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# **Proposal for equitable, climate-proof and sustainable development: a gender sensitive nationally appropriate mitigation action (NAMA) for the energy sector in Georgia**

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# Contents presentation

- 1) Introduction
- 2) Base line information – energy situation in rural low income areas
- 3) Transfer and adaptation of affordable technology
- 4) Climate and Economic results solar water heater pilot phase
- 5) Gender equality: lessons learnt
- 6) Specific gender-equality recommendation for NAMA

# Introduction

- RCDA and WECF International cooperated to address “energy poverty” in rural areas Georgia since 2009
- Focus on a shift from fuel-wood based to solar water heating for low-income rural households
- Focus on villages which have no access to natural gas supply
- ‘Co-benefits’ had been planned in area of gender equality and women’s economic empowerment
- The Lessons learnt from these last 5 years are the basis for development of “gender-sensitive” NAMA, presented here

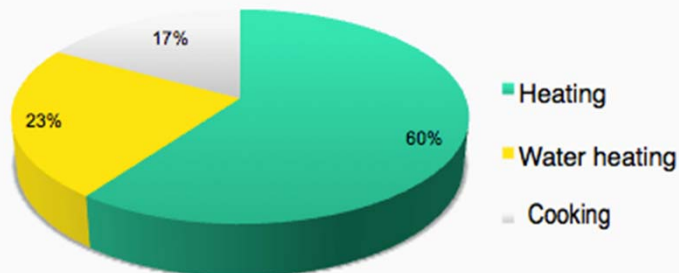
# Baseline situation

Firewood is the main source of energy

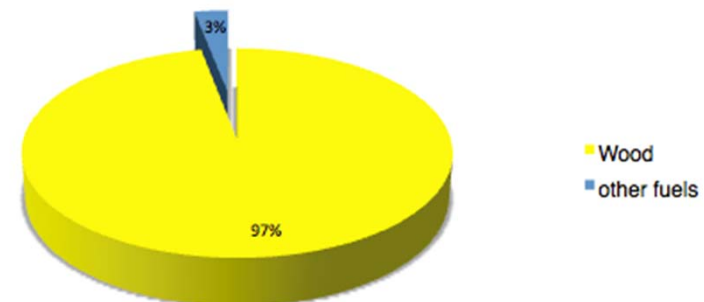
This impacts women and increases climate and environmental risks:

- **Women's unpaid work** burden for preparing fire, hot water
- Indoor air pollution: **women and children health** most affected
- Erosion and landslides due to **deforestation**: accident risk
- **Climate impact**: 1.44 million tons of CO2 emissions p/yr by 515.000 rural household and institutions (*conservative estimation*)

what fuel wood is for used for  
in the average rural households  
\*no gas connection

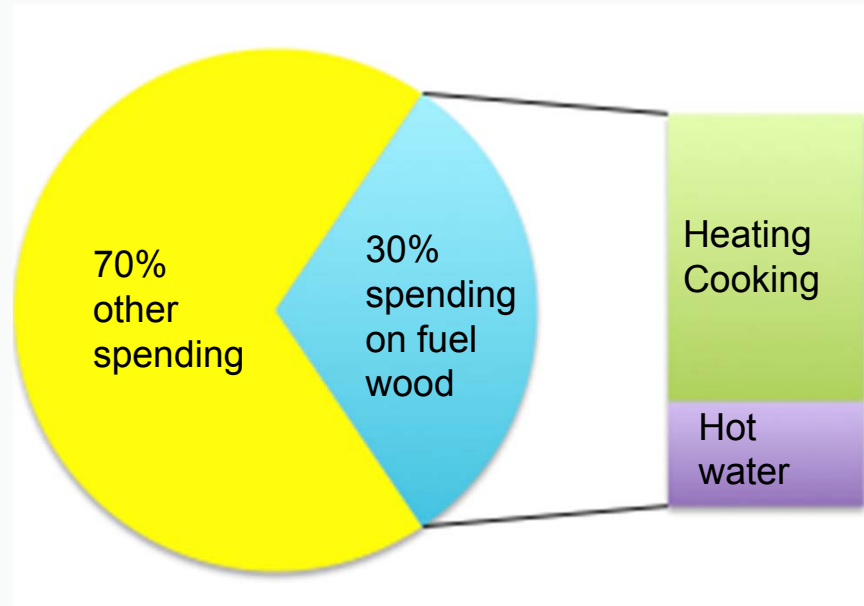


Wood consumption in the energy mix  
(municipalities without natural gas supply)



# Baseline situation (2)

Rural households spend about 30% of their income on energy – energy poverty



Rural households experience barriers to change their situation:

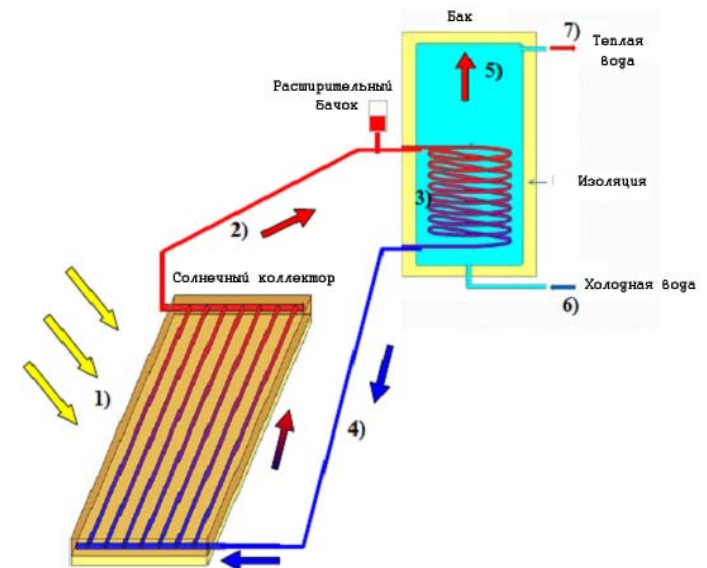
- Very low availability of locally produced energy alternatives
- Low awareness about climate mitigation energy solutions
- No access to finance, **especially for women** (who lack assets, and thus no collateral)

# Design and testing of technology

- Need identification: move from fuel wood to solar
- Not available in Georgia in 2009: affordable solar water heaters
- Technology transfer (from Germany) followed by adjusting the technology to the local needs, materials, financing opportunities, skills of local women and men
- Testing of 200 demonstration units
- Continues monitoring of 90 units on exact CO2 reduction

## Final version is:

- Frost resistant Solar Water Heater (heat exchanger with anti-freeze)
- 2m<sup>2</sup> collector area
- 150 l warm water tank (professional)
- Price for whole system ca. 350EUR (for 2m<sup>2</sup>)



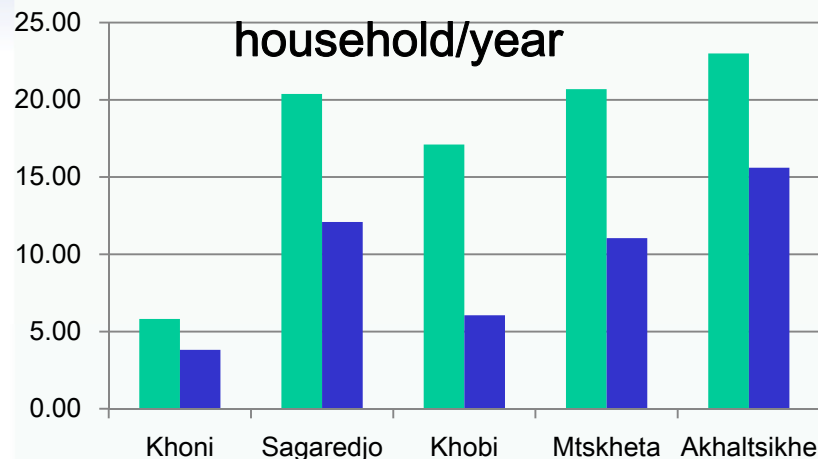
# Climate mitigation & economic results

## results

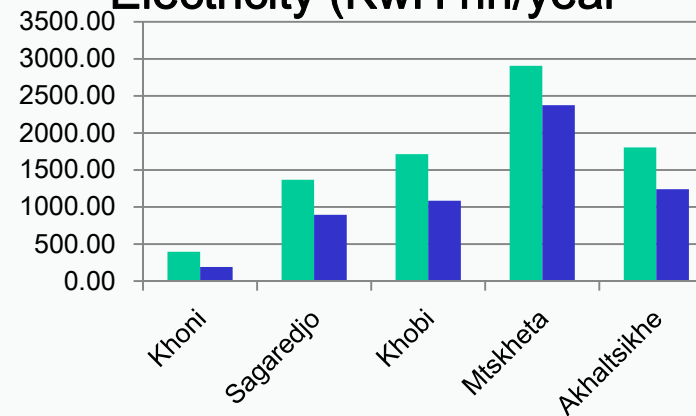
- **400** solar collectors constructed and installed in rural areas
- p/solar collector: reduction of 700kg CO<sub>2</sub>
- Less spending on fire wood, average 32% savings on household budget



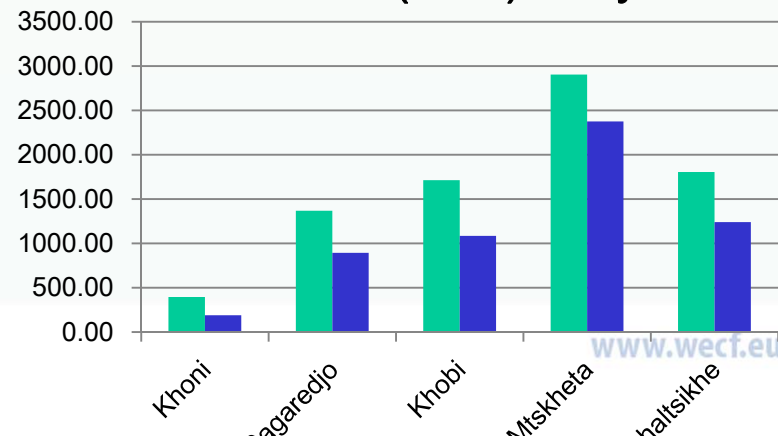
### Firewood (m<sup>3</sup>) use per household/year



### Electricity (KwH hh/year)



### Costs for fuel (GEL) /hh/year

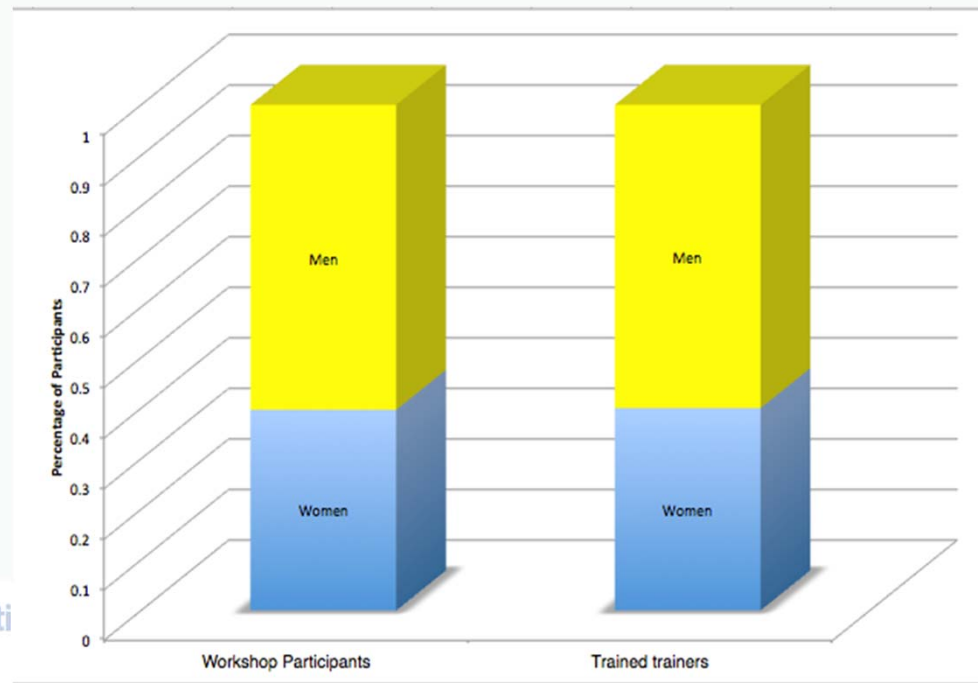


# Gender Equality: lessons learnt

- Traditional Gender labour division: specific skills for construction only men
- Often in construction and infrastructure projects, only men are employed
- In this pilot phase, gender equality was aimed for trainings on construction, maintenance and monitoring (VMR)
  - 40% was achieved
- To ensure parity, women were encouraged to become maintenance and monitoring experts – successful strategy !



Safe and Sustainable Energy and Climate Protecti





# Benefits for women: lessons learnt

Women benefitted most from SWH installed at their home:

- reduced unpaid domestic work burden !
- greater hot water availability for washing, cooking, hygiene

Women were majority of people wanting to invest in SWH

- Women were mostly unable to obtain credit from bank for SWH
- A lease-purchase financial scheme contracted 80% women – bring to scale!

Women excellent as monitor and maintenance experts SWH

- Trained women were reliably monitors, able to gain additional income
- Women were reliable in using and maintaining SWH properly
- Women great promoters of the technology



## Proposal for Gender Equitable Sustainable Development NAMA

- **Expected duration:** 5 years
- **Funding:** application to NAMA facility
- **Objective:** Foster climate resilient, low-carbon development and poverty reduction in an inclusive way through building capacities and enhancing cooperation between stakeholders for promoting the use and up-scaling of Solar Water Heaters and Fuel Efficient Stoves.
- **Beneficiaries:** (i).direct 20000 households (ii) Indirect: 100000; (iii). LAs (250); (iv). Private Businesses (15);
- **Potential for upscaling:** at least 60.000 SWH and 60.000 FES

# NAMA aims:

The NAMA has a potential of saving 48.000 tons of CO<sub>2</sub> per year in the first phase, with a potential for up scaling up to 5.760.000 tons of CO<sub>2</sub> over a 25 year period (estimated lifetime technologies).

## Co benefits:

- *20.000 families have access to FES/SWH and save up to 50% costs for heating water and heating their houses*
- *20.000 families **increase their quality of living** and comfort through improved access to heat*
- *Firewood consumption will decrease by 245.000 m<sup>3</sup> per year*
- *New **economic incentives and jobs** are created in rural areas for women and men*
- *Reduced exposure to indoor air pollution*
- *Increased gender equality*
- *national **energy dependency** will be decreased through diversified, decentralized and secure energy solutions*

## Implementation of technologies:

Fuel efficient stoves (FES) uses up to 50% less wood than conventional stoves.

The Solar water heater (SWH) also works during winter in case of sunshine due to a heat exchanger with anti-freeze.

Construction, installation and maintenance of 10.000 Fuel Efficient Stoves and 10.000 Solar Water Heaters :

*Both technologies are made with local materials* in community based, commercial, non profit technology production units

Run by local women (promotion, monitoring, maintenance, administration) and men (promotion, construction, installation and maintenance)

A financial mechanism with a special window for women in vulnerable situations



# NAMA -NATIONAL APPROPRIATE MITIGATION ACTION GEORGIA



**THANK YOU!**