

BRIQUETTE SECTOR IN KENYA

Briquettes have been produced on a small scale in Kenya since the 1970's. However, they are not used widely because of the cultural preference for charcoal and lack of cooking equipment compatible with the briquettes produced. Due to intensive deforestation, the government started to issue official bans on the production and transportation of charcoal which led to adoption of environmental sound fuels as early as 1980's. There has been very slow response to embracing of other sources of energy especially renewable energy options. The implementation of the Energy Act of 2006 has led to a reduction of dependency on charcoal, together with wider programme of awareness creation and dissemination of energy efficient equipment. The Act, however, did not explicitly ban the production of charcoal which meant that there still is a large percentage of the population that still relies on charcoal. The Energy Bill 2015 that has been pending in Parliament for while is very vocal on the promotion of renewable energy in Kenya. It has actually been speculated the delay for passing of the bill may be attributed to the fact that there are major players in the energy sector that are bound to lose with the continued efforts by the government to advocate for clean and renewable sources of energy.

Briquettes are believed to offer an alternative fuel which is clean and environmentally friendly. A report by Energy 4 Impact, Assessment of the briquettes market report - 2013, briquette business is done by entrepreneurs across

the country in Kisumu, Nairobi, Coast, Kisii, and Central among other places. The briquette sector is dominated by sole proprietors and limited companies where a number of biomass are used to produce them for examples sugarcane waste, charcoal dust, macadamia shell, sawdust, coconut waste and rice husks amongst others. In Nairobi, the briquettes are produced from old papers, human waste while in Uasin Gishu, the fuel is produced from maize cobs and other feedstocks. The biomass that is used in the production of briquettes is dependent on the waste material that is available in a given area. The operations of the briquette sector in Kenya is quite diverse with some areas having highly mechanized processed while others are manual. According to Energy 4 Impact, women groups and especially in low income areas use hands to produce briquettes. The sole proprietors in and small enterprises use a manual process (use of locally fabricated electric machines) while the Medium sized enterprises is imported machinery.

The distribution of the briquettes is quite diverse, in low income areas majority use door to door models while for some established enterprises use retail models (supermarkets and shops). The main customers of the briquettes in the country are mostly the industries (KTDA), chicken farms, restaurants, hotels and safari camps among others. It is however evident that the distribution and the market model for briquettes has not been established yet and the entry of the briquettes to the markets especially to new potential market is a challenge.

The usage of briquettes has increased in this century compared to other centuries due to intense briquettes initiatives from world bank and other international organizations. With increased awareness on climate change, briquettes are considered as a viable substitute to other fuels which are not environmentally friendly.

The sector faces challenges especially in market penetration. The current Energy laws do not adequately support the sector and there is also lack of adequate institutional frameworks that help implement the laws in place and also promote the clean and renewable energy sources. Currently there are no regulations or standards developed to guide the production and the quality of briquettes. Hence, the differentiation of briquettes and charcoal has been difficult.

The sector is experiencing challenges and much should be done to make it prosper as it's the significant contributor to future impacts of climate change that is caused by environmental pollution. Charcoal produces very high volumes of carbon dioxide which is one of the gases that is detrimental to the environment. There is need for intensive research and development in the briquettes industry and also lobbying of government institutions to provide a framework that would be fundamental to promote the growth of the sector.

MARKETING MODELS AND OPPORTUNITIES

Briquettes are a relatively new technology that aims at competing with other forms of energy for heating and cooking. In Kenya the most common source of

energy especially for cooking and heating is firewood and in urban areas the use of charcoal is also very highly pronounced.

Briquettes are consumer goods and thus the production of briquettes has to be consumer driven. The consumer has to be in the mind of every producer especially appreciating that the consumers have different needs and there thus might be need to specialize and custom make products for specific clients. The main questions that a producer must answer are:

- What is the need of the market?
- What competition do the briquettes face?
- What is the competitive advantage of the briquettes as compared to other alternatives in the market?

The initial entry into the market is the biggest challenge that the briquettes face as earlier stated. There is a source of fuel that each potential market is used to and thus the producers face the challenge of having to present a competitive advantage that would cause a shift to briquettes. The entry point to the market has to be either through bringing out to the users the advantage of using the briquettes over other forms of energy they have been using or through creating a competitive advantage especially that is price related. The competitive advantage could range from the cost of the briquettes, the ease of ignition, compatibility of the briquettes with the traditional jikos that consumers have, the

amount of heat energy produced by the briquettes among other competitive attributes that a producer could choose to look into.

There are three potential market segments that the briquettes industry can take advantage of which can be divided into:

1. Institutions (schools, colleges, hospitals)
2. Households
3. Industries both in the private and the public sector

The needs for each of the categories above are very diverse and their energy requirements are very different.

Institutions.

This would include schools and other institutions of higher learning including colleges. This could be an ready market due to the high volumes of fuel that the schools consume on a daily basis in the preparation of meals for students where in boarding schools it's a minimum of 3 meals in a day. The briquettes that would be ideal for learning institutions would be those with higher calorific value, and also briquettes that have a higher volume which will allow the briquettes to burn for a longer time.

One opportunity that easily present itself is providing briquettes to ECDE centres. The county governments are now responsible for ECDE and various reports have indicated as one of the ways of promoting the enrollment to ECDE is having

feeding programs under the various ECDEs. Briquettes producers could use this as an opportunity to approach the county governments to sell briquettes.

Households

For households one of the main concern is the ease of ignition and how easily the cook stoves "jikos" they have can be used with the briquettes. Briquettes are not easy to ignite and this becomes one of the factors that discourages households to use them. Some of the briquettes that are produced are also not easy to use with the traditional jikos that is common in most households. What this thus presents is a situation where there is need to invest in jikos beyond using the briquettes as an alternative solution. The households need to have briquettes of smaller sizes that can be used by domestic jikos there will also be need for the briquettes producers to propose ways in which the ignition of briquettes can be handled.

Industries

There are various industries that make the use of heat energy in their production processes. This include the tea industry, coffee, leather, oil refineries, beverage amongst others that all create a possible market for the briquettes industry. One of the entry points by the briquettes industry is through presenting a more efficient source of heat energy through associations both in the private and the public arena.

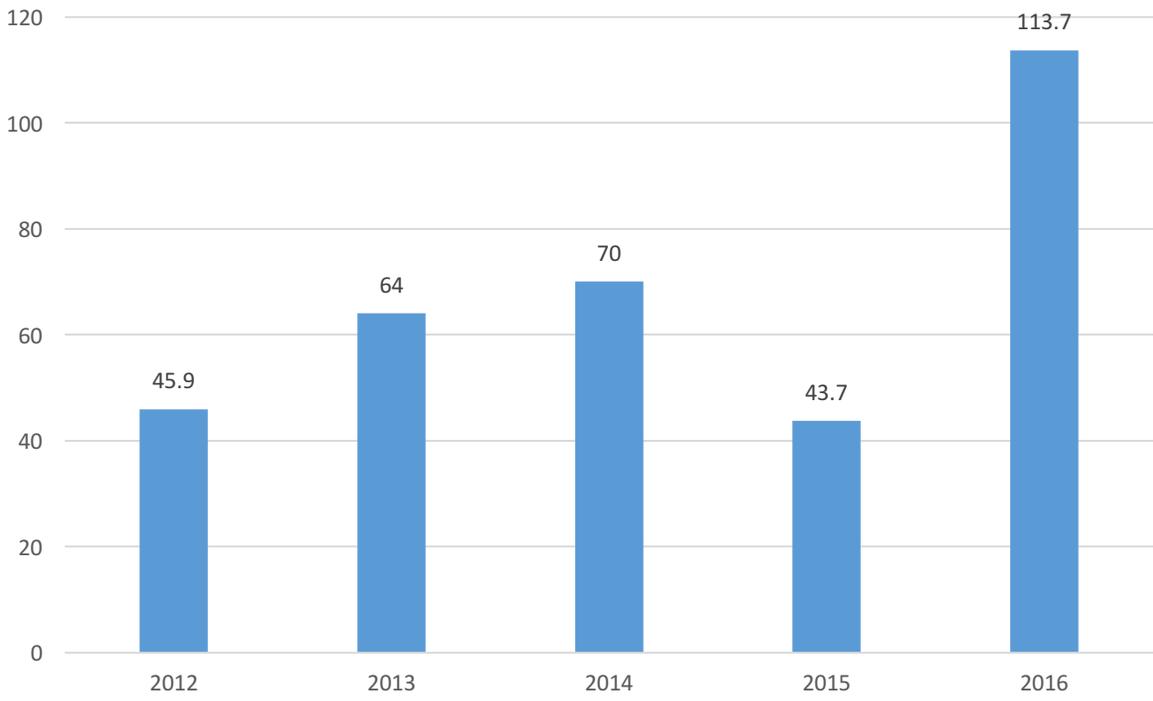
One of the biggest challenges has been the compatibility of the current machinery to use briquettes as some are specifically customized to firewood or furnace.

The briquettes industry need to be organized in a way that they are able to present their solutions to KEPSA, KAM, KTDA, Kenya Coffee Board (KCB) amongst other umbrella organizations whose buy in would be fundamental for the entry of the briquettes industry to the various markets.

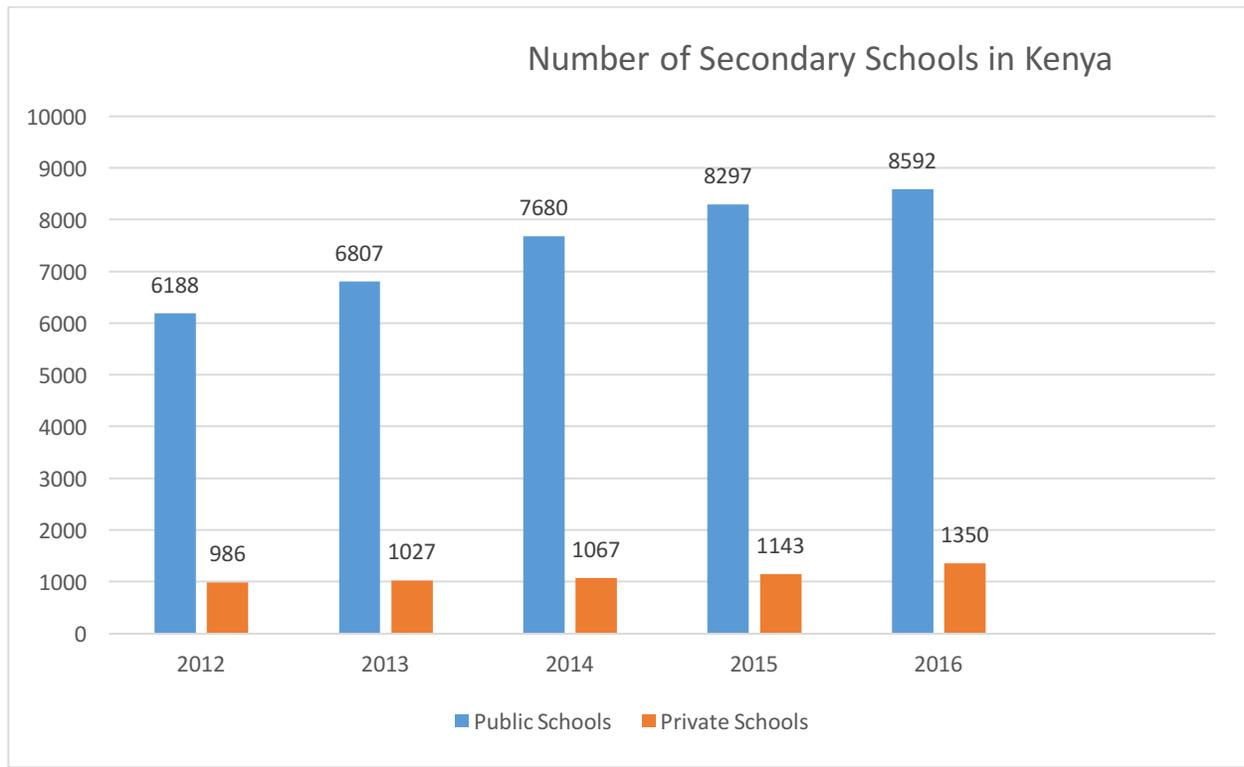
CURRENT PRODUCTION AND CONSUMPTION OF CHARCOAL

The 2017 economic survey does not offer a classification that is referred to as briquettes. Briquettes under this survey have been classified as charcoal. The sale of charcoal was however seen to have increased to 113.7 thousand stacked cubic metres in 2016 from 43.7 thousand stacked cubic metres in 2015. This was over 100% increase which was attributed to legalizing of sustainable charcoal production and trade under the Forest Act 2016. What this means is that briquettes which are a sustainable and renewable source of energy have an opportunity to enter the market through taking advantage of the provisions of the law to encourage sustainable biomass production and sale.

Charcoal Sale in '000 stacked cubic metres



POTENTIAL MARKETS –PUBLIC HIGH SCHOOLS IN KENYA



The number of public high schools in Kenya as at 2016 was 8592. If a briquettes producer targets to reach 1% of the total number of high schools in Kenya would mean that a producer could have about 85 schools for each of the producers. This is one example of the markets and the numbers that briquettes producers could reach.

If the private schools are to be included this means the number could be about 100 schools per producer.