# RENEWABLE ENERGY IN BOLIVIA

IANAS ENERGY PROGRAM

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# KEY ISSUES

- Renewable Energy in Bolivia (intro)
- Climate Change and Gender (linkages)
- Examples on the ground
- Conclusions

# CONTEXT

2,000 million people worldwide lack access to modern energy service

In LAC 47 million people without access to energy

Access to energy makes a difference in the quality of peoples life and improve their chances for sustainable development

# RENEWABLE ENERGY - GENERAL ASPECTS

Electricity coverage in Bolivia 2007: 71% (89% urban, rural 39%)

Low coverage of rural electrification: 3 million people without access to electricity and almost 4 million use firewood

High geographic dispersion

Important role in rural development and the generation of local economies

Poor pay proportionately more for energy services of low quality

Fuente: Energía para el Desarrollo ENERGÉTICA

# RENEWABLE ENERGY IN RURAL AREAS

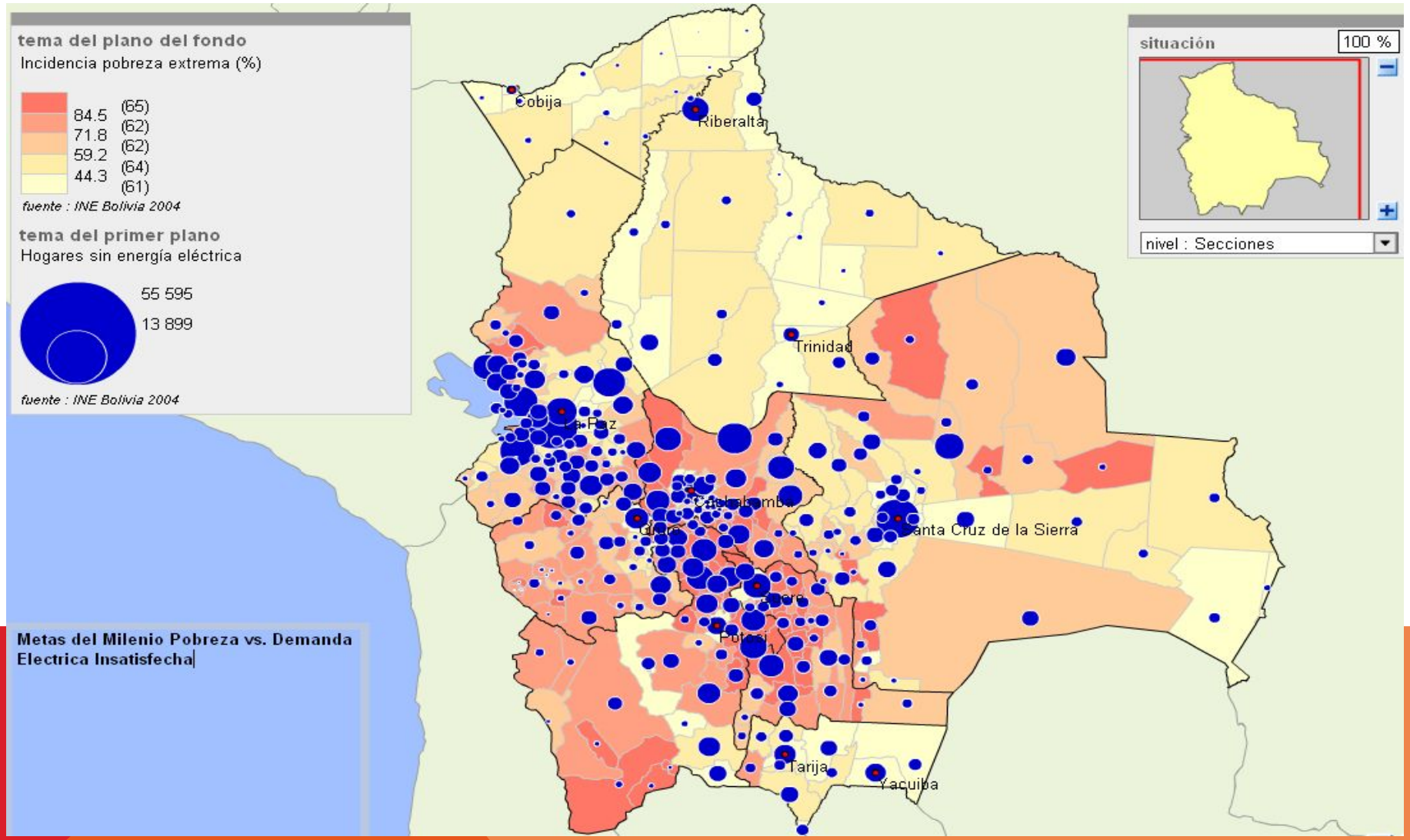
Solar energy: Photovoltaic systems in place through a micro credit and subsidy financing , 20.000 systems already installed during the last 10 years.

Hydro Power: 50 micro hydropower plants generating electricity for almost 6000 families, 3 megawatts where many of them are operating for 20 years.

Wind Power : Still in a introductory process, legal barriers still on.

Biogas: technology is more accessible and is wide spread in the high lands, organic fertilizer, biogas for cooking

# POPULATION WITHOUT ACCESS TO ELECTRICITY




(FUENTE: M. FERNANDEZ)

# ENERGY AND POVERTY (FUENTE: M. FERNANDEZ)

750.000 viviendas en el área rural.

61% viviendas sin electricidad
80% usan biomasa

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**Hogares en comunidades con menos de 120 viviendas: 600 M**
**(80% de la población rural)**
En este segmento:
Cobertura eléctrica: 17,2%
Uso de biomasa : 81%

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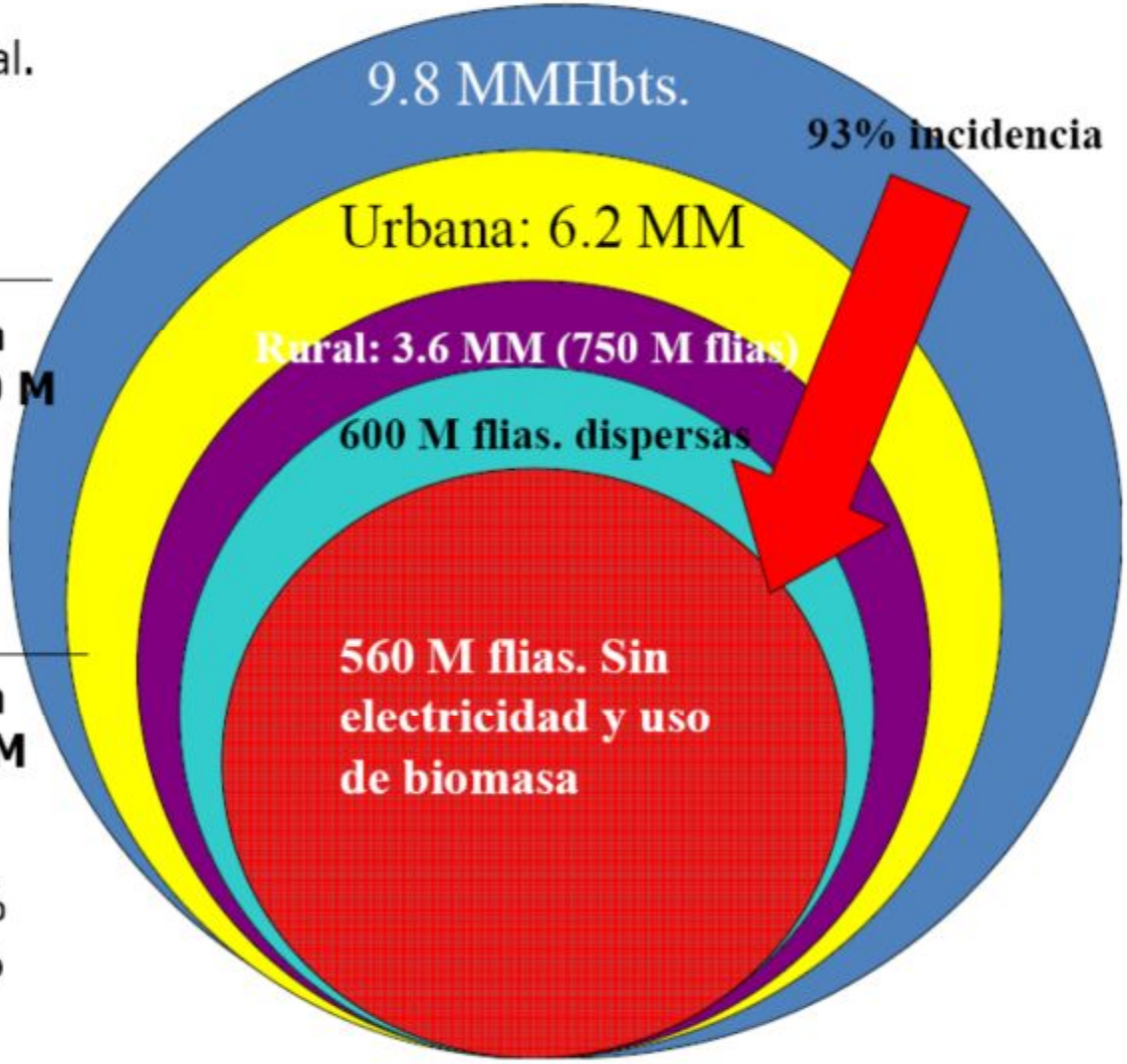
**Hogares en comunidades con menos de 60 viviendas: 560 M**
**(72% de la población rural)**
En este segmento:
Cobertura eléctrica: 12,7%
Uso de biomasa : 84,1%



# RENEWABLE ENERGY AND RURAL COMMUNITIES

Poor rural families in remote small communities have low chances to access to modern energy due to low income

Pay more for fewer units of energy and low quality (11% of electricity use accounts for 78% of their expenses). Cost double city electricity cost

Immersed in a "market"  of batteries, candles, lighters, which represents almost 50MM $ U.S. / year

**XIX century reality in the XXI century**

# GENDER AND CLIMATE CHANGE

LINKAGES

# LINKAGES

Poor social groups bear the brunt of climate change not only because they are more dependent on natural resources, but also because they lack the requisite capacity to adapt to climate change. About two thirds of the world's population living in poverty are women, which underlines their greater vulnerability to the changing climate

Studies have shown that women and children are 14 times more likely to lose their lives in a natural disaster (Araujo et al. 2007:1)

In the aftermath of natural disasters, the lack of ownership titles poses an enormous problem to women, as they are denied the right to buy a new plot of land should they have to resettle (Rodenberg, 2009: 27)

Climate change and its impact on the income security for the family increases the potential for domestic violence, as it shatters the image of the man as bread-winner, which can cause psychological stress (Rodenberg 2009: 13).

# WOMEN AS STAKEHOLDERS AND ACTORS OF CHANGE

- Mitigation or adaptation activities offer opportunities to advance the economic empowerment of women.
- Strong participation in mitigation programs and projects related to natural resources management (REDD, CDM, carbon footprint).
- Projects in the agricultural sector, in food production, domestic energy generation,

# GENDER SPECIFIC MITIGATION

The role of women in mitigation measures should not be under-estimated

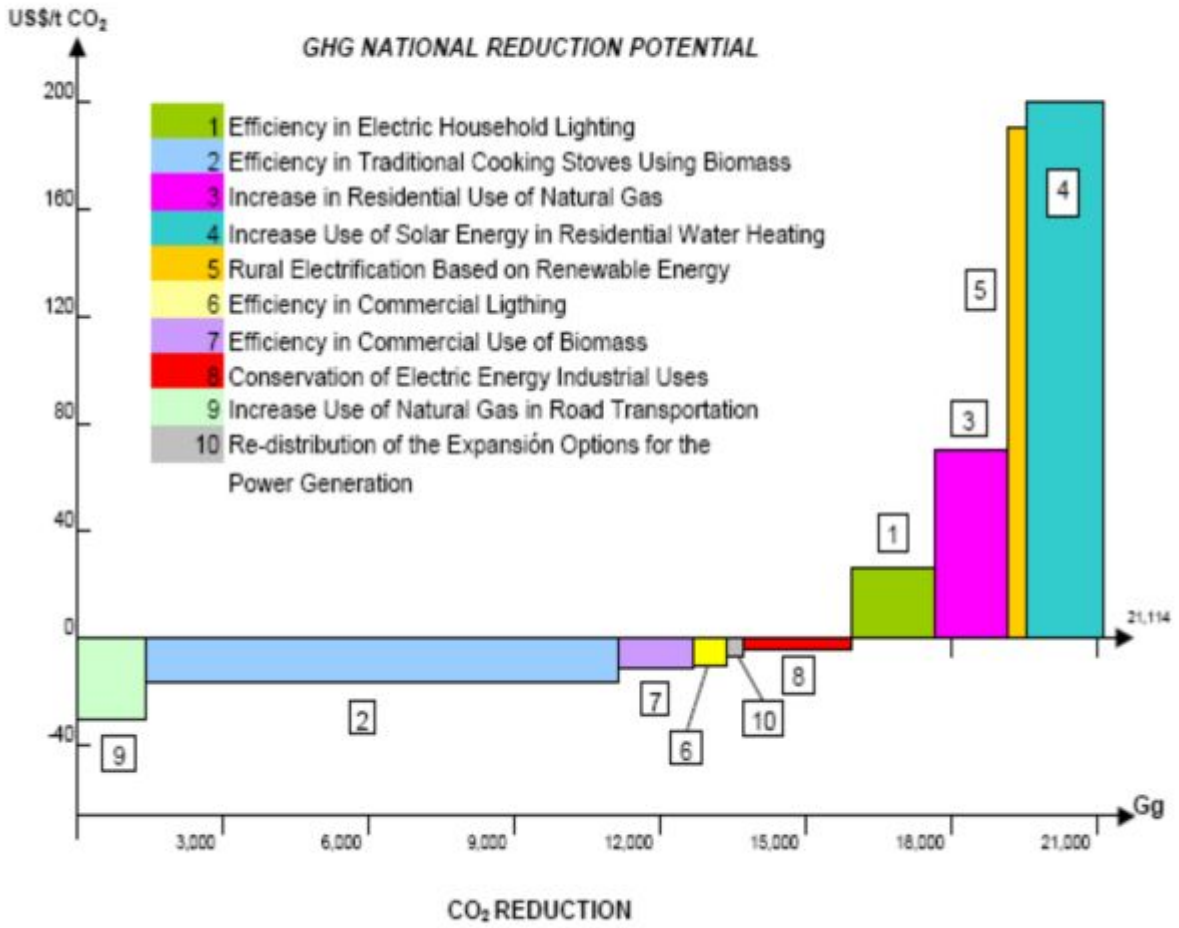
Mitigation opportunities are in areas in which women are already active.

Providing energy for the household is usually a woman's job and she often resorts to the energy-inefficient open burning of biomass, e.g., firewood.

The use of efficient energy systems at the household level (e.g., special cooking stoves and ovens) could reduce emissions and harness the potential of women as actors for mitigation measures.

# BOLIVIAN GHG REDUCTION POTENTIAL

Figure 2: Marginal Abatement Cost Curve - Energy Sector.




Source: own calculations based on results of LEAP model.

**Source:** National Strategy Study for the Participation of Bolivia in the CDM , 2000

# ENERGY AND WOMEN PROJECTS

Proyecto de Promoción y Difusión de la Norma ISO 14064, financiado por la CAF y ejecutado por IBNORCA y Servicios Ambientales S.A.

INTI ILLIMANI PROJECT

# OBJECTIVES AND BENEFITS

Improve the living conditions of about 500 Bolivian families, promoting the use of solar energy for cooking, and at the same time, fight global warming by reducing CO2 emission from deforestation and fossil fuel use.

## DIRECT BENEFITS

Cost savings by reducing the use of traditional fuels (LPG)

Time saving for women, collecting firewood and by the purchasing LPG
Reduce in-house pollution (preventing lung cancer and eye diseases for the family unit)

Clean energy source reduce risks of accidents

## ADDITIONAL BENEFITS

Reduce degradation and deforestation in rural areas,

Reduce CO2 emissions from use of LPG and firewood

## ADDITIONAL FUNDING

**GRAVITY a tourism company as a way to reduce its carbon footprint will finance 40 solar cooking stoves in Los Yungas. 4 ton CO2e /year per solar over are reduced.**

# CONCLUSIONS

- Renewable Energy is almost the only alternative for rural areas in Bolivia
- Impact in families and women quality of life can be improved through the use of RE
- The Climate change mitigation potential can be use as an additional source of funding and create additional global benefits.

# THANK YOU

# FOR YOUR ATTENTION

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