



# ENERGY-SAVING SOLUTIONS FOR HOUSING



In order to improve living conditions and better adapt to Climate Change, GERES activities promote large-scale dissemination of energy saving solutions and sustainable use of natural resources in rural areas



## BACKGROUND AND CHALLENGES

- Extreme winter climate in the **Central Highlands of Afghanistan**: due to lack of house insulation and **low efficient heating devices** and despite **large expenditures on fuel**, indoor temperatures can dip down **-30°C**.
- **Challenged access to energy** for cooking and heating: fuel collect practices have a strong **negative impact on the environment**, and energy-saving solutions are not adapted and affordable.
- Degraded environment: due to fuel collection that increase **erosion and negatively impacts soil fertility** as well as toxic indoor smokes significantly **affect people's health**.
- Government agencies and public institutions have **insufficient means** to fulfil their mandate, whereas they are key stakeholders for the development and the **sustainable management of natural resources** of Central Highlands of Afghanistan

55.7% of the rural population hit by poverty in Central Highlands

## OBJECTIVES AND PROPOSED SOLUTIONS

Over its **30 years of experience** in cold Asian countries GERES has developed locally-adapted technologies to improve **energy performances of households** and **their living conditions in winter**. The approach is based on capacity-building of local artisans and retailers, with no or low direct subsidies.

Currently, GERES aims to enhance **sustainable economic development of Central Highlands** by disseminating appropriate technologies and know-how:

- **Increasing the interest** in Energy Saving Solutions (ESS) through awareness and communication campaign at community and school level.
- **Increasing the affordability** of ESS through the development of saving plan at household level
- **Strengthening small entrepreneurs** in the private sector through technical, business management, and marketing support.
- **Identifying the vulnerability** and resilience capacities of communities to climate change
- **Establishing bridges** between governmental and non-governmental stakeholders through production and transfer of knowledge, experience-sharing, awareness-raising and institutional dialogue.

### BENEFICIARIES

- **85 craftsmen and retailers**
- **3000 households equipped with energy-saving solutions** (21 000 beneficiaries\*)
- **300 demo's sites owners**
- **27 schools for environmental campaign**
- **Public institutions**
- **Development partners**
- **Local communities**

\* 7 pers./household

## ACTIVITIES 2014-2017

### Strengthening the artisan value chain to the exit strategy

- **2014 : R&D on ESS** (passive solar houses, improved stoves, etc.), to design and disseminate quality solutions adapted to local context.
- **2014-2015 : Development of the artisans capacities and generation of a sustainable demand for the ESS developed.**

Formations to build craftsmen's technical and economic capacity; installation of a workshop to develop new prototypes; development of certification system for the craftsmen; development of a knowledge sharing platform; sociological study and building of demonstration's houses to raise awareness of local communities

- **2015-2016 : Structuration of the value chain, institutional dialogue and awareness raising on ESS and climate change.**

Development of a craftsmen and retailers network association; development of saving plan at household and community level; implementation of environmental awareness campaign at schools level; field exchange visits between craftsmen and local authorities.

- **2017 : Exit strategy after the settlement of a sustainable supply in ESS**

Economic capacity of craftsmen and retailers is increased; programme sustainability is strengthened through knowledge and best practices handover and dissemination; best practices in energy efficiency are integrated to standards and norm production.

## EXPECTED RESULTS AND IMPACTS

### ENVIRONMENT

- **Natural resource depletion** is limited through the reduction of bush and dung collection, and economic activities based on environmental best practices.
- **Increased sustainable management** of natural resources by farmers.

### POPULATION

- **10% of the local populations equipped with energy saving solutions** allowing improved households' energy resilience.
- **20% of fuel savings in winter** and increased indoor comfort.

### INSTITUTION

- **Raised awareness** of the close link between environmental protection and energy saving solutions.
- **Increased environmental awareness** and involvement of the communities.

### ENTREPRENEURS

- **Development of the artisan sector** (carpenters, masons, etc.), through technical training and support
- **Improvement of value chains** for raw material to increase the quality and to reduce the cost of ESS
- **Jobs will be created** resulting from the development of a green economy.

### FINANCIAL PARTNERS

- French Agency for development
- Fondation Abbé Pierre
- Fondation Lord Michelham of Hellingly

### TECHNICAL PARTNERS

- MADERA
- Solidarités Internationale



**GERES leads a consortium of 3 NGOs** which targets the general improvement of livelihoods and living conditions of rural population through an integrated approach. This approach sees the "agriculture-energy-natural resources" triptych, as interdependent and complementary components that must necessarily be handled jointly.



### Benefits of the Passive Solar House:

- Combines veranda with insulation.
- An additional warm room in winter.
- A social status added value
- Reduced pressure on environment: 5,000 m<sup>3</sup> of wood annually saved, and 3,000 tons of CO<sub>2</sub> not emitted.



Passive Solar house Demonstration

TO SEE ON OUR WEBSITE: [WWW.GERES.EU](http://WWW.GERES.EU)

- © **Publications** : [Energy-efficient buildings](#) and [Passive Solar House leaflet](#)
- © **Video** : Bioclimatism in Central Asia
- © **Video** : Bioclimatic housing in Afghanistan
- © **Photos**: Flickr webpage of GERES

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