none"> <li>• Project opening and closing event. The event included high level delegations, international stakeholders and local organisations and authorities.</li> <li>• Rammed earth construction pilot - PADEM NGO</li> <li>• Renovation of Nogoonnuur park community center building - Alliance Française</li> <li>• 1 comprehensive replication toolbox developed</li> </ul>



## FUNDING

EUR 2,191,896.24  
(EU Contribution: 80%)



## DURATION

January 2018 - April 2022



## PARTNERS



GERES



Building Energy Efficiency  
Center (BEEC)



Ger Community Mapping  
Center (GCMC)



Mongolian National Construction  
Association (MNCA)



People In Need (PIN)



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