

Sri Lankan Tea Industry

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Abstract— The tea industry is found as a major partner for more than a century in Sri Lanka's economy. The tea industry serves as our country's forex and source and employment. However, looking at the statistics from a few years ago, the tea industry's contribution is said to be flawed. But, when you look at the past years, you can see gradual improvements. Moreover, Sri Lankan tea has a unique place in the global market. Sri Lanka has to resort to various strategies and policies in order to maintain its position in the global marketplace. Therefore, the problems faced by the tea industry can be solved and the development of the Sri Lankan tea industry can be intensified while incorporating sophisticated technologies. In view of the difficulties faced by the tea industry in Sri Lanka, the planting rate is low, productivity is low, tea growing land is stagnant or shrinking, production is high and labour shortage is high. This is due to fluctuations in exports and production in the tea industry. Finally, some strategies are proposed to improve the competitiveness of Sri Lanka in the global tea industry and the role of the tea industry in the Sri Lankan economy and other aspects of the tea industry, such as location and other factors, raw material availability and demand.

Index Terms—Process of Tea Industry, Process Optimization, Sri Lankan Economy, Tea Industry

1 INTRODUCTION

Tea industry plays an important role in the Sri Lankan economy. The tea sector contributed 1.2% of GDP (Tea growth rates by economic activity for 2018 Q1 – 10.6%) in 2018 [1].

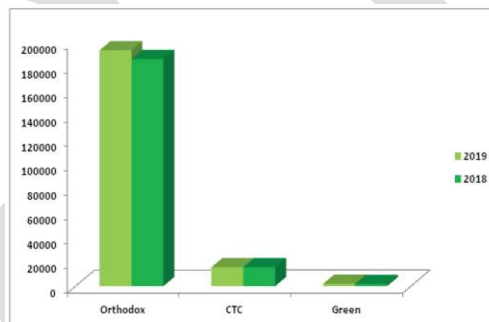


Fig. 1. Tea production for the January - August 2019 period

Tea accounted for 15% of total exports in 2018. The tea industry provides employment to over one million people in Sri Lanka [2].

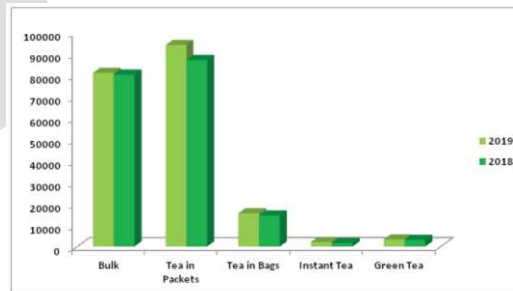


Fig. 2. Tea exports for the January - August

Tea is a major contributor to Sri Lanka's foreign exchange increase. Tea net foreign exchange revenues in Sri Lanka exceed 80 percent of total value. Sri Lanka's tea export earnings crossed US \$ 1 billion for the first time in history in 2008. Sri Lanka is proud to be the first country to achieve this feat. It took Sri Lanka over two decades to double its earnings in the tea industry. The rise in Sri Lankan tea was a factor in the growth. However, according to recent research on the Sri Lankan tea industry, the tea industry faces many challenges such as low productivity, stagnant area, high production costs and shortage of labour, and declining mortality rates.

1.1 Sri Lankan Tea – The Growth of Commercial Production Timeline

- 1880 to 1888 – Tea production increases dramatically, the area quickly exceeding the area of coffee plantations. Many famed British figures buy coffee plantations and convert to tea. The tea processing technology rapidly develops with the first tea rolling machine by John Walker and Co in 1880.
- 1884 – The first public Colombo Auction is held in the premises of Messrs Somerville and Company Limited.
- 1893 – 1 million tea packets are sold in the Chicago World's fair. At the London Tea Auctions the tea nets a record price of £36.15 per pound.
- 1894 – The Ceylon Tea Traders Association is formed.
- 1896 – The Colombo Brokers Association is formed.
- 1899 – The area of tea plantations in Ceylon is almost 400,000 acres.
- 1916 – Thomas Amarasuriya becomes the first Ceylonese to be appointed as Chairman of the Planter's Association.
- 1925 – The Tea Research Institute is established to research on maximizing yields and on methods of production.
- 1927 – The tea production of the country exceeds 100,000 metric tons
- 1960s – The total tea plantation area exceeds 200,000 hectares, with a total yield over 200,000 metric tons
- 1980s – Ceylon is the official tea supplier for the 1980 Moscow Summer Olympics, 12th Commonwealth Games, and the Expo 88
- 1992-93 – All government owned plantations were privatized due to heavy losses
- 2001 – Forbes and Walker launched the first online tea sales at the Colombo Auction
- 2002 – The Tea Association of Sri Lanka was formed.

One of the main challenges facing the tea industry in Sri Lanka is to be competitive and to increase productivity. India, China, Kenya and Indonesia are Sri Lanka's competitors in the tea industry. It is difficult to increase the area under tea as there are no suitable lands for tea planting. Several lines of evidence suggest that productivity can be increased by increasing productivity. The other traditional competitor, Kenya, has doubled its tea production and exports from the 1990s to the 2000s (Lama 2001). Kenya gains market share at the expense of markets like Sri Lanka. Sri Lanka's downward trend in tea production compared to other countries. Sri Lanka's tea exports, however, are number one. The reason for this is the fact that Sri Lankan tea is highly priced in the world market. Thus the tea industry, which is the main pillar of our country's foreign exchange, is produced in a variety of ways and in a variety of ways. Black teas, green teas and white teas are the most common types of

tea. Based on this, the study mainly focuses on the influence of tea industry on the Sri Lankan economy and Plant location, raw materials availability, demand and possibilities to improve the production process. The specific objectives of this study:

- 1) Discuss the production process and its economic support to the Sri Lanka.
- 2) How to improve and possibilities of development.
- 3) To identify possible strategies and policies and that Sri Lanka should adopt in order to improve competitiveness in the global market.

Studies of the tea industry in Sri Lanka up to this time (Basnayake and Gunaratne 2002, Fonseka 1997, Kanevatta 2002, Jayakody and Viyamaly 2002, Mendis 1992) have examined the tea industry at various angles.

2 LITERATURE REVIEW

The high lands of our country provide a favourable climate for moisture, rainfall and cold temperatures for high quality tea production. Although the tea is grown in low altitude areas such as Galle, Matara and Ratnapura the characteristics of the tea produced there differ. In the Middle East, tea grown in low altitudes is popular. Thus the dominant form of tea was introduced to Sri Lanka in 1867 by British tea planter James Taylor. It was quickly discovered by British carriers that the cultivated tea was very profitable. This increased the number of tea estates and gradually increased the demand for human labour. Tea production involves difficult processes such as brewing, drying, rolling, oxidation and drying. More heavy machines, many techniques and require more manpower also. As the need for manpower increased, workers from India's Tamil Nadu were brought in to maintain Sri Lanka's tea estates. This is how the tea industry grew gradually in Sri Lanka.

When we look at the major tea plant in the tea industry, Tea plant is a type of tree related to Camellia. Its flowers are yellowish white and its fruits small and hard shell. The evergreen leaves dark and slightly serrated. Considering 18C as a minimum annual temperature, a consistent annual rainfall of 1600 and an equal amount of sunlight, a tea can easily grow to 100 years. Wild tea plants can reach up to 1700 years.

2.1 Tea contains

Caffeine (teinne)/Tannins /Amino acid /Proteins

Trace elements and minerals: Potassium, Calcium, fluoride, Manganese/ Vitamins (niacin, vitamin B1 and B2)

In Sri Lanka, tea is produced in 3 elevational cultivation areas of high grown, medium grown and low grown, which has become famous throughout the world. Sri Lanka is the only country within the tea growing nations which manufactures all type of teas which includes CTC, Rotorvane, Orthodox and Green tea.

2.2 Tea Cultivation

To prevent flowering and fruit formation tea bushes require regular pruning. This also makes easier to gather the two uppermost leaves and the newest bud for the tea pickers. The reason most choices are still made by hand is to preserve the quality of the harvest.

2.2.1 The orthodox production method

This production method consists of five stages – Withering, Rolling, Fermentation, Drying and Sorting.

2.2.1.1 Withering

Freshly picked green leaves are dried in airtight plates on harvested leaves. During this process, about 63 percent of the moisture content of the tea leaves is extracted, making them soft and flexible for further processing.

2.2.1.2 Rolling

Mechanical pressure is used to break up the leaves of the tea leaves and extract the cell debris. Leaves that are still wet from the leaves are sieved to extract the best leaves after 30 minutes. These are spread out immediately for fermentation while the coarse leaves are rolled under high pressure for a further 30 minutes. This process is repeated several times. The rolling time on the tea leaf is greatly influenced by its quality. Short-term rolling reduces its quality by breaking a good quality leaf and long-lasting rolling leaf. During the rolling process the cell wall ruptures and reacts with oxygen. It also stimulates the fermentation process, while releasing essential oils that contribute to the aroma.

2.2.1.3 Fermentation

After the rolling process, the tea is spread out in layers approximately 10cm high for one to three hours in a cool, damp atmosphere to finish off the fermentation process. In this phase, the green leaf gradually turns a copper colour. The person who oversees the process will tell you how far the fermentation of colour and regular scent has progressed.

2.2.1.4 Drying

Next, the tea is dried by hot air at temperatures of 850 °C to 880 °C, because of the disruption of the oxidation process. The remaining moisture is also extracted from the leaves. Dry copper leaf turns dark brown.

2.2.1.5 Sorting

Finally, dried tea is sieved for quality separation. The orthodox production method provides teas of all leaf grades: leaf, broken, fanning and dust. Leaf grades only refer to the leaf size not the quality of the tea.

2.2.2 The Production of Green Tea

Green tea comes from the same plant that comes from black tea. But the fermentation process for obtaining green tea is prevented by heat treatment immediately after the tea has withered.

2.2.2.1 Withering

This process is only carried out where necessary. The necessity and duration of withering varies widely according to the desired type of tea.

2.2.2.2 Steaming

During this process the plant's own enzymes are destroyed so the leaf retains its green colour instead of becoming black.

2.2.2.3 Rolling

The leaf is rolled into artistic shapes following a tradition which dates back thousands of years.

2.2.2.4 Drying

For this purpose, the leaves are dried in the sun's natural heat or stacked in hot air dryers.

Sorting

Green tea is available in the same familiar grades - leaf, broken, fanning and as black tea (depending on the production specification). It contains numerous tannins, minerals and vitamins.

2.2.3 The CTC production method

CTC means Crushing, Tearing and Curling. These teas are usually produced for teabags. The withered leaves are cut by the machine to a uniform size and then the leaves are injected into the CTC machine. Teas are crushed by metal rollers and torn and curled. The extracted cell sap is collected and added to the leaves again. The crushed leaves are then fermented, dried and sorted.

2.2.4 The LTP method

LTP method, named after inventor of the relevant machine, the Lawrie Tea Processor. Teas are often leveled before operating the LDB machine in this manner, with high speed rotating blades almost cut into pieces and then following the usual fermentation raising and sorting procedure.

Tea is produced in different ways in our country. However, the tea industry that it produces continues to face many problems as we look at them.

- Compared to other tea growing countries high cost of production, including escalating cost of energy used in tea processing.
- Competition of other new emerging producer countries, who could produce similar type of teas at a much lower cost.
- Low field and factory productivity.
- According to a recent survey carried out by the Planters Association of Ceylon, approximately 100 experienced planters in their prime age of 30-45 years leave planting annually.
- Workers shortage, which is considered as a very serious threat. There are many problems in the tea industry. The problem of workers' wages is mainly seen as the cause of labour shortage. By fixing this and introducing new technologies, there is a good chance of improvement.

After that, When considering the status of the tea produced in the present day Sri Lanka, This will be based on the appearance of the CDC, which will show growth in 2018 in all probability of global production. Orthodox tea production may be considered in short supply, considering the 2016 decline in Sri Lankan tea production. According to the government, lifting the ban on glyphosate use could lead to large plantations, especially for producers next year. However, ageing tea bushes and low productivity levels would be a downside.

The United States is also the fastest growing market, especially for the immediate tea and ice tea segments. At the same time, 2018 imports from Sri Lanka to the US have shown significant growth.

Other factors that is likely to impact Sri Lankan tea prices.

- In the fourth quarter Colombo auction price have shown a significant appreciation, particularly in respect of Leafy orthodox teas.

- The backdrop of deficits accumulated since 2015 importers of orthodox teas are likely to have lower inventory.
- Tea would not be featured on the list of items attracting US import sanctions.
- Another important factor that might influence tea prices is the variation in exchange rates. The Sri Lankan Rupee, which was under severe pressure at the commencement of 4th quarter 2018, stabilized somewhat towards mid-December. If this trend is reversed and the previous depreciation pattern that was seen a couple of months ago is a reality, this too would help Colombo Auction prices in rupee terms.

3) DISCUSSION

It has been over one and a half centuries since the tea industry was introduced to Sri Lanka. Tea factories were established by the British as a prerequisite for the development and establishment of the plant during the time of its introduction, and the necessary labourers were employed. All this was done by the British at that time, based on the profits they received. All profits from this went to Britain. But in the post-independence period the tea industry went under the government of Sri Lanka. Since then, foreign exchange through the tea industry has been a major pillar for the government. While focusing on the Ceylon Tea Factory, they were created in the time when tea plantations and factories were located nearby to facilitate or facilitate transportation. This is because production costs can be reduced while profits can be increased. The demand for Ceylon Tea has continued to grow, mainly in the West, to encourage tea production. As the question of Ceylon tea increased, there was a need for Sri Lanka to increase its tea production. The first challenge was the increasing demand for cultivated land and the need for workers. And the need for machines with new technology. While these problems are still not fully resolved, the Sri Lankan tea industry is still going on. Some of these solutions have been mentioned in literature view before and in conclusion also.

4 CONCLUSION

The Sri Lankan tea industry plays a significant role in generating foreign exchange earnings and employment for our country's economy. Although some recent statistics suggest that the tea industry's contribution is steadily declining, the tea industry still plays an important role in foreign exchange earnings. Increasing productivity and remaining competitiveness are identified as the major challenges facing the Sri Lankan tea industry. The availability of raw material in the Sri Lankan tea industry does not appear to be a major issue. But the shortage of labour remains a challenge for the tea industry in Sri Lanka. This sparked a wide variety of problems. India, Kenya and Indonesia have significantly increased their tea levels compared to Sri Lanka and rivals. More importantly, Kenya's progress has been impressive. To address the problems or challenges facing the Sri Lankan tea industry in our country, we need to increase the tea plantation, increase labour and solve the problems of labour and moreover introduce new technologies and machineries. It is possible to make a profit. However, reducing the question of Ceylon Tea was a difficult task. But due to the modern marketing of soft drinks, juices, coffee and alcohol, the consumption of tea is declining. To compensate for all this, the emergence of companies in the form of value added tea contributed to improved appreciation efficiency. Sri Lanka still needs to capture much of the value chain through marketing and printing. The Government of Sri Lanka has tried various strategies and policies such as fertilizer subsidy scheme, tree planting, new planting and filling subsidy to

increase competitiveness. Tea is found at every price point. By producing and exporting a similar amount of high value tea, it is possible to make a substantial profit and sustain the tea. Since land productivity and labour productivity are both low compared to other major competitors in the global tea industry, the immediate action to address this problem is to increase tree planting rates, use fertilizers and plant high-yielding varieties.

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