Biomass Briquette: Success Story

Background:

Many of the developing countries produce huge quantities of agro residues but they are used inefficiently causing extensive pollution to the environment. The major residues are rice husk, coffee husk, coir pith, jute sticks, bagasse, groundnut shells, mustard stalks and cotton stalks. Sawdust, a milling residue is also available in huge quantity. Apart from the problems of transportation, storage, and handling, the direct burning of loose biomass in conventional grates is associated with very low thermal efficiency and widespread air pollution. In addition, a large percentage of un-burnt carbonaceous ash has to be disposed of.

A Briquetting machine allows you to compress wastes like sawdust, chips, sugarcane bagasse and other agro-wastes into briquettes that are environmental friendly and have high calorific value. Burning briquettes as a fuel completes a natural cycle; on combustion they only release as much carbon dioxide back in the atmosphere as was originally absorbed by the growing tree during photosynthesis. Biomass briquettes can be used for power generation or for thermal application but mostly they are used for thermal application in industries replacing conventional fuel.

At present two main high pressure technologies: ram or piston press and screw extrusion machines, are used for briquetting. While the briquettes produced by a piston press are completely solid, screw press briquettes on the other hand have a concentric hole which gives better combustion characteristics due to a larger specific area. The screw press briquettes are also homogeneous and do not disintegrate easily. Having a high combustion rate, these can substitute for coal in most applications and in boilers.

Maharashtra is the only state where the briquetting sector is growing gradually in spite of several problems. As a result of a few successes and Governments promotional efforts, a number of entrepreneurs are confidently investing in biomass briquetting in the state of Maharashtra. These entrepreneurs are also making strenuous efforts to improve both the production process and the technology.

Briquetting Technologies:

Screw Press and Piston Press Technologies:

High compaction technology or binder less technology consists of the piston press and the screw press. Most of the units currently installed in India are the reciprocating type where the biomass is pressed in a die by a

reciprocating ram at a very high pressure. In a screw extruder press, the biomass is extruded continuously by a screw through a heated taper die. In a piston press the wear of the contact parts e.g., the ram and die is less compared to the wear of the screw and die in a screw extruder press. The power consumption in the former is less than that of the latter. But in terms of briquette quality and production procedure, screw press is definitely superior to the piston press technology. The central hole incorporated into the briquettes produced by a screw extruder helps to achieve uniform and efficient combustion and, also, these briquettes can be carbonised.

Piston Press Briquettes

Screw Press Briquettes

Biomass Briquette Plant

It all began when three farmers from small village Nhavare, Tal. Shirur, Dist. Pune came together & made an all out effort to get the sustainable livelihood for their families simultaneously removing the darkness from lives of hundreds of people residing nearby by creating employment to them indirectly resulting in reduction of pollution like carbon & particulate emissions etc..

The plant is situated in Nhavare, 65 km ride from Pune; the area is particularly rich in sugarcane production, agriculture and dairy activities. Moreover, there is sugar industry in this area named Ghodganga Sahakari Sakhar Karkhana. Prior to the implementation of this project in the village by these farmers, the sugarcane residues and agricultural wastes were not collected at all & were burnt in open or used inefficiently.

One of the promoters named Shri Vilas Parbhane took the initiative and gathered the knowledge about this industry. These farmers had two acres of land available, so they decided to start briquetting industry on this land. The total cost of the project incurred was around `40 lakhs which was excluding land cost. The promoter's contribution was `15 lakhs & remaining funds were raised by loan from Axis Bank.

Due to this industry, many direct & indirect employments have been generated in this village. Two semi-skilled & 14 unskilled labourers are getting direct employment in this plant whereas, many farmers are getting indirect income by selling their agri residues viz. sugarcane trash, groundnut shells etc. to these entrepreneurs at a considerable prize which earlier otherwise were burnt or sold at throw-away price.

The promoter produce briquettes of these sugarcane trashes as well as from bagasse & press mud from sugar industry & sells it to companies where boilers are installed for replacement of fossil fuel i.e. furnace oil. Also, these farmers are selling bales of bagasse or loose biomass to various industries. To get the optimum output from briquette machine these farmers are using Tractor, Grinder, Truck & bailing machine, harvester etc.

All through planning and execution of the project the promoter has given utmost importance to the principles of sustainable development and efficacy of the initiatives on ground. The success of the project is due to the passion of these farmers as well as able participation of all villagers, those are supplying the raw material to these entrepreneurs.

On behalf of Government of Maharashtra, MEDA has supported this project by offering `3,70,000/- (Rs. Three lakh seventy thousand only) subsidy, due to which the loan burden of the farmers reduced to considerable amount. It is learnt that, these farmers are setting up another two such plants in forthcoming years.

Till the date, such 120 biomass briquetting projects are supported by MEDA in the State.