



# IMPROVING EDUCATION CONDITIONS BY OPTIMIZING THE ENERGY EFFICIENCY OF EDUCATIONAL BUILDINGS IN THE ARKHANGAI PROVINCE



MONGOLIE

## ENERGY EFFICIENCY AND THERMAL COMFORT OF EDUCATIONAL BUILDINGS



PROVINCE OF ARKHANGAI  
Tsetserleg

**-14°C**

is the average temperature during the cold season (October to April) in the province of Arkhangai

### BENEFICIARIES

- **1,300 school children and educational personnel** will benefit from better thermal comfort
- **6,000 citizens** aware of energy and climate issues
- **20 construction companies**, more than 180 craftspeople and / or entrepreneurs supported
- **96,000 inhabitants** of Arkhangai will benefit from better local policies
- **220 elected officials and technicians** from institutions, as well as **2 local associations** strengthened on energy-climate issues

### CONTEXT AND CHALLENGES

The Arkhangai Province is a predominantly rural area located in the heart of the Khangai Mountain in Mongolia. It is characterized by an **extreme continental climate** with hot summers and long, dry and extremely cold winters.

Geres has been working in Arkhangai since 2012 in partnership with civil society and local authorities. A Community-based study and awareness and capacity building activities has shown that global warming is a pressing reality for the Arkhangai population.

**Over-reliance on coal for heating and cooking purposes** is a key factor to Greenhouse Gases emissions and strongly contributes to air pollution. Related health problems disproportionately affect children, pregnant and lactating women, and elderly.

Most public buildings (educational, health, social, administration) don't comply with insulation standards, offering **very poor comfort** to their occupants.

The pilot construction of an **energy-efficient bioclimatic building** housing a safe house for victims of domestic violence in the provincial capital, carried out by Geres in 2018-2019, has shown the interest and relevance of this type of construction to reduce the consumption of coal dependence, energy expenditure and improve the living conditions of users.

### OBJECTIVES AND PROPOSED SOLUTIONS

In order to contribute to reduce carbon footprint and increase resilience to climate change through an inclusive energy transition in Arkhangai province this project focuses on three complementary axes:

- **Pilot interventions in educational buildings** demonstrating the feasibility and relevance of improving energy efficiency in public buildings to improve the comfort and well-being of occupants and users, reduce energy savings expenses and reduce air pollution.
- **The gradual rise in skills of professionals in the buildings sector**, allowing the emergence of a local supply of solutions related to energy efficiency sustainable energy services.
- **Raising awareness of territorial stakeholders** (public authorities, associations, citizens, etc.), strengthening local institutions capacities for energy-climate planning.

## ACTION PLAN 2019 - 2022

- **Energy renovation of pilot educational buildings:** identification and preliminary studies of the energy efficiency of at least 2 kindergartens within the renovation programs defined by local policies, conduct of energy work in the form of training sites with local entrepreneurs, monitoring of energy consumption and expenditure and measurement of thermal comfort in these 2 buildings as well as the safe house built in 2018
- **Structuring of the sustainable buildings sector:** support and training for building professionals, proposal of a financing strategy and alliances with technical and financial partners
- **Awareness raising and citizen mobilization:** strengthening the capacity of local NGOs and media, awareness-raising activities towards users
- **Capacity building and advocacy with public actors,** to integrate climate-energy issues into their actions. Support in the development of a local energy efficiency action plan (LEEAP) and in the improvement of existing regulations in line with national guidelines (climate commitments, energy and education policies, etc.)
- **Capitalization of lessons learned** from the project with local stakeholders, exchange of experiences with the capital Ulaanbaatar, promotion of actions at regional and national level

## EXPECTED RESULTS/IMPACTS

### Social and sanitary impacts

- Improvement of well-being and thermal comfort in the constructed/renovated buildings
- Reduction of indoor air pollution in schools, helping to improve the student and educational staff health
- Reduction of absenteeism in class

### Economic and institutional impacts

- Structuring a local economic sector on green buildings
- Reduction of budgets dedicated to energy for public institutions
- Developing political and regulatory frameworks dedicated to energy efficiency in buildings

### Environmental impacts

- Improving the carbon footprint
- Awareness of stakeholders to the impact of their activity on climate change



## TECHNICAL AND FINANCIAL PARTNERS

- Agence Française de Développement
- Government of Arkhangai
- Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) Mongolie
- Association « Sustainable Future Development »
- Provincial Union Builders NGO



## MORE INFO



[www.geres.eu](http://www.geres.eu)

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