

## One in two people consume food prepared using wood or coal 02/05/2009

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Every day, over half the population of Paraguay, i.e. 3.2 million people, consume food that has been prepared using wood or coal.

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The aim of a recent study by the "Investing in People" program, a joint initiative of the United Nations Development Fund (UNDP), the United Nations Population Fund (UNFPA) and the United Nations Children Fund (UNICEF), is to highlight the advantages of using hydroelectric resources in our country when compared against the ecological damage caused by other energy sources.

Although the study focuses on the widespread practice of using wood and coal, which has an adverse impact on our natural resources, its intention is not to ignore the impact of other human actions, such as agricultural expansion and other more frequently discussed practices. Quite simply, the study aims to shine a spotlight on a topic that, if tackled, could be greatly beneficial to the country.

### Reforestation

Product	National consumption in tons	Tons of wood	Equivalent	Equivalent in m <sup>3</sup> of wood	Equivalent in hectares
Wood	1,762,019	1,762,019	0.8 tons/m <sup>3</sup>	2,202,524	36,709
Coal	220,643	1,323,858	0.8 tons/m <sup>3</sup>	1,654,823	27,580
<b>Total</b>		<b>3,085,877</b>		<b>3,857,346</b>	<b>64,289</b>

Ref: FAO study – Montes 41: Simple methods for manufacturing charcoal.

Estimates drawn up with the assistance of UNDP's environmental unit.

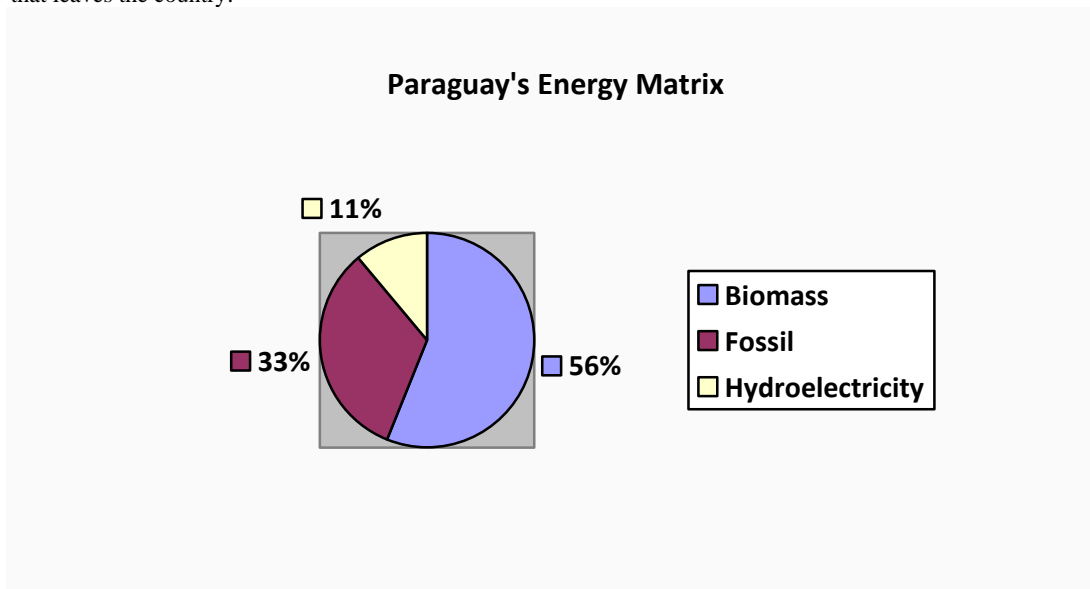
If this energy matrix is to be retained in Paraguay, without there being any increase in consumption through e.g. reforestation using eucalyptus, and with a 12-year tree-cutting rotation and an annual average increase (AAI) of 20 m<sup>3</sup> /year, in other words, a production rate of 240 m<sup>3</sup>/hectare, then approximately 16,072 hectares per year would have to begin to be reforested with a wait of 12 years for the first felling. This involves an annual investment of around \$20 million USD, without taking the value of the land into account.

If, in addition to the damage caused by consumers on a daily basis, the cutting down of trees as a consequence of agricultural expansion is factored in, and combined with the scarce reforestation that exists, it can be concluded that future generations in Paraguay will not be able to enjoy the environment that their parents are destroying. However, if there is a shift in environmental policies and if action-based initiatives are implemented to reverse the present situation, these prospects can radically change.

### Liquefied gas

Furthermore, liquefied petroleum gas, which is used as an energy source for cooking food, especially in urban areas, is an imported resource which represents a significant outflow of the country's capital. Besides the almost

3 million Paraguayans who use wood or coal to prepare food, a further 2,756,000 consume food that has been cooked using gas. In short, 50% of the population uses cooking methods that are harmful to the country's future in environmental terms, and almost all of the remaining 50%, for want of effective public policy, spend money that leaves the country.



### Electricity grid

Given that Paraguay has an abundance of hydroelectric resources and very high potential energy use, detailed studies should be carried out in order to ascertain the level of potential demand on the country's electricity grid and to encourage the public to switch to a system that is more ecological and economical, such as using electricity for cooking.

On the basis of the documentation, special mechanisms could be considered to facilitate the use of electricity in the rural sector since, in this way, truly national resources would be used, which would reduce oil and gas imports, thereby leading to financial savings.

### Household electrical appliances

In terms of cost and efficiency, there are some extremely practical electrical appliances currently on the market, such as one-or two-ring electric hotplates that consume 1,800 W/hour. Three hours of use per day for one month would cost 44,089 PYG, according to the rates set by the National Electricity Authority (ANDE). Electric induction cookers, which consume 2,300 W/h, are faster than traditional electric cooktops. Two hours of use per days for one month would cost approximately 40,000 PYG.

According to a recent study entitled "Substituting liquefied petroleum gas for electricity as an energy source for cooking" by the engineers Alonso, Balletbó and Velázquez, there are significant differences in terms of efficiency depending on the way food is cooked.

This team of professionals also estimated what the demand for electricity would be if 90% of gas cookers were replaced by electric induction cookers. It would be an extremely good idea to extend these estimations to the replacement of wood and coal at national level, in addition to the replacement of gas.

Current technology provides for the real possibility of replacing liquefied petroleum gas with cooking by electric induction, giving rise to benefits from all angles.

However, as regards wood and coal, the issues at stake go beyond market prices and must necessarily include the present and future economic cost inherent in the depredation of natural resources.

In all cases, it is more economical to switch to using an energy source that is plentiful throughout the country.

### **Change**

According to the UNDP technical experts who participated in this study, if, in the reasonably near future, the entire population was to decide to feed itself using the electricity available to cook food, it would be doing more to protect natural resources, saving money and using a greater proportion of its own energy resources.

If Paraguay opts for this approach, ANDE's billings in terms of income from the sale of household electricity would go from \$175 million USD to \$318 million USD per year (an 82% increase).

UNDP assures that the surplus could finance the reforestation of at least 20,000 hectares per year.

In Paraguay, only 55,292 persons use electricity in urban and rural areas, of whom 34,353 are located in urban areas and 20,939 in rural areas, according to the UNDP's report (see tables).