

## Effectiveness of 5S Application in Tea Industry and Synchronization of 5S into ISO 22000:2005

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**Abstract** A study was conducted to develop an ISO 22000 generic model for tea industry in synchronization with 5S while considering changes in currently adapted systems, processes, practices and adaptation to design synergetic technical solutions. Thus all stakeholders in tea manufacturing process were interviewed and requested to use the developed documents as a user innovation strategy and incorporated progressive changes in design until both document management and user's requirements were satisfied. The documents were prepared in local language and 5S work instructions were enriched with food hygiene requirements instead of developing new set of instructions where harmonization, modification and adaptation was very effective. Work instructions, cleaning and housekeeping were further integrated while enriching with relevant standards to be met after cleaning as well as relevant records and references. Consequently, work instructions, preventive maintenance, general housekeeping, training and standardization were properly synchronized where it was used from existing 5S systems with modifications to harmonize and comply with ISO 22000 as well as 5S requirements which reduced the time spent for recordings on two systems. Synchronization reduced the number of documents used in the food safety management system up to a great extent and frequency of recording while improving the effectiveness of recording.

**Keywords** ISO 22000; 5S; Synchronization; Work Instructions; Tea Manufacturing; Orthodox Black Tea

### Introduction

As a medicinal crop tea has been grown in China over five thousand years, to become a USD 4 billion industry today (Fair-trade foundation, 2010) which has employed more than 15 million people around the world to serve over four billion tea cups a day. The scotch man James Taylor was became the first commercial tea planter in Sri Lanka, who planted approximately 8 ha of tea on Loolecondara at Hewaheta in Kandy district in 1867, which is still in production (Fuches, 1989; Boyle, 2012).

Sri Lanka is one of the oldest tea producing countries in the world. Commercial tea plantation and production in Sri Lanka commenced almost 148 years. Sri Lankan tea was branded and known as Ceylon Tea which is ranked one of the superior teas among the teas available in the international trade and over the years the word Ceylon has become synonymous with quality tea (Mohamed and Zoysa,

2006). The major product of the country is orthodox black tea which accounts for 95% of the total production with the balance being cut, tear and curl (CTC) that was mainly utilized for tea bags. The instant tea and green tea productions were very minimal compared to the orthodox black tea manufactured in the country (Mohamed and Zoysa, 2008).

Sri Lankan tea industry annually produced around 320 million kilograms of made tea according to the current statistics available. Out of the given production output, country has manufactured approximately 95% orthodox black tea annually which basically intended for export representing 32% of the global demand on orthodox black tea (Ministry of Plantation Industries, 2013). The CTC and green tea represents only 5% of the total production and country manufacture tea throughout the year. The growing areas were distributed differently and