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Research Scholar
INTRODUCTION

Cane sugar industry is the most important Industry of this country that is India. For the simple reason that it is Agro based Industry and generally based in rural areas – since the raw material the Sugar Cane comes from the fields situated in the interiors or the rural areas. However, the reason - why it is important – simply does not stop here. Sugar is the most popular sweetener, not only in India but also across the Globe. It is no wonder that we have a number of proverbs, sayings and anecdotes about this sweet thing. People are supposed to have sweet tooth – generally, all good people are sweet people and the younger age is called the sweet sixteen. In the local language of Maharashtra – Marathi - it is said that

साखरचे खाणारत्यालात देणार !
आणि मुंगीसाखरे चाठेवा, तृणानपण दे गादेवा !

That is not all, we should be proud that the Sugar itself is the Gift of India to the world! Our Ancestors knew sugar and its manufacturing thousands of years before. It is no wonder that most of the languages recognize sugar by a word very similar and near to the Sanskrit word “Sharkara”-Zukar (German), Sugar (English) etc.

There are references of sugarcane cultivation, its crushing and preparation of Gur in Atharva Veda as well as Kautaliya's Arthasastra. The scribes of Alexander the Great, who came to India in 327 BC recorded that inhabitants chewed a marvelous reed which produced a kind of honey without the help of bees. The Indian religious offerings contain five 'Amrits' (elixirs) like milk, curd, ghee (clarified butter), honey and sugar - which indicates how important sugar is not only as an item of consumption but as an item which influences the Indian way of life. It is
understood that sugar was initially made in India during fourth and sixth centuries by cutting sugarcane into pieces, crushing the pieces by weight to extract the juice and then boiling it to crystalise. These crystals were called 'Sarkara' meaning gravel in Sanskrit. The word sugar is a derivative of 'Sarkara'. The larger lumps were called Khand from which the English word 'Candy' is derived. Around 600 AD the Chinese Emperor, Tsai Hang sent an emissary to Bihar - where sugarcane was cultivated for making sugar - to learn the art of making sugar. Therefore it is from India that the art of making sugar went to Persia and subsequently to the world over.*

Coming back to the earlier reference of importance of the sugar industry in relation to rural areas, it is now a well established fact that the cane sugar factories, situated in the rural areas for obvious reasons, have unfailingly contributed towards development of the rural areas. This is by way of employment generation leading to financial stability and improved status of the people, since there is Philip in development of ancillary industries around the sugar factories. Progress of the people is also generated due to availability of better educational facilities including those for higher education almost in all branches and last but not the east, availability of better medical facilities leading to increased life expectancy. It is no wonder that these environments have led to development of a new class of political and social leadership from around such areas where sugar industry has recorded meaningful growth. It is also a fact that these factors are seen, similarly, in most of the other countries also - particularly in the developing nations wherever there is cane sugar industry, because cane is grown only in tropical countries.

The cane sugar industry can be said to be a blessed industry indeed! It is perhaps a unique industry which can be called self fulfilling or self sufficient. That is, the cane sugar factories themselves produce the necessary fuel and energy required for the process. Not only that, with the
development of appropriate technologies, lately, the cane sugar factories even do not require any external supply of water!

All these days, the coconut tree was called – rightly so – the Kalpavriksha of this Earth since nothing goes waste of the tree. However, from what we would see, admittedly, the Cane is more than a Kalpavriksha of this earth!

*From National Federation web site

We have observed the most important factor that the cane sugar factories generate their own energy required for the process. Considering the fact that most of the developing countries are energy starved, and energy is becoming more and more costly day by day, this aspect of the cane sugar industry has become of paramount importance. The attention – rightly - is drawn to the question whether the industry can save power and divert it to the other industries or for the public usage! This has already drawn attention of the doyens of the industry, including to other questions like whether the industry can generate more power so that it can serve the National interests of the individual country.

While we are drawn into highly relevant discussion on the above, we must realize that this also serves the universally accepted principle and aim of any industry and that is of PROFITABILITY. Every industry has to and must earn profit, in national interest, and power generation and commercial sale of it would positively satisfy this just goal. But, in addition, the goal must also be to increase efficiency of the production.

We, therefore, reach following conclusions that efforts must be made for –

1. The plant efficiency must be increased
2. The Power or Energy consumption of the Plant must be reduced to affect saving of Energy which can then be exported to earn profits
3. The Energy output or power generation must be enhanced so that with sale of this Energy increased profitability can be attained.

When we attempt to look into each of the above factors, our attention is necessarily drawn to the Mill Station or the Juice Extraction Process, of the cane sugar factory, for the simple reason that the Milling Station influences the extraction efficiency which governs the production efficiency. Secondly, the Milling Station consumes maximum power or energy – almost about 40% of that consumed by the factory in total and last but not the least, the Mill station also controls the factor of bagasse saving, in more than one way, bagasse being the fuel for the Boilers installed in the sugar factory. The bagasse is also a raw material for many products like particle board, pellets, paper and artificial wood. The bagasse thus is a material of value.

The cane sugar industry is in a unique position to help the mother country and the people in general and the Milling Station therefore assumes critical importance all the way!

Further, the Milling Station also controls and decided the production or crushing capacity of any sugar factory and this is another most important and critical factor necessarily to be considered in the design and planning of any cane sugar factory. This is on account of the fact that generally capacity of the factory is expanded over the period during its operation, depending upon many factors, particularly, the availability of cane or cane development and of course financial feasibility.