

Briquettes of sugar cane in Peru as an energy source

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Human development has always been associated directly or indirectly with energy use, and because of this sources of energy were dealt with in the recent past as fully available to human necessity. The importance of energy as an essential ingredient in economic growth, as well as in any strategy for improving the quality of economic growth, as well as in any strategy for improving the quality of human beings.

Biomass is the most important bioenergy option at present and is expected to maintain that position during the first half of this century and it is the fourth largest source of energy worldwide and provide basic energy requirements for cooking and heating of rural households in developing countries. Biomass resources offer substantial variety in terms of chemical and physical properties. So far agricultural and forestry systems operate in such ways that people exploit only part of their production what is called “primary” product, while they leave unexploited significant “residual” quantities.

Considering the agricultural- based economy of much of the developing world, it is likely that situation is typical in many developing countries. The worldwide quantities of agricultural residues are vast, but is the location of waste generation that will largely determine their potential to be used as a fuel substitute. Utilization of agricultural and forestry residues is often difficult due to their uneven and troublesome characteristics. One possible means of making more efficient use of the biomass residues is by briquetting.

Biomass briquetting can be defined as the densification or compaction of biomass material by the application of pressure. Briquettes are distinguished from pellets by their size. Briquetting increases the bulk density of the biomass material increasing its energy density, which in turn reduces transport, costs and makes it much easier for the end user to handle.

In order to understand the feasibility of briquettes as an alternative fuel to wood in different parts of the economy, it is important: Firstly to appreciate the current demands for wood and who the consumers are. Secondly, the quantity, availability and location of residues needs to be taken into account, in order to determine whether there are sufficient biomass residues available to provide enough energy to reduce significantly fuelwood demand where it needed. Thirdly, social factors affecting the uptake of the fuel need to be taken into account, for example cultural and historical reasons for cooking in a certain ways. In summary, it is necessary to identify where briquetting is practically, economically and social and thus identify to whom it would be most beneficial and marketable as an alternative energy source.

In the case of Peru, the agricultural and forestry residues are resources that are not currently commercially exploited and have great potential as a primary energy source. Sugar cane is the

largest crop produced in Peru, the greatest industrial use is given by the production of sugar and it is one of the most important in Peru.

Harvesting of sugar cane causes solid waste to be estimated to be 25% of the weight of cane clean. In the industrial phase, ecological impacts are caused by the burning of sugarcane and the burning of the waste from the integral sugar cane.

Likewise, the Ministry of Agriculture of Peru, established Supreme Decree No. 016-2012 -AG, approved the Regulation on the Management of Solid Waste in the Agricultural Sector, which states in article 1.c, to promote, regulate and Encourage the participation of private investment in the various stages of solid waste management, promoting in particular the eco-efficient reuse of resources that can be generated from non-hazardous agricultural and agro-industrial waste. This decree obliges to look for the agroindustrial companies to look for new forms of technologies for the use of their residues and to see their residues as a form of economic income.

The objective of the paper is to study the influence of compaction pressure, percentage of binder and granulometry to optimize the process of densification in the quality of the briquettes of sugarcane leaves to obtain a quality product to obtain briquettes quality.