

Lean Logistics of the Transportation of Fresh Fruit Bunches (FFB) in the Palm Oil Industry

Cheah Cheng Teik

Universiti Sains Malaysia, Malaysia

Yudi Fernando

Universiti Malaysia Pahang, Malaysia

INTRODUCTION

Variation in the production process is the cause of quality problems, (Zylstra, 2012). This is the manner of transportation of Fresh Fruit Bunches (FFB) in the palm oil industry. It can be an awesome responsibility that only gets more difficult and complicated as the estate gets larger with more hectare and the distance from mill gets farther. Despite the long distances, time zones and other hurdles involved, it is necessary for estates to reduce cost and inventory. The FFB and loose fruits must be delivered to the mill same day it is harvested and collected. Zero inventory would definitely reduce cost and increase productivity but how to go about it is an industrial problem in this important industry. The problem all the way is not just forecast accuracy but all variability, (Zylstra, 2012). Applying lean approach to distribution would compartmentalize and reduce variability such that replenishment become much easier and planning can be more effective. The ideal model is to reduce contact (damage to FFB), reduce time to consumer (deliver FFB to mill on the day of harvest) and completely eliminate as much cost as possible (efficient and effective transport of FFB).

BACKGROUND

The second top producer of palm oil after Indonesia is Malaysia. In 2014, the planted area

is 5.39 million hectares. It has increased 3.1% against 5.23 million hectares compared to year 2013. Sabah is the largest oil palm planted state with 1.51 million hectare or 28% of total oil palm planted area. In the palm oil industry, Malaysia is successful in terms of producing and marketing the palm oil, palm kernel oil and their derivative products. There are also huge amounts of palm oil wastes generated by the industry. This included oil palm shells, mesocarp fibre and empty fruit bunches from the mills, also oil palm fronds and oil palm trunks from the field during replanting.

The oil palm is five to ten times more productive in terms of oil yield than all other oil-bearing crops. It is in the best position to meet the growing global demand for oil. It is versatile and there are demands for palm oil in the non-food sector. Oil palm also contributed in the energy sector. Its biomass and biogas can be used as fuel for boilers. Palm oil is used as feedstock to produce biodiesel by blending palm diesel with petroleum diesel. This lowers the burning of fossil fuel in the world. Statistics Malaysia Palm Oil Board (MPOB).

Misguided anti-palm oil campaigns have been a talk of the town and the burning issues in business. This has been a constant challenge for the palm oil industry. During the 1980's the campaign were on health issues and Malaysia gather international independent experts to defend it.

Today the lobbyist turned their attacks to environmental and sustainability issues and MPOB, Ministry of Plantation Industries and Commodities



(MPIC) had continued to address them. Since oil palm is grown in one of the most ecologically sensitive areas of the world, it is imperative to grow it in a sustainable manner so that people, planet and profit are all part of the equation.

Bad things can happen to good companies that fail to take a broad view of accountability, (Savitz, 2012). Certifying Malaysia Sustainable Palm Oil (MSPO) and producing Sustainable Palm Oil is important for the country's business to promote export and sales to compete in the world market.

Even a well run company with good intentions and with a proud history of business and philanthropic achievement can stumble and fall when the principles of sustainability is ignored, (Savitz, 2012). The four areas in commitment to sustainability are land use, water, climate change and farmer livelihoods. As land is finite and human population is growing rapidly, it is important to ensure that the use of land is sustainable.

For market development, MPOB provides oil palm industry players with relevant economics and statistics. The important markets for our Malaysian palm oil are China, European Union, India, Pakistan, USA and West Asian countries. Currently, 1.29 million hectares of palm plantations in Malaysia are Round Table Sustainable Palm Oil (RSPO) certified and these contribute to 4.8 million tonnes of certified sustainable palm oil, (Datuk Amar Douglas Uggah Embas, Plantation Industries and Commodities Minister, 2015).

A look at the world market which concern palm oil, Malaysia must work hard to compete with an added advantage to promote sales of our palm oil and to start with encouraging MSPO and carrying out relevant research to further improve the industry for the estate, mill and refinery. A very important area which need focus is the transportation of FFB, the raw material for palm oil mills. Along with marketing come logistics aspects, which are as important to create differentiation advantages and competitiveness of retail supply chains (Lorentz and Lounela, 2011). The brand value of a company consists of intangible assets such as reputation and customer loyalty.

Oil palm is the most important agriculture crop and palm oil industry is the pillar of Malaysian agriculture and main stay of rural economy. It is an engine of growth contributing about one-third of the agriculture Gross Domestic Product (GDP). The industry provides employment to more than 610,000 people including some 200,000 small holders. (Statistics MPOB).

MPOB has developed a sustainability certification scheme Malaysia Sustainable Palm Oil (MSPO). The government has approved this on 21st March 2014 and this scheme is officially implemented as of January 2015. This is an alternative to currently available certification schemes like International Sustainability and Carbon Certification (ISCC), Roundtable on Sustainable Biomaterials (RSB), Indonesian Sustainable Palm Oil (ISPO), and Roundtable on Sustainable Palm Oil (RSPO). Innovation is pivotal to the success of the palm oil industry. As for now, there are 9 estates, 3 independent small holders and 6 mills certified MSPO. The benefits of certification are to broaden market access with the increasing demand for sustainable palm oil. It will enhance organizational image as it is seen as social responsibility. This further facilitates access to the growing "green market". The Malaysian palm oil industry strives to strike a balance between social, environmental and economic needs of country and people.

Issues and Problems

The research gap and problem statement is found no attempt done to make transport of FFB efficient and effective, integrating lean logistics with triple bottom line to address sustainability. The existing systems ignore new competitive realities that require a strong focus on such issues as product and process quality, customer satisfaction, and cross-functional integration, (Fawcett and Cooper, 1998).

Technology is a solution for the depleting agriculture land and the need to boost production because of rise in consumption. Malaysia Palm

9 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:

www.igi-global.com/chapter/lean-logistics-of-the-transportation-of-fresh-fruit-bunches-ffb-in-the-palm-oil-industry/184245

Related Content

Design of Compensators for Comb Decimation Filters

Gordana Jovanovic Dolecek (2018). *Encyclopedia of Information Science and Technology, Fourth Edition* (pp. 6043-6056).

www.irma-international.org/chapter/design-of-compensators-for-comb-decimation-filters/184304

Estimation and Convergence Analysis of Traffic Structure Efficiency Based on an Undesirable Epsilon-Based Measure Model

Xudong Cao, Chenchen Chen, Lejia Zhang and Li Pan (2024). *International Journal of Information Technologies and Systems Approach* (pp. 1-25).

www.irma-international.org/article/estimation-and-convergence-analysis-of-traffic-structure-efficiency-based-on-an-undesirable-epsilon-based-measure-model/332798

Financial Data Collection Based on Big Data Intelligent Processing

Fan Zhang, Ye Ding and Yuhao Liao (2023). *International Journal of Information Technologies and Systems Approach* (pp. 1-13).

www.irma-international.org/article/financial-data-collection-based-on-big-data-intelligent-processing/320514

Hofstede's Dimensions of National Culture in IS Research

Dianne P. Ford, Catherine E. Connelly and Darren B. Meister (2009). *Handbook of Research on Contemporary Theoretical Models in Information Systems* (pp. 455-481).

www.irma-international.org/chapter/hofstede-dimensions-national-culture-research/35846

Exceptions in Ontologies: A Theoretical Model for Deducing Properties from Topological Axioms

Christophe Jouis, Julien Bourdaillet, Bassel Habib and Jean-Gabriel Ganascia (2010). *Ontology Theory, Management and Design: Advanced Tools and Models* (pp. 78-97).

www.irma-international.org/chapter/exceptions-ontologies-theoretical-model-deducing/42885