

Sustainable Supply Chain Management: Using the Sri Lankan Tea Industry as a Pilot Study

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Abstract. In this exploration the researcher analysed sustainable supply chain management (SCM), using the Sri Lankan tea industry as a pilot study. Genuine sustainable supply chain management is now critical to achieve competitive advantages. Risk, uncertainty, strategy, innovation, relationship, infrastructure, regulation and technology are typically historically important areas that have a strong impact on sustainable SCM. These factors have been studied within manufacturing sector in developed countries; there is a lack of research on agri-supply chain in developing countries with respect to the concept of sustainable SCM. Focusing on the research methodology, different previous research studies illustrate that qualitative research approach is considered to be the best-fit model rather the quantitative model. The sample calculates for this phase are approximately two executives from each institute, with near 30-35 in total. The sample was designed to get the high reliable data. This phase includes the interviews and discussion forum with specific focused groups in the tea supply chain. These parts represent the partners in the tea sector and discussion will be based on two focused groups. The focused groups will be included by 10-15 participants in the above two forums. The focused groups will represent the partners in the tea supply chain including small, medium and the mass scale [external] sector. The interviews and the discussion forums will be recorded with the previous consents of the participants and will be stored until the data are analysed. The data will be analysed using the SPSS 19.0 version, the Microsoft excel and will be represented in the paper. Therefore, the sustainability of tea industry is extremely important for the economy of Sri Lanka. There can be identified various issues for the tea industry of Sri Lanka from emerging tea industries in other countries, increasing cost of the tea production, competition of global competitors, lower share of exports of tea leaves in the world market and lower earnings throughout the mid of last decade. Importantly, early research suggests that mapping the tea supply chain represents a significant research gap not only in agri-supply chain but also supply networks in general. The paper basically focused to develop new concepts related to the supply chain in tea sector and give the insight to managers, supervisors to get the long-term achievements with the sustainability.

Keywords: Agri-Supply Chain, Performance, Supply Chain Management, Sustainability, Sustainable Supply Chain Management, Tea

Research Topic: Background to the Study

In most of the developing countries around the world, agriculture is considered to be the main sector based on the supply network which provides the social wellbeing in order to reduce the poverty of economy. In the agriculture sector, tea cultivation plays a major role as an export product to worldwide and in the economy of the country. Sri Lanka is considered as the main country that has been exporting the tea since past decades. The tea industry of Sri Lanka has two main sectors of tea cultivation: by mass productions (large scale) and small tea holders. According to the Central Bank of Sri Lanka's annual report, 15% of the country's economy is contributed by the tea estates (mainly the exports and domestic usage) and by providing the direct employments. Further, exports of the tea products contributed in percentage of 4% to the national GDP of the Sri Lanka according to the CBSL-2019 report. For the years Sri Lanka

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received the standard award for the quality of the tea leaves and later by, many competitors opened up in the competition globally. Therefore, the sustainability of tea industry is extremely important for the economy of Sri Lanka. There can be identified various issues for the tea industry of Sri Lanka from emerging tea industries in other countries, increasing cost of the tea production, competition of global competitors, lower share of exports of tea leaves in the world market and lower earnings throughout the mid of last decade. Moreover, the statistics and records demonstrate considerable variations between the small tea holders and mass scale producer's performances. Many of the previous researches conducted by various scholars have stressed out the duality of the supply network which immensely provides the symbiotic channel of the supply. This can be further described that networks are based for the sustainability and the purpose of survival, and sustainability. It is found that the lack of researches based on the agri-supply chain needs more attention for the sustainability. Herath (2002), Herath and Weerasinghe (2003; 2006; 2007) respectively mentioned that research conducted in the agri-supply chain based sector has lower amount where it basically focused on the labour issues, health, the degradation of soil and future of tea industry, marketing and sales, growth of tea sector as an export earner. Thereby, Kasturiratne, Poole and Ricket (2006) mentioned that studies lacked the sustainability concept within the supply network sector of Sri Lanka.

Considering all the factors and previous research articles, studies and papers, this research focused on the sustainable supply and identified the major factors that influence the sustainable tea supply of the country. The paper basically focused to develop new concepts related to the supply chain in tea sector and give the insight to managers, supervisors to get the long-term achievements with the sustainability.

The study focused basically on the tea industry focused with several key factors. The research is not conducting keeping the main factor that tea considered to be the main export agriculture production but due to the issue of the duality in the supply network and the identified gap in the previous researches. The purpose of the research will lead to receive the maximum benefit to the government authorities and the small, large and medium scale operator where they will get to acknowledge the facts that impact to develop new strategies, to reduce the cost of production and to renew or adjust the policies and to receive the tangible benefits. This paper concentrated on the sustainable tea production issues and the impact on the performances based on the agri-supply chain in Sri Lanka.

Research Aim

The main objective of this research is to identify the factors that influence the sustainable tea supply chain in the Sri Lankan tea sector and to identify the performance based on the tea production. The factors identified will be used to increase the sustainable tea supply chain management and to improve the performances in tea sector by proposing new strategies, concepts to re-emerging and growth of the tea sector in Sri Lanka.

Research Questions

Research questions are formed to get the overall ideology of the objective of this research;

1. What factors influence the sustainable tea supply chain management of Sri Lanka?
2. What are the key issues that pertain with the performances of tea sector?
3. What issues have highly affected lowering the performance on the perspective of supply chain management in the tea sector of Sri Lanka?

Literature Review

There can be identified several researches based on the tea productions around the world since last decades. The literature review part of this paper is more concentrated to develop a key framework to the research design.

Supply Chain Management

Supply chain management can be defined as a “*combination of integrated planning, coordination and the control of all processes and activities along the supply chain to provide a value added service while reducing the total cost of all stakeholders in the supply chain*” (Jayaratne, Styger, & Perera, 2009). Supply chain management can be further defined as a process-oriented management approach. According to Ballou (2006), in the last forty five years, supply chain management has evolved from a purchasing and logistics function to a contributor that crosses organisational boundaries to possess a cradle to grave responsibility and accountability; necessitating in future planning strategies. Drucker (1962) quotes physical distribution as “*...the last frontier of cost economies*”. With the emergence of global companies, should supply chains be creatively equipped to cope with future changes in their ever increasing competitive environments? Ladyman (2006) quoted, “*We can either stumble into the future or hope it turns out all right or we can try and shape it. To shape it, the first step is to work out what it might look like*”. For supply chain management, does this mean we should be looking ahead beyond our current understanding?

Agri-Supply Management

This has been emerged within many independent researchers, scholars and academics for different reasons such as to increase the dependency rate on the agri-sector, to introduce new strategies and structural changes and to increase the competition over other countries and to introduce customer awareness.

Sustainable Supply Chain Management

According to various scholars, there can be identified different definitions for sustainable supply chain management. Cohen and Rousel (2005), Fiskel (2010), Glavic and Luckman (2007), Linton, Klasssen and Jayaraman (2007) have given different definitions. According to the most recent research by Jayaratne, Styger, and Perera (2009), “*competitive strategy and supply chain strategy has a strong relationship with the sustainability. Depend on the external business environment, supply and demand characteristics, a company needs to define the corporate strategy and the competitive strategy. To achieve the expected competitive advantage, it is necessary to define the supply chain strategy implemented and it will result in various supply chain operation*”. According to Christopher (1992), it is the supply chains that will be the competitors of the future and not the companies themselves, which will require supply chain skills including strategy and innovation.

Furthermore, Barry (2006) mentioned that proper financial supply chains have a great impact on increasing the opportunities, managing the receivables, getting the accurate financial prediction in future and reducing the capital working that needs to introduce and to implement the new sustainable strategies.

According to the research conducted by several scholars mentioned, several sources have depicted the motivation of employees in the work, with different degree of importance from sector to sector.

Sustainability

Sustainability has been defined by different terms and is currently considered as “development that meets the needs of the current generation without compromising the meeting

the demand for future generations” and triple bottom lines which have been prominent since 1987 define the environment, social equity, economic and pillars in the sustainability. This has been elaborated by Brundtland (1987). Sustainability furthermore can be identified as the main key factor of the sustainability and this can be achieved when social, economic and environmental aspects are integrated together. This also has been illustrated by previous research conducted by Carter and Rogers (2008) and Styger (2010) in their research findings.

Sustainability has a strong relationship with the key aspects of competitive strategy and the supply chain strategies and this is basically based on the business environment. Cohen and Roussel (2005), Foren et al. (2005) have interpreted the core summary of the idea that is represented by Anzam (2011) as, “supply chain operations create more issues in social, environment and economic area with imposing extra pressure on companies to refine their strategies. Therefore, supply chain strategy serves as the bridge between corporate strategy and sustainability. The impact of sustainability goes beyond individual territory and the scope of sustainability has expanded beyond the processes and corporate boundaries”.

Research Methods

According to the below sample given, the research design has formed in order to get the feedbacks for the questions. The research questions are composed with two sectors where first 3 questions tried to investigate the factors that influence the tea sector-supply chain and sustainability, while 4th question aims to get the degree of influence that above identified factors and the performance in the tea chain.

The proposed concept framework of the research design is presented in Figure 1.

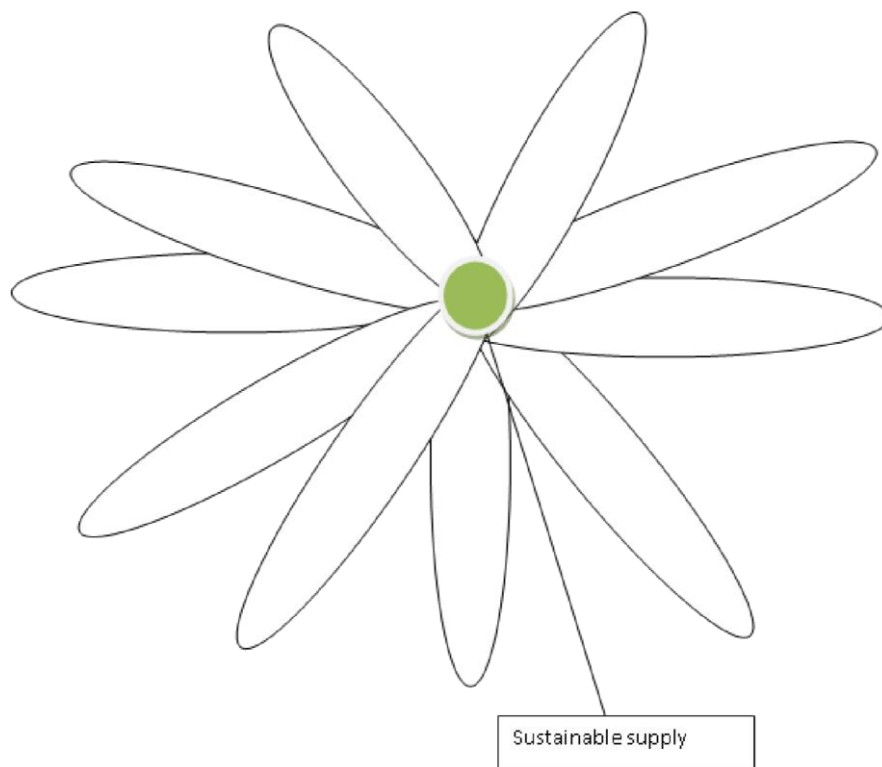


Figure 1. The concept framework of the research design

Each sphere includes the factors of social and culture influences, the risk and vulnerability, strategies, policies, innovations, institutional changes and reforms, integration and money, partnership and other factors that overall impact the sustainable supply of the tea

sector. Further, sustainable outcome can be explained as the economic indicators, performances based on the environmental and social context.

Focusing on the research methodology, different previous research studies illustrate that qualitative research approach is considered to be the best-fit model rather the quantitative model. This has been specifically elaborated by Ellram (1996), Cavana, Delahaye and Sekaran (2001), Jayaratne, Styger, and Perera (2009). Focusing on the 4th question, the research design survey format to conduct a survey, to measure, identify the performance of the sector the quantitative approach is needed. Therefore, the research will be mixed research concept including both the qualitative and quantitative which use the explorative and explanatory phases. The qualitative part of the research includes group discussions and the interviews according to the previous examples by Jayaratne, Styger, and Perera (2009). In many of the social and business purpose researches it shows high validity of taking group of people ideas, suggestions, and issues in the interviewing purpose. According to Jayaratne, Styger, and Perera (2009), standard of the research is based on the reliability and the validity of the collected data. In this research the researcher biasness' will be lower by conducting a pretested interviews guide and pre-tested questionnaire for the interview. Furthermore, the validity of the research is an important aspect where it highlighted the truthfulness of the research and accuracy of the published result of the collected data. For this research purpose to maintain the validity, accuracy and the reliability different types of measures were taken.

Additionally, considering the tea sector in Sri Lanka demonstrates fragment in nature and the duality in supply network, the strict institutional control over the tea production, and other factors. The reliability of the research can be significance when the same research conducted to the same sample in different time and date to identify the gaps and accuracy. In order to get the high reliable results the research aims to be conducted as follows. The research will be basically conducted using three main methods as below;

Stage 01: Semi-structured interview will be used to conduct the interviews with the relevant officers and the tea related institutions in Sri Lanka. This research technique helps to investigate the issues that actually based on the tea industry of Sri Lanka in supply chain perspectives. In this stage the researcher tried to get an idea of the various dynamics in the tea sector, before the 2nd stage where it will be conducted using the tea industry partners.

The sample calculates for this phase are approximately two executives from each institute, with near 30-35 in total. The sample was designed to get the high reliable data.

Stage 02: This phase includes the interviews and discussion forum with specific focused groups in the tea supply chain. These parts represent the partners in the tea sector and discussion will be based on two focused groups. The focused groups will include 10-15 participants in the above two forums. The focused groups will represent the partners in the tea supply chain including small, medium and the mass scale [external] sector. The interviews and the discussion forums will be recorded with the previous consents of the participants and will be stored until the data analysed. This data will be stored for further investigations, to deep understanding in order to increase the reliability and the validity.

Stage 03: The final phase of the research will use above collected data for the analysis purpose. The validity of the research will be further refined once the data analysis is completed and by developing the suitable strategies for the identified issues in the tea sector. The survey of the research will be used with pre-formed structured questionnaire in order to explore the performance based in the tea sector. For further analysis and research purposes, the secondary materials will be used to get the high validity to the research. The data will be analysed using the SPSS 19.0 version, the Microsoft excel and will be represented in the paper.

Conclusion

The tea industry of Sri Lanka plays a key role in the country's economy and today has faced different issues. The lack of research on the tea supply chain and sustainable supply chain management also has a significant impact on these issues. The research will be focused to increase the performances of the tea sector, to identify the issues related with the tea industry, to propose new strategies and solution, to fill the existing gap in the sustainable supply chain management in the tea industry. The results of the research will basically contribute to the increase of the knowledge on the sustainable tea supply chain management and provide new concepts to attract new opportunities, to lower the threats and risks while giving a deep insight to the supervisors, managers in the sector to maintain the sustainable supply chain management. This research finally can be used as a guide to many researchers in the purpose of agri-supply chain management.

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Appendix

Timetable of Activity

Task	Month 1 January	Month 2 February	Month 3 March	Month 4 April
Scheme briefing				
Taught support				
Complete proposal				
Submit proposal				
Allocated supervisor				
Contact supervisor				
Literature review				
Methodology chapter				
Data collection				
Data analysis				
Findings chapter				
Discussion chapter				
Conclusion				
Recommendations				
Introduction				
Abstract				
Complete first draft				
Rewrites				
Complete final draft				
Printing / binding				
Submission				

Ethical considerations

Question	Yes	No	N/A
1. Does the aim and method of your research respect the independence of your participants?	Yes		
2. Are measures in place to ensure confidentiality for participants?	Yes		
3. Are participants clearly asked to give consent to take part in the research?	Yes		
4. Can participants withdraw at any time if they chose?	Yes		
5. Do the objectives of your research lead participants to break confidentiality or otherwise engage in deceit?		No	
6. Will your respondents be in a position where they might feel coerced into taking part in the research?		No	
7. Will the data be used in ways not fully explained to the participants or respondents?		No	
8. Is your research at all likely to cause physical or psychological harm or stress to participants?		No	
9. Is the impartiality of the research at risk of being compromised by dependence upon the support of a particular sponsor or organization?		No	