

Challenges in Sustainable Supply Chain Management of Live Animal Trading: A Case Study of Live Animal Industry in Malaysia

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Abstract— There are various challenges of the live animal industry, not just in Malaysia but also to many parts of the world. This study focuses on the supply chain management of live animal trading in Malaysia. This study aims to investigate the challenges specifically in supply chain management areas in the live animal trading. A total of 20 semi-structured interviews have been carried out with a few companies involved in the industry and a few officers from the Malaysian Quarantine and Inspection Services (MAQIS). The premises of the companies also have been observed a day earlier before the interview. The data gathered from the observation as well as from the interview and literature review were analysed using TOWS analysis. The findings show that the industry is facing multiple challenges based on their strengths and weaknesses as well as the opportunities that being offered and the threats that they faced, which are vital for their business continuity. This study also highlights the essential problems to focus on and formulate strategies to achieve competitive advantages and sustainable supply chain management, especially to the practitioners in the live animal trading industry.

Keywords— Live Animal Trading, TOWS Analysis, Supply Chain Management (SCM), Sustainable Supply Chain Management (SSCM), Malaysia.

1. Introduction

Live animal trade is one of the oldest industries in the world. From the beginning of human history, they have been exploiting the vast resources around their habitat to accommodate their essential needs. Throughout human history, they have been using the resources around them to build their civilisation. Animals had been caught from wild later domesticated and reared for their consumption and the later the development of trade due to the specialisation of economic activity had led to the trading of animals locally and later internationally. Live animal trade, which started for human consumption, had been evolving throughout the history of humankind for many purposes. Live

animal trade had been aggressively progressed and commercialised for breeding, collections, sports, work-related, transportations, game, hobby and medicine. This business section is very closely associated with human civilisation, and it has developed on par with human needs from time to time.

The live animal trade industry is a valuable industry in Malaysia that is worth over RM15 billion each year and become the backbone of livelihood of many people in Malaysia. The live animal industry consists of livestock, poultry, fishery, pet animals and wildlife. Malaysia places utmost greater importance in animal welfare practices. The Malaysian government will never condone any act of cruelty towards animals by individuals or businesses. Definitely will not sell out any shortcomings in animal welfare as we are moving towards a more pragmatic civic-minded society. Our ongoing engagement in the live animal industry will provide an opportunity to influence animal welfare rules and regulations in importing and exporting companies and countries around the world. Malaysia is one of the countries that had specified the importance of animal welfare practices in live animals trading, whether it involves exports or imports. Malaysia continuous engagement of various players in this industry undoubtedly creates a contingency to influence animal welfare conditions worldwide, especially in supply chain management concerns related to the industry.

The sound supply chain management is essential to ensure it is economical, relatively inexpensive, availability of trained workforce and strict rules amended across the continents and between neighbouring countries. Given this, the mortality rates of animals involved in live animal trade, especially during the transportation are rising rapidly despite various regulations and rules

amended by the ruling government and related agency in ensuring the safety and welfare as a foremost top priority among players in the industry. There is a need to keep the animals involved healthier and safer, which in turn could increase the profitability and expand the overall industry to a more viable economics powerhouse in the future.

Supply chain management is very crucial because most of the issue raised by the civil societies on the banning of live animal trades are due to malpractices in supply chain management which lead to high mortality rate among the animals mobilised in the trade. The live animal trade industry tends to have a low awareness of the long-term benefits of sustainable supply chain management practices, while the tendering process often gives little attention to safety, resulting in cost and corner cutting. In order to save cost, the importance of efficient and effective supply chain management in the industry is constantly overlooked. This research focused on the significant contributors to obstacles to sustaining the supply chain management of live animals, which could face huge loss and civil and legal pressure. Today, with increasing globalisation, greater environmental and social awareness, and more efficient communication, the concept of companies' responsibilities beyond the purely legal or profit-related has gained new impetus. In this respect, safety and welfare is an essential dimension of the live animal industry, and companies recognise that they cannot be good externally while having a poor social performance internally.

Providing a safe and sustainable SCM is one of the most effective strategies for holding down the cost of doing live animal trading business. However, the objective to reduce often contradict the needs to ensure sustainable supply chain management. Accidents frequencies and high mortality rate create a great impact to live animal trading industry. Not only do they cause delays in operations but also, directly and indirectly, incur the cost and lost. Therefore, it is mandatory for all live animal trading companies to provide a sustainable supply chain management whereby the life of the consignment and the workers are well protected from any hazardous condition. Understanding the conceptual approach and challenges of the uniqueness of the SCM system in the industry will help us to understand the application of a better management system in Malaysia and legislation needs to follow by industry.

2. Literature Review

2.1 Overview of Supply Chain Management

According to Lee and Billington [1], supply chain management (SCM) is defined as a process of incorporating the integration of various activities in the value chain process such as acquiring materials, the process of product transformation from raw material to finished goods and activities related to the distribution of end product to customers. Supply chain activities is critical for ensuring long term success and sustainability of the business [2]. In order to achieve sustainable competitive advantage and to optimise customers value; thus, active management of supply chain activities is regulated under supply chain management. For a successful supply chain management, it requires relentless effort by the organisation to develop and run its overall supply chain activities in the most effective and efficient ways as potential. The resource-based theory highlights that the ownership of key assets gives an organisation a brilliant chance to create upper hands over its opponents. These upper hands thus can help the organisation enjoy competitive advantages. The resource-based theory identifies that the organisation consists of various sets of resources. The resources should be valuable and distinct to achieve a continuous competitive advantage [3]. Supply chain management involves all the activities such as product augmentation, sourcing, manufacturing, transportation and delivery, in addition to coordination of activities through available information and the system to process the information.

2.2 Sustainable Supply Chain and Risk Management

Sustainability in the field of Supply Chain Management was introduced by Carter and Rogers [4] and Carter and Liane Easton [5]. They had provided a framework for a sustainable supply chain management (SSCM) which are very much established on the concepts of resource dependence theory, population ecology, transaction cost economics and the resource-based view of the firm. SSCM is defined as an imperative, non-partisan integration and fulfilment of its crucial goals which includes social, environmental and economics related synchronisation of essential inter-organizational business functions which is detrimental in long term economic pursuance of an organisation and its supply chain.

With great emphasis on the context of the framework, the effective management of supply chain risk is more associated with the firm's

capability to perceive and possibly administrate environmental, social and economic risk. Undoubtedly, supply chain risk management can be encountered by developing a thorough exigency planning and structuring a more dynamic and vigorous supply chain [6]. Andersen [7] raised concerns about business strategies that must ensure that any of environmental policies should be adjusted to align in tandem with the needs of profit orientation goals of a company.

2.3 Live Animal Trading

Live animal trade refers to the commerce of animals both domesticated and non-domesticated which may be extracted from their natural environment or raised in the breeding farms for food, for the pet industry, zoological purpose, clinical research purposes and security needs. It can involve the trade of protected and non-protected animals within a country or inter-country through export, import and re-export. Live animal import and export is the commercial transport of live farm animals across national borders which involves stringent requirements and special needs compared to other form goods. Live animals including calves, cattle, sheep, pigs, goats, horses, reptiles, birds, fishes, crustaceans and invertebrate are routinely transported by road, rail, sea or air across continents as the trade had evolved thousand-fold in recent times.

Live and wild animals also are traded globally for various commercial and non-commercial reasons. Majority of live animals are imported and exported for food production, pet and aquarium sectors, recreational purposes, and educational, medical and scientific objectives such as lab investigations, biomedical research, game farms, zoos and bird parks and for breeding purposes. Live animal industry includes wildlife trade which records any sales or barter of undomesticated fauna and flora by any people, and it has been the core of ecological importance and continual progress [8, 9].

Malaysia's live animal trading industry is an important and one of the fundamental industries in the country's agricultural development. It provides lucrative employment, supplies the domestic requirements for food, pets, clinical research and security to the population. The development of the industry will ensure the food security, advancement in the biotech industry, pets-based breeding industry, security needs and medical need in the country and reduces dependency on imports. In 2013, the live animal sector accounted for about 12.4% of the total agricultural gross domestic product (GDP) [10]. The live animal trading

industry is one of the components of Malaysia agricultural sector, whereby it is one of the largest contributors in the sector. The population growth in Malaysia together with the rising income per capita among Malaysia had increased the demand for live animals especially those for consumption. The suppliers for this industry come from local and foreign breeders, trappers and brokers. The suppliers can divide into two groups that are live animals' supplier for consumption and live animals' suppliers for breeding or other protocol. The distribution channel for this industry starts from breeder/producer/farm/importer whereby later it will be distributed to wholesaler, cooperatives and in some cases government agencies. Later the products were distributed to retailers, secondary sellers who form large consumers and then it reaches general consumers such as hobbyist, consumers, new breeders and exhibitions.

Various species of live animals, numbering in millions are being mobilised annually between European countries. They are being transferred for various purposes such as butchery, sports-related activities, breeding, and fattening activities. Thus, heterogeneous opportunities created for contagious disease dissemination all over the European Union (EU). Even though most of the animals do not show any visible clinical sign of those diseases and in a healthy state to be transported to their respective destinations [11]. According to Bulitta [12], the agriculture sector in which the live animal industry is a part of it has various complex issues related to supply chain management, safety and hazards. Animals are often subjected to uncoordinated handling during their transit from farms or markets to the abattoirs, which can cause high stress and injuries. Meanwhile, animals are mobilised more or less by using well equipped and regulated vehicles in most of the developed countries.

2.4 Resource-Based View Theory

A resource is viewed as vital in the event that it meets specific criteria - important, non-substitutable, uncommon or particular, and supreme with a specific end goal to add to enhance the execution of the organisation [13, 14]. Value alludes to the degree to which the resources are adjusted to the outer condition to endeavour openings and decrease any threats. Substitutability is the degree to which contenders can make proportional resources. Resource uniqueness alludes to the apparent shortage of the resource with element markets.

The RBV clarifies why a few firms can get advantage and effective execution of performance [14]. The RBV has additionally been utilised to

clarify the effect of SCM practices on firm's performances results. For sure, the thought process behind SCM is to enhance supply chain robustness keeping in mind the end goal to gain added value for firms [15] through improved productivity, adequacy and creating uniqueness [16]. For a firm to be proficient and efficient, it should concentrate on decreases to the aggregate cost of supply chain operations, essential to give an objective level of customers esteem [17].

2.5 Proposition

The live animal trading industry is unique because it does not involve manufacturing or other value-adding process but only breeding rearing process and transportation process from one place to another place domestically or internationally. Furthermore, the raw material for the industry are the live animals itself, and these live animals are later used in other industries to derive usage for other purposes. Nevertheless, the raw materials in the live animal trading industry are live animals, and once the animal is dead, it is no more valuable for this particular industry. So, the important factor that must be given priority in this industry is the welfare and wellbeing of the animals involved in the industry especially in the area of supply chain management to ensure smooth mobilisation of the animals from suppliers to customers. For this reason, the ultimate priority in supply chain management of live animal trading is the wellbeing or welfare of the animals, which will reduce the mortality rate and later it will be translated into profitability. The research will study the challenges that arise, and that could jeopardise the sustainability of supply chain in the industry in Malaysia whereby there is a strong protest from civil society worldwide to ban the industry worldwide due to inhumane and poor handling of animals in operation. Moreover, the root cause of the challenges will be determined and assessed to find a possible solution which can be helpful to the industry to sustain its existence in future.

3. Research Methodology

This study aims to investigate the challenges in the supply chain management of live animals trading. This study uses qualitative research approaches through observation and semi-structured interview involving three selected companies in the live animal trading industry in Malaysia. These companies had been involved in marketing and distributing their product throughout Malaysia and the neighbouring region, which had been very momentous in this field of study. The locations of

the companies are within Malaysia and had been operating at the global level in transporting various types of live animals around the globe.

Before the interview session has been conducted, a visit has been made on the company's farm. The purposes are to observe the practice of the workers and the level of commitment given by the company on the SCM related matters. A total of 20 interviews has been conducted involving upper management, SCM personnel, skilled workers, unskilled workers and the officers from Malaysian Quarantine and Inspection Services (MAQIS). The interview questions covered all aspects of SCM, and the possible recommendation for each problem highlighted. The interview questions were designed with open-ended questions. The questions require to seek relationships between sustainability and SCM or to relate behaviour or ideas to positional characteristics of respondents such as experience and responsibility. The data collected were analysed using a TOWS analysis. The data gathered from the interviews or observation also are then been transcribed and summarised. Document reviews also were utilised to assemble foundation data. The study does check on existing reports to comprehend the history, reasoning, and operation of the program that been assessed.

4. TOWS Analysis of Live Animal Industry

4.1 Strengths and Opportunities (SO) Strategy

This strategy is used to maximise the benefits from the strength and opportunities that arise for the benefits of the live animal industry. This strategy will lead the industry to achieve the best potential out of its advantages. The first SO strategy for the live animal industry will be optimising the potential market. The optimisation of the potential market can be done by using its strength derived from strong network, product diversity and purposes and reasonable pricing.

Since the live animal industry caters for multipurpose usage such as food, sport, pets, medical research, work in the market, there is a huge demand to meet whereby the product is much diversified. The massive demand due to population growth, economic growth, government support and growth of the related sector can be met with a strong network with supplier domestically and globally. So, the industry should make use of its strength at its optimum to achieve greater benefit.

The present market can be optimised through the integration of an information platform among supply chain players within the industry by using the latest

technology or system. Moreover, the experienced staff will enable the industry to expand further and the companies can open new outlets at the international location to secure supply and also to market their product globally. In addition to that, the live animal trading industry should expand its marketing channels by using social media and the latest application which will be very useful in reaching a new market and serves existing customers effectively

4.2 Strengths and Threats (ST) Strategy

ST strategies are used to overcome threats by maximising the strengths. Policies and strategies are planned in such a way to counter arising threats by maximising the strengths. This strategy is called a maxi mini strategy whereby strengths are maximised, and threats minimised. For arising competition, the pricing strategy can be used whereby reasonable pricing can secure demand and gain over competitors. Reasonable pricing also can counter threats from a slow-growing economy whereby it secures more business and can overprice sensitivity among customers. Price fluctuation of the supplier also can be solved by used reasonable pricing strategy whereby the volatility of price can be reduced compared with competitors.

Diversity of product and its usage purposes can reduce any uncertainty in the economy or demand. If the demand for pets' related animals suffers from the uncertainty the industry can concentrate on supplying animals for food which is more stable in demand. This will ward off any uncertainty in demand due to the flexibility of the industry to meet multipurpose functions. Flexible supplier selection will enable the industry to choose the best supplier and to put the supplier on track. This will ensure quality, welfare, reduce related hazard or disease, ethical practices and continuity of supply whereby will ease threats from civil society and the outbreak of disease. Moreover, the flexibility of supplier selection can reduce threats from the exchange rate, high logistical cost and fluctuation of suppliers where the companies can shift the procurement any time to the best available economical supplier at any time.

The live animal industry also can use its strong network and various distribution channels to develop strong supplier-customer relationship whereby loyalty and understanding can be developed among the supply chain participant to ensure smoother operations. Enhanced relationship will create a better understanding of the needs of industry, and they can work toward the same goal. This can lead to control of disease, uncertainty,

simple payment adjustment to control exchange rate volatility and price volatility among the industry players.

4.3 Weaknesses and Opportunity (WO) Strategy

The foremost critical weakness in this industry is the fragility of live animals which could easily die if there are any malpractices and poor condition. To counter this problem, there must be a collaboration between the industry and related sectors such as veterinary department, logistics provider and quarantine department whereby all the parties should be collaborating to establish customise a protocol for each consignment by taking into consideration the specific need of each consignment. Then the protocol should be followed by the industry and their service provider to ensure a smooth supply chain of live animals where any malpractices can be avoided, and the results are less mortality and hazards. By reducing the mortality rate, the industry can reduce the issue arise from the disposal of carcasses.

Further collaboration with the veterinary department can lead systematic disposal of any carcasses in future. There is a substantial bureaucratic problem arise in this industry due to many regulation and control by the various government department. The live animal industry should make use of government support they are getting to find a dynamic solution to ease any stumbling blocks in the form bureaucratic problem. The application system should be standardised and streamlined to serve the industry better and reduce time wasted in bureaucratic stumbling blocks.

Then next course of strategy to overcome the lack of marketing is to increase marketing activity thru industrial network and social media. The live animal industry should make use of its industrial network strength to do more marketing and also use the newly established social media networking as its marketing technique. By doing this, they can reach more audience and able to market the product efficiently. Newmarket segments can be reached thru industrial network and social media marketing easily. With the support from government agencies and the rapid growth of related sectors such as tourism, sports, hotel industry and medical sector, the live animal industry could expand widely.

On the other hand, to overcome limited supply, more and more local breeding operation should be encouraged. With the support of government and growing needs for live animals, Malaysia live animal trading industry should look into breeding

activity which could reduce dependency on foreign imported animals. By setting up breeding centres, this could develop the industry further and lead Malaysia to become a global exporter of live animals. Moreover, the management of the live animal trading company should improve its strategic management method so that it could improve the overall performance of the industry. These company should have written vision, mission and work policy so that it can be a guideline for the entire work process in the industry.

4.4 Weaknesses and Threat (WT) Strategy

This strategy is established to minimise both threats and weaknesses. First of all, the live animal trading industry should seek expert consultancy when it comes to certain critical parts of the operation. They should seek legal expertise in order to be legally compliant and also seek for freight forwarders advice in order to follow recommendation and rules of the International Air Transport Association (IATA) for live animals. By seeking the advice of the experts, the industry can reduce malpractices and standardise their operation procedures. Besides that, the industry also should always collaborate with government agencies regarding any rules and regulation. By doing this, their operation will be legally compliant and further reduce any problems that could lead to bureaucratic red tapes. A good relationship with government agencies can reduce any bureaucratic problem whereby the companies should follow exactly as advised by the government officers for smooth operation. Moreover, by following Veterinary department guidelines, the importation of live animals from countries with high disease risk can be avoided and can save losses to the industry. The threats from civil society also can be thwarted when the industry follows the guidance and regulation as it is whereby any protest by civil society can be negated with government agency references.

Meanwhile, by making use of various marketing channels, the industry can sustain its business for the long term without any problem from a competitor or other economy-related problem will have little impact on the industry. Nevertheless, diversified supplier base can reduce limited supply in the industry whereby they can outsource from various breeders throughout the world. By having a diversified supplier base, and slow growth in the economy can be overcome by shifting procurement

pattern from a developed country to non-developed country. In the case of Malaysia, we can shift procurement from European countries to Asian countries whereby the exchange rate will be in a better position and could improve the economic activity of the country. Whenever impacted by the rising cost of logistic, we can shift our procurement to less expansive suppliers, whereby the rising cost can be neutralised. This will give a dynamic cost-saving strategy to the industry. Reducing dependency on a few suppliers will give negotiating power to Malaysian live animal industry to get the best suppliers with the best rate.

5. Conclusions

The section concludes the qualitative study of the challenges in sustainable supply chain management of live animal trading industry in Malaysia. Although this research was carefully prepared, the researcher still aware of its limitations and shortcomings. First of all, the research was conducted in the three companies which have lasted for three weeks. The duration of the study is not sufficient for the researcher to study the overall operations of the companies involved. The researcher was unable to observe all the operational defaults and optimal performance level in the operation of supply chain management of the respective companies. It would be better if more lengthy time spends to study the overall supply chain operation in the industry in 6 months, which basically will involve different weather condition and different species of animals traded. Secondly, the study of industry based on a small group of companies with only 20 interviews will never do to represent the whole majority of players in the industry. Third, the research is designed to focus only on supply chain management in the industry while there is the abundance of room to explore a different part of the overall industry which is not studied extensively as much as other industries in Malaysia.

In addition, more studies should be conducted to study the industry on how it can be improved further and how this industry can gain from strategic planning. Most of the companies in this industry are lack of strategic planning which will be interesting to study. The result of the study can improve the overall industry in future. The present research had explored the challenges that arise in supply chain management of live animal trading in Malaysia.

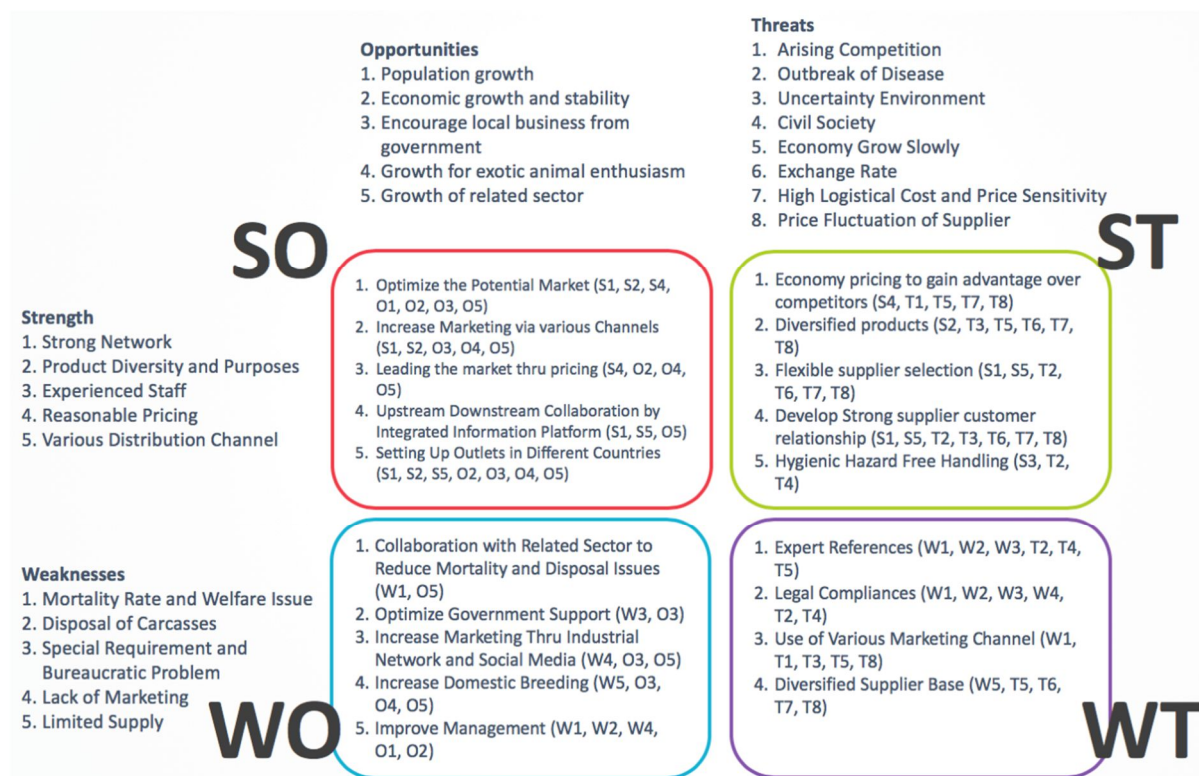


Figure 1. TOWS Matrix of Live Animal Industry in Malaysia

Subsequently, it will be useful for future researcher to analyses how these challenges can be neutralised by effective strategic planning right from the objectives of an organisation, financial planning, human resource management, dynamic process planning, operational improvement and scenario planning to improve further the industry which has high potential to bring massive revenue to Malaysia.

The conclusion of this research is that supply chain management is one the most crucial part of the live animal trading. Most of the challenges that arise in the supply chain management of the live animal trading determine the revenue of the companies involved. This research conducted had highlighted all the challenges that arise in the supply chain management of live animal trading industry in Malaysia. The analysis conducted had presented all the challenges that arise which need to be countered to minimize the mortality rate to ensure profit and sustainability of the industry. Sustainable supply chain management of the live animal trading is very crucial in determining the continuity of the business and the very existence of the industry itself. Thereby the results of this research will undoubtedly help the live animal trading industry to achieve better operational capability and improve overall performances of the industry in Malaysia. Moreover, the industry can compete proactively regionally and globally in future. This study also contributes to the

field on the TOWS matrix of the live animal industry in Malaysia which would be helpful for the people involved in the industry, the researchers as well as to the academia.

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