

# ***ALTERNATIVES OF ENERGY EFFICIENCY IN A SOCIO-ENVIRONMENTAL VULNERABILITY SCENARIO: QUILOMBO IVAPORUNDUVA - SÃO PAULO – BRAZIL***

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## **Overview**

Inserted as one of the objectives of sustainable development, access to energy raises the policy maker the ability to deal with a range of information on various fronts that influence how a community adheres to new technologies while maintaining many of its cultural traditions.

In this sense, understanding the access to energy as access to electricity and also to clean kitchen mechanisms, the article demonstrates the recent connection of a quilombola community to the electricity grid and its social and environmental consequences obtained from mixed questionnaires and direct observation applied during the field survey.

Among the facts indicated by the interviewees, the economic question in the monthly payment of the energy bills has a great weight in the dissatisfaction with the service provided by the distributor, mainly in scenarios of taxation by red flag, when the levels of the hydroelectric reservoirs are low and it is necessary to start the thermoelectric plants. In addition, there is in this community the culture of the use of firewood for cooking in most of the houses, in inefficient stoves.

Thus, thinking about optimizing the demands of the community together with the available energy services offers seems to be a good way to face this scenario of socio-environmental vulnerability. Therefore, simple actions of energy efficiency can have great effects when conceived respecting the local culture and aiming at the solution of chronic problems.

Having as the main energy consumer in these residences the electric shower, as a result of the access to the grid, and the problem of inefficient wood stoves, the article was conceived of low-cost technological solutions that would make it possible to overcome these two barriers.

The idea would be to replace traditional firewood stoves with more efficient stoves, improving and reducing the consumption of biomass, also making possible a replacement option for LPG, which in Brazil has faced successive increases in its prices. In addition, the heat resulting from the biomass burning process would be used to heat the bath water, significantly reducing the use of electric showers and, consequently, consumption and electric energy tariffs.

## **Methods**

The methods applied during the fieldwork to collect primary data on electric energy consumption and the use of firewood stoves in the residences were the mixed questionnaire and direct observation. For the other data such as LPG price and electricity tariffs, data from secondary sources were used. Estimates of energy efficiency and reduction of electric energy tariffs and consumption of LPG were made by the authors according to the state-of-the-art bibliography on the subject.

## **Results**

The results indicate that it is possible to improve the overall energy efficiency of residences by improving stoves and utilizing residual heat without major changes in the structure of houses or financial investments. Consolidated

this, the improvement in efficiency would be transformed into economic, social, environmental and health benefits over the population involved, reducing their social and environmental vulnerability.

## **Conclusions**

The article understands that access to energy admits great complexity, going through cultural, economic and environmental issues, being specific to each context in which it is inserted. Public policies aimed at accessing energy, because they are top-down, do not account for understanding the cultural and economic dynamics of each community, demanding a more accurate look at each situation. Based on the field work on Quilombo Ivaporunduva, the researchers were able to study a case study and think of efficiency solutions that also meet the demand of the population involved. Thus, the submitted proposal admits and respects the cultural traditions of the community while offering it the possibility of energy access more coherent to their expectations.