

#### OBJECTIVES

- Improve women's life conditions : reduce the amount of time spent on gathering the wood, improve sanitary conditions, make safer appliances;
- Reduce the energy consumption of rural households;
- Facilitate financial access to efficient appliances for local populations;
- Preserve natural resources by creating a local biomass- energy sustainable supply chain ;
- Establish conditions for extending the project to a larger scale

#### BENEFICIARIES

##### The project is targeting:

- Women and young girls from rural areas
- Local craftsmen and gas oven producers
- Local energy appliances suppliers
- Training staff concerned with this topic

#### PROJECT BACKGROUND AND STAKES



*Excessive wood gathering for domestic use increase deforestation and soil erosion.*

**In Morocco**, the firewood is used to 90% by rural households for their daily activities : cooking the meals, baking the bread, heating the water and the homes during winter. Very popular, the traditional appliances (roman cook stove, three-stones stoves and braziers) are also known for their poor energetic yield (between 5 and 10%) and for the noxious fumes they release.

**In addition, gathering** the wood represent a heavy chore for women and young girls. The time spent on this activity is growing with the deforestation. The lack of a sustainable management of this resource leads to a national deficit of wood-energy of 3,1 million of tones a year and to a loss of 31 000 ha of wooded fields, from which 75% are caused by firewood gathering.

**Despite subsidies** granted by the kingdom, the use of gas remains an expensive fuel alternative for local populations. However, it represents an intermediate solution for bread baking, especially when local biomass is no longer available. But this gas supply can be useful only joint to the utilization of more efficient appliances. GERES is working to make possible the substitution of firewood with gas by improving the quality of stoves. More efficient and less energy-consuming appliances are eventually made available to the population.

A sustainable and sound biomass-energy resource management related to a massive distribution of low-cost high energy-efficient appliances, will help people get over this impasse.

**Facing a lack** of local existing appliances, GERES intends to make available a stove adapted to people's financial possibilities. This process includes efficiency surveys, material securing, dissemination strategies, biomass conservation, awareness raising actions for local actors.



*La collecte du bois est une lourde charge pour les femmes*

**Eventually**, this project will improve women's life conditions and wood fuel resource preservation.

## ISSUES AND EXPECTED OUTCOMES

- **Environment** : Forest conservation : increased potential of capturing CO<sub>2</sub> (creation of measuring devices). Wood fuel consumption reduction : wood fuel savings of 2600 tones/year at the end of the project; CO<sub>2</sub> emission reduction – 3600t/year at the end of the project.
- **Energy** : 1250 gas ovens and 500 high energy efficient multifunctional cookers will be brought to people's homes. 3 commercial ovens brought in the country.
- **Social** : Women's life conditions improvement: free time (smaller amount of time allocated to gathering wood): 112 000 days/year. No more women's exposure to indoor air pollution (carbon monoxide and particles, creation of 10 direct long-lasting jobs).



Gas oven

- Information and raising awareness network : biomass energy training workshops, dissemination and impact of communication and capacity building tools, presentation of outcomes and partnerships established through the project.

## ACTION PROGRAM 2009-2011

**Target intervention zone : Chefchaouen province. 3 categories of actions are in progress:**

### 1<sup>st</sup> category : appliance efficiency

After validating their performances in laboratory, new types of gas ovens and multifunctional cookers adapted to rural environment are now manufactured. The project aims at:

- producers' monitoring and quality control;
- creating a revolving fund for purchasing efficient energy appliances ;
- gas oven pre-dissemination ;
- introduction of a multifunctional cooker in two pilot households (field validation) and pre-dissemination in twenty other homes;
- undertake actions aimed at setting up the industrial capacity of every producer
- certification of a highly energy efficient kit
- populations' raising awareness actions about the dissemination of individual high energy efficient appliances (1 250 gas ovens and 500 multifunctional wood fuel cookers)

### 2<sup>nd</sup> category : biomass sustainable management

- identification of areas at risk ;
- implementation of a biomass management project ;
- partnerships with local authorities ;
- support for the constitution and the organisation of a forest cooperative;
- support for the introduction of monitoring tools, monthly monitoring and control actions;

### 3<sup>rd</sup> category : large-scale extension

- creating communication tools, large-scale training for the persons in charge
- organization and coordination of a biomass-energy national network based on the acquired experience;
- creation of financial products and services capable of supporting the acquisition of these efficient systems;
- identification of local financial partners for a large-scale extension ;
- identification of areas and partners.

## PARTNERS

### Technical partners

- GERERE (Study and research group on renewable energy and environment)
- Planète Bois : research office specialised in creating and developing cooking equipment appliances for the southern countries
- ARDB (Rif association for local and sustainable development of Bellota)

### Institutional partners

- Mohamed 6 Fondation for environmental conservation
- High authority for water, forests and fight against desertification
- Chefchaouen's Provincial Commission for agriculture
- MEMEE (Moroccan Ministry of Energy, Mines, Water and Environment)



Raising awareness workshop

CONTACT GERES MAROC  
Aymar BOURGY  
a.bourgy@geres.eu  
TEL. : + 212 76 37 24 69

CONTACT GERES FRANCE  
Alain GUINEBAULT  
a.guinebault@geres.eu  
TEL. : + 33 4 42 18 55 88